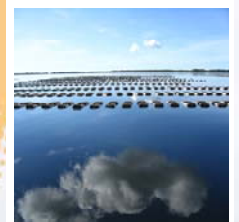
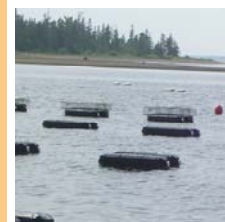
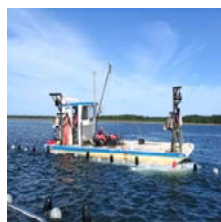




REPLACEMENT CLASS SCREENING

WORKS ON OVER-WINTERING SITES FOR OYSTER AQUACULTURE



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TRANSPORT CANADA
ENVIRONMENTAL AFFAIRS
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LIST OF ACRONYMS

ACCDC	Atlantic Canada Conservation Data Center	TC	Transport Canada
BMA	Bay Management Area	the Agency	Canadian Environmental Assessment Agency
BMP	Best Management Practices	the Registry	Canadian Environmental Assessment Registry
CSPR	Class Screening Project Report	VEC	Valued Environmental and Socio-Economic Components
CSSP	Canadian Shellfish Sanitation Program		
CWS	Canadian Wildlife Service		
DAA	New Brunswick Department of Agriculture and Aquaculture		
DFO	Fisheries and Oceans Canada		
EA	Environmental assessment		
EC	Environment Canada		
ECC	Environmental and Socio-Economic Components of Concern		
FA	Federal Authorities		
GPS	Global Positioning System		
MBCA	<i>Migratory Bird Convection Act</i>		
MCSR	Model Class Screening Report		
MCFR	Management of Contaminated Fisheries Regulations		
NBDNR	New Brunswick Department of Natural Resources		
NWPA	<i>Navigable Waters Protection Act</i>		
NWPP	Navigable Waters Protection Program		
PCA	Parks Canada Agency		
RA	Responsible Authority		
RCS	Replacement Class Screening		
RCSR	Replacement Class Screening Report		
SARA	<i>Species at Risk Act</i>		
SQA	Supplier Quality Assurance		

1. INTRODUCTION

Climatic and physical characteristics along the eastern coast of New Brunswick pose challenges for oyster aquaculture during the winter months. Certain locations are too shallow to protect the oyster stock and infrastructure from damage caused by ice. Gear and stock can become crushed under and/or become frozen into the ice and then be carried away with movement of the ice during the spring thaw. Therefore, aquaculturists may need to move their stock to a separate, temporary over-wintering site to house gear and stock during the winter months to prevent heavy losses. Thirty percent of oyster aquaculture applications received by the provincial Department of Agriculture and Aquaculture (DAA) during the last 12 months specifically detail the need for over-wintering sites.

The *Navigable Waters Protection Act* (NWPA) is a Federal statute designed to protect the public right of navigation in the waters of Canada. Any “work” built or placed in any navigable waterway in Canada requires an authorization. Navigable Waters Protection Program (NWPP) of Transport Canada (TC) administers NWPA. For aquaculture sites, applications pursuant to NWPA are routed to TC via the regulatory body in place for the Province where the site is to be installed and maintained. An aquaculture work would include cages for fish, suspended lines for shellfish, floating bags or floating reversible cages, racks for oysters, or other devices used for aquaculture, attached to the bottom, or in the water column.

All NWPA authorizations are based on the plans of the work. Plans

must include the appropriate dimensions and distances. It is incumbent on the owner to keep the work in compliance with the approved plans and conditions at all times. By regulation, aquaculture works are authorized for a given period of time. Because these works require authorization under NWPA, the *Canadian Environmental Assessment Act* (the Act) requires that NWPA authorizations included on the *Law List Regulations* undergo an environmental assessment (EA). Environmental Affairs of TC is responsible for assessing the works under the Act and completing the EA for these works. If all significant environmental impacts identified by the assessment can be successfully mitigated, then TC can proceed with the process for evaluating NWPA authorization. Currently, each application for works placed on an over-wintering oyster site is subject to a separate EA before determining whether the work will be authorized under the NWPA. Works used on over-wintering sites include Vexar® bags, cages and/or tables that can be attached to long lines. Gear and long lines are in turn attached to the bottom, or in the water column (See Section 3.0 for further detail).

TC has evaluated the available options to streamline the EA process for repetitive projects in order to make the planning and decision-making process more effective and efficient. As a result of this evaluation, TC has undertaken this replacement class screening (RCS) approach under the Act for oyster over-wintering sites in eastern New Brunswick. The Act provides for a class screening mechanism through the declaration (Section 19 (1) of the Act) of a *Model Class Screening* report (MCSR) or *Replacement Class Screening*

report (RCSR).

A MCSR serves as a model when conducting an EA of a specified group of similar projects. It includes a Class Screening Project Report (CSPR) that provides additional, project-specific information to add to that provided in the MCSR. The Responsible Authority (RA) then decides whether the project will have adverse environmental effects following the application of mitigation measures and design standards. The RCSR differs from the MCSR in that it consists of a single report that defines the class of projects and describes the associated environmental effects, design standards, and mitigation measures for projects assessed within the RCSR. It includes a conclusion of the significance of the environmental effects of all projects assessed by the RCSR. No project-specific information or further EA is required for projects in the class, provided that the design standards and mitigation measures described in the RCSR are implemented. The document must be published in the Canada Gazette.

TC initiated the preparation of this RCS in order to establish a consistent and streamlined EA procedure for works used on over-wintering oyster sites in eastern New Brunswick. As an RA under the Act, TC will be responsible for all reporting and coordination requirements under the Act and this RCSR.

Fisheries and Oceans Canada (DFO) is an expert Federal Authority (FA) for these projects. DFO has formalized a commitment with TC to use the process outlined in this RCSR to fulfill the assessment requirements under its mandate. DFO will therefore provide

assistance to TC, the RA, in ensuring the implementation and monitoring of mitigation measures as per Section 20(2.1) of the Act for the works identified in this RCSR.

EC is also an expert FA and offered expertise pertinent to preparation of the RCSR (e.g., limits to the project class, identifying best practices). The role of EC in assisting with RCSR implementation (i.e. communicating best practices important to compliance with environmental protection legislation, annual verification of cumulative effects) will be negotiated and a protocol developed.

If another FA determines they have a responsibility to complete an EA of a project that falls within this class, TC and DFO request this FA to notify them to ensure coordination of mitigation measures. As well, the FA and TC will discuss options for fulfilling reporting requirements.

The candidate class for this RCSR are the works used on over-wintering sites located within the Environmental Setting Areas listed in Appendix A. These works require authorization from TC under NWPA. A provincial permit or permit amendment under the provincial *Aquaculture Act* is also required. It is important to note that the declaration of the RCSR by the Agency streamlines the assessment process but does not eliminate other regulatory requirements such as the public notifications processes required under NWPA and the provincial *Aquaculture Act* (i.e., public notifications will continue on a case-by-case basis). As well, the declaration of the RCSR by the Agency has no bearing on the proponent's responsibility to meet the

relevant federal and provincial legislation and municipal by-laws related to the project. Upon declaration, the RCSR is in effect for three (3) years.

Mitigation measures defined under the RCSR are provided to the proponent through a one-window approach managed through the provincial aquaculture authority for NB. Following approval of an NWPP application, NWPP sends a cover letter along with an authorization under NWPA and the mitigation measures to DAA. DAA then provides all federal and provincial documents to the proponent for review and implementation. Best Management Practices (BMPs) are also relayed in this manner.

Aquaculture industry obligations to implement the mitigation measures and consider BMPs, in the RCSR will be further communicated and reinforced through presentations by TC, and relevant FAs, in various forums, including local aquaculture meetings.

1.1. CLASS SCREENING AND THE *CANADIAN ENVIRONMENTAL ASSESSMENT ACT (CEAA)*

The Act and its regulations set out the legislative basis for federal EA. The legislation ensures that the environmental effects of projects involving the federal government are carefully considered early in project planning. The Act applies to projects that require a FA to make a decision or take an action, whether as proponent, land administrator, source of funding or a regulator (issuing a permit or license). The FA then becomes a RA and is required to ensure that

an EA of the project is carried out prior to making its decision or taking an action that would facilitate the project to proceed.

Most projects are assessed under a screening type of assessment. A screening systematically documents the anticipated environmental effects of a proposed project, and determines the need to modify the project plan or recommend further mitigation to eliminate or minimize the significance of these effects. Screenings are conducted for projects that have not been excluded under section 7 of the Act (i.e., are not on the *Exclusion List Regulations*) or are not on the *Comprehensive Study List Regulations* and have not been identified as requiring mediation or an assessment by a review panel.

As noted in Section 1.0, the screening of some routine projects may be streamlined through the use of a class screening report. This kind of report presents the accumulated knowledge of the environmental effects of a given type of project and identifies measures that are known to reduce or eliminate the likely potential for significant adverse environmental effects. The Agency may declare such a report appropriate for use as a class screening after taking into account comments received during a period of public consultation.

Specifically, a RCS consists of a single report that defines a class of projects and describes the associated environmental effects, design standards, and mitigation measures for projects assessed within the report. It includes a conclusion of significance of environmental effects of all projects assessed by the RCS. Once the Agency declares a RCSR, no further EA is required for projects within

the class.

1.2. RATIONALE FOR REPLACEMENT CLASS SCREENING (RCS)

According to the Agency, any proposed RCS must demonstrate that the projects covered meet several criteria. The applicability of class screenings to works used on over-wintering sites for oyster aquaculture is determined by an evaluation of the following six criteria as defined by the Agency:

1. *Well-defined Class of Projects:* Works used on over-wintering sites have similar characteristics regarding design, installation, operation/maintenance, and decommissioning. The purpose of these sites is to secure the oyster stock beneath the ice in order to protect the stock/site infrastructure from the winter climate conditions.
2. *Well-understood Environmental Setting:* Numerous EAs have been completed in recent years for the various culture methods (i.e., floating, subsurface, off-bottom, bottom, and over-wintering) and in most of the Environmental Setting Areas listed in Appendix A. Information on each Environmental Setting Area was also easily available (i.e., location, water depth, seabed type, commercial uses, species at risk) and is detailed in Appendix B.
3. *Unlikely to Cause Significant Adverse Environmental Effects, Taking into Account Mitigation Measures:* Stock and infrastructure are transferred from the grow-out site to the

over-wintering site and submerged below the water surface. Minimal waste is generated on site given that the stock is dormant (i.e., not feeding) during the over-wintering period. Routine operational/maintenance activities are not required while the stock and infrastructure are submerged with the exception of occasional harvesting of oysters. Harvesting mollusc bivalves, such as oysters, are conducted in accordance with the criteria established in the Canadian Shellfish Sanitation Program (CSSP).

4. *No Project-Specific Follow-up Measures Required:* In the case of oyster over-wintering sites, project-specific follow-up programs are not typically required nor conducted because the stock is dormant, routine operational/maintenance activities are not required, with the exception of occasional harvesting, and the occupation of the site is relatively short (i.e., October 1 to May 1).
5. *Effective and Efficient Planning and Decision-making Process:* Most oyster over-wintering sites involve activities that are straightforward and routine in nature, so planning is simple. A working group was created with one representative from each government department (TC, DFO, DAA, EC, and the Agency), and the consultant to facilitate the development of this RCSR. This class of projects was already viewed as unlikely to have a significant adverse impact to the environment.

Public Concerns Unlikely: There have been few public complaints

in relation to these activities thus far.

1.3. CONSULTATION

During the development of this RCSR, TC consulted with DFO, DAA, EC, Canadian Food Inspection Agency, Indian and Northern Affairs Canada, Atlantic Canada Opportunities Agency, and the Agency. The draft RCSR was reviewed and discussed by these departments prior to submission of the final draft to the Agency. Comments received during the entire process were considered and incorporated into the final draft report.

The Union of New Brunswick Indians, North Shore District Council, Saint John River Valley Tribal Council and MAWIW Council Incorporated representing fifteen First Nations were contacted by way of a letter explaining the RCSR project. Each Council was also contacted by telephone to ensure that the letter was received for their review. The draft document was made available for review and comments were considered and incorporated into the final draft report.

Following submission of the final draft, the Agency conducted a 30-day public consultation on the RCSR. All comments received were taken into consideration and incorporated into the final RCSR prior to its declaration by the Agency.

1.4 CANADIAN ENVIRONMENTAL ASSESSMENT REGISTRY (THE REGISTRY)

The purpose of the Registry is to facilitate public access to

records relating to EAs and to provide notice of assessments in a timely manner. The Registry consists of two components - an Internet site and a project file.

The Internet site is administered by the Agency. The RA and the Agency are required to post specific records to the Internet site in relation to a class screening report.

Upon declaration of the class screening report, the Agency requires RA's to post on the Internet site of the Registry, every three months, a statement of projects for which a RCSR was used. The statement should be in the form of a list of projects, and will include:

- the title of each project for which the RCSR was used;
- the contact information (name or number);
- the location of each project; and
- the date when it was determined that the project falls within the category of projects covered by the report.

Note: The schedule for posting a statement is:

- July 15 (for projects assessed from April 1 to June 30);
- October 15 (for projects assessed from July 1 to September 30);
- January 15 (for projects assessed from October 1 to December 31); and

- April 15 (for projects assessed from January 1 to March 31).

The RA must also provide annual confirmation of cumulative effects assessment conditions to ensure no new projects cause any significant adverse environmental effects.

The project file component is a file maintained by the RA during an EA. The project file must include a copy of the RCSR. The RA must maintain the file, ensure convenient public access, and respond to information requests in a timely manner.

Further information regarding the Registry can be found in the document entitled "*The Canadian Environmental Assessment Registry*", prepared by the Agency.

2. PROJECTS SUBJECT TO CLASS SCREENING

The candidate class for this RCSR is defined as the works used to over-winter oysters. These works include Vexar® bags, cages and/or tables that can be attached to long lines, or works that resemble such infrastructure. Gear and long lines are in turn attached to the bottom, or in the water column. These works are located within the Environmental Setting Areas listed in Appendix A and described in Appendix B.

2.1. PROJECTS SUBJECT TO THE ACT

To require an EA under the Act, a project must:

- 1) be an undertaking in relation to a physical work or a physical activity captured in the *Inclusion List Regulation* of the Act; and
- 2) under section 5 of the Act, have TC with one or more of the following responsibilities:
 - a. is the proponent of a project;
 - b. grants money or other financial assistance to a project;
 - c. grants an interest in land to enable a project to be carried out; or
 - d. exercises a regulatory duty in relation to a project, such as issuing a permit, license, or authorization that is covered under the *Law List Regulations*.

Prior to the installation, operation/maintenance, and decommissioning/abandonment of an over-wintering oyster aquaculture site, such a project requires an EA under the Act. TC is required to complete an EA before it can exercise any power, duty or function in relation to the works found on an over-wintering oyster aquaculture site under section 5 of the Act.

Projects are exempt from EA if they meet all the criteria set out in the *Exclusion List Regulations*. If all components of the project are described on the *Exclusion List Regulations*, the project is exempted from an EA under the Act. If any component of the project is not described on the *Exclusion List Regulations*, an EA of the project, including all components, is required under the Act. EA practitioners should review the most current version of the *Exclusion List Regulations* prior to initiating an EA.

2.2. PROJECTS SUBJECT TO REPLACEMENT CLASS SCREENING REPORT

Projects subject to the RCSR include works used to over-winter oysters within the Environmental Setting Areas listed in Appendix A and described in Appendix B. These works include Vexar® bags, cages and/or tables that can be attached to long lines, or works that resemble such infrastructure. Gear and long lines are in turn attached to the bottom, or in the water column.

2.3. PROJECTS NOT SUBJECT TO THE REPLACEMENT CLASS SCREENING REPORT

Projects not subject to the RCSR, and therefore requiring an individual EA, include those which:

- are not located in Environmental Setting Areas listed in Appendix A;
- while located in Environmental Setting Areas listed in Appendix A, will be installed anytime from May 1st to August 31st and/or during the month of October;
- are located within 300 meters of a municipal wastewater treatment plant outfall, an industrial effluent outfall, or a municipal wastewater collection system overflow;
- are located in a closed or prohibited zone as defined in the Canadian Shellfish Sanitation Program (CSSP) under a prohibition order as specified by the *Management of Contaminated Fisheries Regulations* (MCFR);
- are located in a conditionally approved zone as defined in the CSSP under a prohibition order as specified by the MCFR if a license has not been (or will not be) issued in accordance with Section 3 (2) of the MCFR;
- include the culture of non-native oyster species;
- require a referral to another federal department;
- require an assessment under provincial EA legislation;
- are located in National Wildlife Areas and Bird Migratory Sanctuaries as defined under federal legislation;
- are located within the tidal bounds of Kouchibouguac National Park*;
- are likely to affect a *Species at Risk Act* (SARA) listed wildlife, its residence, or its critical habitat. For the purposes of this document, species at risk include:
 - 1) Listed Wildlife means species identified on the List of Wildlife Species at Risk set out in Schedule 1 of SARA, and including the critical habitat or the residences of individuals of that species, as those terms are defined in subsection 2(1) of SARA.
 - 2) Species that have been recognized as "at risk" by the Committee on the Status of Endangered Wildlife in Canada or by provincial or territorial authorities.

*Definition of Kouchibouguac National Park of Canada as per the *Canada National Parks Act*:

Kouchibouguac National Park of Canada, in the Province of New Brunswick; in the County of Kent; all those parcels described under Firstly and Secondly as follows:

- Firstly: All that parcel according to a plan recorded in the Canada Lands Surveys Records at Ottawa as 61463;

said parcel containing about 23 882 hectares.

- Secondly: All that parcel designated as "Remainder of 73" on a plan recorded in the Canada Lands Surveys Records at Ottawa as 59734, a copy of which is filed in the Registry Office at Richibucto as 2724A; said parcel containing about 40.9 hectares.
- Said parcels containing together about 23 922.9 hectares.

TC will develop a **Statement of Operations** for the RCSR. The Statement of Operations will outline procedures for pre-screening NWPA applications in order to determine whether or not the RCSR is applicable for the proposed project. If the pre-screening identifies that the proposed project does not support all of the above-mentioned criteria, an individual screening for the project will be conducted under the Act. At the discretion of the RA, other criteria (i.e. Bay Management Frameworks that identify sites for oyster aquaculture development) may be used as a reference tool during pre-screening.

3. PROJECT CLASS DESCRIPTION

Oysters are typically cultured in coastal waters that have a depth of less than 1-2 meters (m) using suspension, bottom or off-bottom culture techniques. These waters provide the best growing conditions because they contain a high level of food and favorable water temperatures that promote oyster feeding. The growth period for oysters is May to October, when water temperatures are above 5°C. Oysters only feed at and above this temperature. Oyster culture needs no supplement of food and no treatment with pharmaceuticals or chemicals to sustain production.

Typically, oyster stock and the associated culture gear are moved to the deepest portion of a grow-out site and secured to the bottom during winter months. However, not all sites, which are ideal for the growing season, are suitable for over-wintering. Some sites have muddy bottoms, which cause silting of stock and equipment when placed directly on the bottom, ultimately leading to heavy losses. Other sites are located in shallow waters, putting the stock and infrastructure at risk of becoming crushed under ice and/or becoming frozen into the ice and then carried away with movement of the ice during spring thaw. In situations like these, growers must have access to a suitable over-wintering site to maintain the business as a commercially viable enterprise. Ideally, over-wintering sites would be as close as possible to associated grow-out sites to reduce the transfer effort, however, the over-wintering site selection and approval would depend on many environmental factors and

considerations (refer to Section 3.4).

The scope of the projects covered by this RCSR is defined as the works associated with over-wintering of cultured oysters within the Environmental Setting Areas identified in Appendix A and described in Appendix B. A typical description of the projects and associated activities is provided below.

Installation, operation/maintenance, and over-wintering

In the fall, prior to ice cover, the stock and site infrastructure required to house and protect the stock must be shifted to deeper water to protect them from ice and rough seas. Working from a boat, the stock and infrastructure are either shifted to an appropriate depth on the grow-out site for over-wintering, or, are transferred to an approved, temporary, over-wintering site. If this activity involves the transfer of oysters from one bay to another region, an authorization from DFO's Introduction and Transfers Committee may be required. Once at the over-wintering site, the installation of the site infrastructure and stock is done by use of a boat. It is the responsibility of the proponent to ensure that waste produced during stock transfer, installation and operation is managed according to the provincial regulations and municipal by-laws.

Oysters are over-wintered by submersing the growing system and sinking it to the deepest part of the site during the over-wintering season (i.e. October to May). The longline with the associated infrastructure are either placed directly on the bottom or submerged below the surface using weights to counter the buoyancy of the

equipment enough to be below the ice but not touch the seabed. Global positioning coordinates (GPS) of each longline are recorded upon installation to facilitate retrieval of the equipment/stock over the winter months if necessary (i.e., harvesting). The density of oysters in the over-wintering gear during the winter is dependent on the method being used for over-wintering as well as the size of oysters. Once the over-wintering structures are in place, there is no further regular maintenance required. The over-wintering gear be recovered via boat the following spring and oysters will be transferred to approved grow-out sites

Based on market demand, stock may be harvested during the over-wintering period. In such instances, the over-wintering site is typically accessed by all terrain vehicle or snowmobile. The longline locations are identified using the previously recorded GPS coordinates. Once the proper location has been identified, the ice is typically cut with a chain saw and the stock retrieved with the use of manually operated hydraulic equipment. Divers may be required to assist in the retrieval of the stock. Upon retrieval, the stock is placed in insulated containers and transferred to a truck waiting at the shore. The truck transports the stock to the processing plant.

Decommissioning and Abandonment

In the event of abandonment, removal of all equipment and restoration of the site to its original condition are defined pursuant to the provisions of the *Aquaculture Act, New Brunswick Acts, 1988, c. A-9.2*, and of the *New Brunswick Regulation 91 158* under the *Aquaculture Act*.

The proponent is responsible to comply with the relevant federal and provincial legislation, and municipal by-law throughout the life cycle of the project. Section 6.0 (Roles and Responsibilities) outlines the regulatory responsibilities of the proponent with respect to an over-wintering oyster aquaculture site.

3.1. NEED FOR AND PURPOSE OF THE PROJECT

As noted above, typically oyster stock and the culture gear are moved to the deepest portion of the aquaculture site and anchored to the bottom during the over-wintering season. However, not all aquaculture sites, which are ideal for the growing season, are suitable for over-wintering. In such situations, growers must have access to an appropriate over-wintering site to maintain the facility as a commercially viable enterprise.

Because these projects are well defined, the environmental setting is well-understood, the project is unlikely to cause significant adverse environment effects, there are no project-specific follow-up measures for these work, and public concerns are unlikely, the regulatory agencies took this opportunity to streamline the EA process to make the planning and decision-making process more effective and efficient by defining this class of projects and describing the associated environmental effects, design standards, and mitigation measures for projects assessed within the RCSR.

3.2. TYPICAL SEASONAL SCHEDULING AND DURATION OF PROJECTS

Aquaculturists keep oysters in the grow-out site for as long as

possible to maximize the growth period. Operators monitor seasonal conditions such as water temperature and ice cover to decide when to shift the oysters from the grow-out site to the over-wintering site, and then back again. Typically, oysters are moved to the over-wintering site in October, though as late as November if grow-out conditions are still suitable, and then returned to the grow-out site in May, though as early as April, again if conditions are suitable.

There is no ice cover for a maximum period of two months while the stock and infrastructure are being transferred/installed to/from the grow-out site. Once in place, the proposed work is completely submerged under the water surface. Once the ice is set, the site does not pose impacts on other users with respect to navigable waters use during this time of year. The transfer of the required infrastructure and stock from the grow-out site, and its installation at the over-wintering site, usually takes a few days to a week. Under certain circumstances installation could take up to a month (i.e. weather, distance, access resources, size of operations).

It is important to note that based on market demand, portions of the stock are sometimes harvested during the over-wintering period. The frequency and timing of this activity would vary according to market needs and accessibility of the site (i.e., environmental conditions). Furthermore, it is in the best interest of the proponent to maintain the stock at the grow-out location for as long as possible during the grow-out season and to return the stock to the grow-out location as soon as possible following spring thaw. This approach optimizes the growth and viability of the stock, and avoids and/or

minimizes interactions between the project and the environment.

3.3. ENVIRONMENTAL SETTING AREAS

Typically, a suitable over-wintering aquaculture site would be an area greater than 2 m deep, away from sensitive environmental features and located in areas closed to navigation because of freezing that occurs during the winter months. Appendix A presents the selected Environmental Setting Areas for this RCSR. Appendix B presents a description and illustration of each Environmental Setting Area. The descriptions have been adapted in consideration of the information provided in Sections 4.0 (Environmental Review Methods) and 5.0 (Issues Scoping and Valued Environmental Components) and the outcome of the issues scoping analysis.

4. ENVIRONMENTAL REVIEW METHODS

The purpose of this section is to detail the method used to ensure any potential effect of works used on over-wintering sites are addressed in a consistent manner, regardless of the Environmental Setting Area they are located in. To accomplish this, Valued Environmental and Socio-Economic Components (VECs) are identified and selected through an issues scoping approach. Study boundaries for the EA have been defined and established for environmental, socio-economic, and spatial purposes. Interactions between project activities and the VECs are described for the project and the resulting potential environmental effects of the over-wintering oyster sites are outlined. Mitigation measures are applied to reduce the potential of environmental effects associated with project activities and the VECs. An analysis of residual environmental effects and their significance is completed as well. Effects of the environment on the project and potential cumulative effects are also examined.

In addition, the Statement of Operations proposed by TC will always be used to determine whether or not the RCSR can be justified for the proposed project. If issues are identified during the EA process that are not addressed in this RCSR, the project is eliminated from the RCS and an individual screening will be conducted under the Act. While a project may require an individual EA, the contents of this RCSR may be used in the preparation of the individual screening report.

Even with the RCSR, the NWPA process, and the provincial

application process, as defined by the *Aquaculture Act, Acts of New Brunswick*, remain an integral part of the over-wintering site approval and/or authorization. These processes may continue to assess the proximity of the proposed works to various environmental features (i.e., rare and endangered species, environmentally significant areas, archaeological/heritage resources, recreation/tourism). Interactions with these features would be minimized or avoided with mitigation, or by not approving a proponent's application, and significant adverse effects would therefore be unlikely.

4.1. BOUNDARIES

An important aspect of the EA process is the determination of the study boundaries. A boundary is a function of the extent and duration of potential interaction between the proposed undertaking and a VEC. Following the identification of VECs in Section 5.0 (Issues Scoping and Valued Environmental Components), specific details on the boundaries used in the RCSR are provided in Section 5.1 (Analysis of Environmental Effects on Selected VECs).

4.1.1. PROJECT BOUNDARIES

Project boundaries refer to the spatial and temporal extent of project activities and are dictated primarily by the project specifics. Generally, the spatial boundary for the proposed project is defined as the works on the over-wintering site and the temporal boundary is the complete life cycle of the work (installation, operation/maintenance, modification, abandonment, and

decommissioning/deinstallation) for the occupation and use of the site.

4.1.2. ENVIRONMENTAL BOUNDARIES

Environmental boundaries have been considered during issues scoping and the identification of potential environmental effects. Significance ratings have been assigned based on consideration of the range or extent of the VEC that could be affected by the project. The environmental boundary of over-wintering oyster aquaculture sites was considered in context of how the project interacts with that environment.

4.2. ANALYSIS AND PREDICTION OF SIGNIFICANCE OF RESIDUAL ENVIRONMENTAL EFFECTS

Under the Act, the significance of environmental effects must be considered. This section provides criteria for evaluating the significance of potentially adverse environmental effects. Analysis of the significance of residual environmental effects is based on several criteria including magnitude, geographic extent, duration, frequency, and reversibility, and the ecological context of the effect (see Table 1 below) in accordance with the November 1994 Agency Reference Guide, *Determining Whether a Project is Likely to Cause Significant Adverse Environmental Effects*, and the “Responsible Authorities Guide to the Environmental Assessment Act”. The criteria were assessed using past experience and professional judgment and are combined to determine whether or not an activity’s effect is significant. These criteria were used to establish

a definition of a significant adverse residual effect for each VEC.

Table 1: Rating System Used to Determine the Significance of Residual Environmental Effects

Criteria	Importance Level Rating		
	Negligible (1)	Minor (2)	Major (3)
Magnitude (M)	Negligible levels of disturbance and/or damage (i.e. within natural variation)	Minor levels of disturbance and /or damage (i.e. temporarily outside range of natural variation)	Major levels of disturbance and/or damage (i.e. outside range of natural variation)
Geographic Extent (GE)	Limited to footprint of the works for the over-wintering site	Extends beyond the footprint of the works but remains within site boundaries (of the over-wintering site)	Extends beyond the over-wintering site boundaries
Duration of Effect (D)	Less than one season	Less than one year	A year or longer
Frequency of Effect (F)	Occurs on a monthly basis or less frequently	Occurs on a weekly basis	Occurs on a daily basis or more frequently
Reversibility (R)	Effects reversible over short term without active management	Effects reversible over short term with active management	Effects reversible over extended term with active management or effects are irreversible

5. ISSUES SCOPING AND VALUED ENVIRONMENTAL COMPONENT SELECTION

This section describes the process used to identify VECs, which are components of the environment valued by society and upon which the assessment focused. The selection of VECs for this assessment involved issues scoping and pathway analysis.

The first step in the selection of VECs involved issues scoping to identify Environmental and Socio-Economic Components of Concern (ECCs), and was based on concerns expressed by various stakeholders, non-government organizations, scientific community and government departments and agencies; consideration of available literature and reference materials; and previous assessment experience. Refer to Section 1.2 for the public notification processes associated with over-wintering aquaculture site applications and approvals.

The second step in the selection of VECs involved examination of the identified ECCs to assess the pathways (or linkages) by which the proposed project activities may affect each ECC. There is no pathway of concern for a number of the ECCs, therefore, these ECCs are not considered further in the assessment. This process focuses the assessment on those VECs where significant adverse effects may potentially arise as a result of the installation, operation/maintenance, or decommissioning/abandonment of an over-wintering oyster aquaculture site in an Environmental Setting Area listed in Appendix A (described in Appendix B).

Table 2 summarizes the rationale for exclusion/inclusion of ECCs as VECs. Where a clear linkage or pathway between ECCs and project activities can be identified, and potential effects may be a concern, these components become the VECs on which the assessment focuses.

5.1. ANALYSIS OF ENVIRONMENTAL EFFECTS ON SELECTED VECs

The VECs are identified by issues scoping and pathway analysis for which potential effects may be a concern and are identified in Table 2. Those VECs identified require further assessment to determine the significance of potential effects. As noted above, only those VECs identified in Table 2 are considered further in the assessment.

The following sections provide a definition of a significant adverse effect for each of the VECs listed in Table 2. The VEC list has been condensed somewhat so that components which share common responses to activities can be assessed concurrently. Each definition specifies spatial boundaries within which project activities could potentially interact with each VEC. Temporal boundaries include the life cycle of the project (installation, operation/maintenance, and decommissioning).

5.2. MARINE HABITAT (MARINE WATERS AND MARINE SEDIMENTS)

The area within which project activities could potentially interact with marine habitat was considered to be the pelagic (water column)

and demersal (benthic) footprint of the project work. In this context, a significant adverse effect on marine habitat is defined as an effect on water or sediment quality resulting in a net loss of habitat function.

5.2.1. WILDLIFE/MIGRATORY BIRDS

The area within which project activities could potentially interact with wildlife/migratory birds is considered to be the habitat of wildlife/migratory birds identified as occurring within the footprint of the project work. In this context, a significant adverse effect on wildlife/migratory birds is defined as an effect resulting in a sustained suppression of fitness to maintain the population, or a decrease in density of the population below naturally occurring levels.

5.2.2. SPECIES AT RISK

The area within which project activities could potentially interact with species at risk is considered to be the habitat of species at risk identified as occurring within the footprint of the project work. In this context, a significant adverse effect on species at risk is defined as any effect resulting in a sustained suppression of fitness to maintain the population, or a decrease in density of the population below naturally occurring levels. For species designated as endangered (or significant for other reasons), the loss of these species at an individual level may be considered a significant adverse effect.

Please note that under s.79 (1) of the SARA, the RA must notify the competent Minister (or Ministers) if a project is likely to have an effect (beneficial or adverse) on a listed wildlife species or its critical habitat. The notification must be made in writing.

Competent ministers under SARA are:

- the Minister of Fisheries and Oceans with respect to aquatic species, other than individuals mentioned in paragraph (b); and
- the Minister of the Environment with respect to all other individuals, including individuals in or on federal lands that are administered by that Minister and that are national parks, national historic sites, national marine conservation areas, or other protected heritage areas as those expressions are defined in subsection 2(1) of the *Parks Canada Agency Act**.

(*As of December 12, 2003, the Parks Canada Agency (PCA) reports to Parliament through the Minister of the Environment. However, it remains an agency that is separate from EC and continues to exercise the powers, duties and functions relating to the species at risk within the protected areas it manages and federal lands it administers. Where individuals of species at risk are located in protected areas managed by and federal lands administered by the PCA, notifications should be sent to the PCA.)

Depending on the species at risk, the RA must notify EC, PCA or DFO. Where there is more than one competent minister responsible for the species affected, notification must be sent to each

department or agency with responsibility for the species. All three departments/agencies have determined that notification should be regional, through the usual EA channels for that department.

Table 2: Issues Scoping/Pathway Analysis Summary Matrix - Valued Environmental and Socio-Economic Components of Concern

Environmental Resources	Environmental Components of Concern (Biophysical and Socio-Economic)	Pathway of Concern		Possible Pathway	VEC		Project Phase			Rationale for Inclusion/Exclusion as Valued Environmental Component (VEC)
		Yes	No		Yes	No	Installation	Operation	Decommissioning	
Atmospheric Environment	Ambient Air Quality		X	No significant pathway of concern identified.		X				Excluded as a VEC - no significant pathway of concern identified
	Noise		X	No significant pathway of concern identified.		X				Excluded as a VEC - no significant pathway of concern identified
	Climatology		X	No significant pathway of concern identified.		X				Excluded as a VEC - no significant pathway of concern identified
Biophysical Environment	Ground Water		X	Avoided during site selection.		X				Excluded as a VEC - avoided during site selection
	Surface Water		X	Avoided during site selection.		X				Excluded as a VEC - avoided during site selection
	Marine Water	X		Accidental release of hazardous materials.	X		X	X	X	Included as a VEC - concern identified
	Marine Sediments	X		Accidental release of hazardous materials.	X		X	X	X	Included as a VEC - protected by legislation/concern identified
	Aquatic Vegetation/Wetland Resources		X	Avoided during site selection.		X				Excluded as a VEC - avoided during site selection

Environmental Resources	Environmental Components of Concern (Biophysical and Socio-Economic)	Pathway of Concern		Possible Pathway	VEC		Project Phase			Rationale for Inclusion/Exclusion as Valued Environmental Component (VEC)
		Yes	No		Yes	No	Installation	Operation	Decommissioning	
	Wildlife/Migratory Birds	X		Installation, operation/maintenance, and decommissioning activities on site Accidental release of hazardous materials	X		X	X	X	Included as a VEC - protected by legislation/concern identified
	Species at Risk	X		Installation, operation/maintenance, and decommissioning activities on site Accidental release of hazardous materials	X		X	X	X	Included as a VEC - protected by legislation/concern identified
	Fish and Fish Habitat	X		Installation, operation/maintenance, and decommissioning activities on site Accidental release of hazardous materials	X		X	X	X	Included as a VEC - protected by legislation/concern identified
	Designated Areas and Other Sensitive Habitat Features	X		Installation, operation/maintenance, and decommissioning activities on site Accidental release of hazardous materials	X		X	X	X	Included as a VEC - protected by legislation/concern identified
Socio-Economic Setting	Local Economy		X	No significant pathway of concern identified		X				Excluded as a VEC - no significant pathway of concern identified

Environmental Resources	Environmental Components of Concern (Biophysical and Socio-Economic)	Pathway of Concern		Possible Pathway	VEC		Project Phase			Rationale for Inclusion/Exclusion as Valued Environmental Component (VEC)
		Yes	No		Yes	No	Installation	Operation	Decommissioning	
	Commercial Fisheries		X	No significant pathway of concern identified		X				Excluded as a VEC - DAA takes direct socio-economic effects and other factors into consideration during its review process
	Tourism/Recreation		X	No significant pathway of concern identified		X				Excluded as a VEC - DAA takes direct socio-economic effects and other factors into consideration during its review process
	Navigation	X		Installation, operation/maintenance, and decommissioning activities on site	X		X	X	X	Included as a VEC - protected by legislation/concern identified
	Health & Safety		X	No significant pathway of concern identified		X				Excluded as a VEC - no significant pathway of concern identified
	Heritage and Archaeological Resources		X	Installation activities on site		X				Excluded as a VEC - no significant pathway of concern identified

Subsection 79(2) of SARA requires that, where a federal EA is being carried out on a project that may affect a listed wildlife species or its critical habitat:

- potential adverse effects on the listed species must be identified and mitigated;
- the effects on the listed species must be monitored, if the project is implemented; and
- such mitigation measures must be consistent with recovery strategies and action plans.

5.2.3. FISHERIES RESOURCES (FISH AND FISH HABITAT)

The area within which project activities could potentially interact with fisheries resources (fish and fish habitat) was considered to be the pelagic (water column) and demersal (benthic) footprint of the works. In this context, a significant adverse effect on fishery resources is defined as any effect resulting in a sustained suppression of fitness to maintain the population, or a decrease in density of the population below naturally occurring levels.

5.2.4. DESIGNATED OR OTHER SENSITIVE HABITAT FEATURES

The area within which project activities could potentially interact with sensitive habitat features was considered to be the physical footprint of the work. In this context, a significant adverse effect on sensitive habitat features is defined as any effect resulting in a net

loss of sensitive habitat function.

5.2.5. TRANSPORTATION AND NAVIGATION

Any work built or placed in any navigable waterway in Canada requires an authorization under the NWPA. The NWPP of TC administers the NWPA. The area within which project activities could potentially interact with transportation and navigation was considered to be the physical footprint of the proposed work and/or activity. In this context, a significant adverse effect on navigation would not be authorized by NWPP.

5.3. ANALYSIS AND RESIDUAL ENVIRONMENTAL EFFECTS

Based on the above bounded VEC definitions, the following sections of the report describe the potential interaction between each VEC and the project and provide mitigation measures to minimize the likelihood of significant adverse residual effects related to the project. Section 5.2.1 describes those mitigation measures for which implementation can be assured.

TC has determined that it cannot ensure implementation of mitigation measures that are not within TC legislative authority (i.e. *Navigable Waters Protection Act*). However, TC has reached an agreement with DFO to provide assistance in ensuring the implementation and monitoring of mitigation measures as per Section 20(2.1) of the Act for the works identified in the RCSR. A summary of residual effects is presented in Section 5.2.2.

Legislation administered by EC includes general provisions related to protecting the environment that are applicable to a broad range of activities such as those associated with aquaculture (Appendix C). EC has indicated that it may audit or inspect any aquaculture project, including those subject to the RCSR, for compliance with EC-administered legislation. In this regard, EC has contributed to the identification of Best Management Practices (Section 5.4) that should be considered by the proponent in developing an appropriate compliance strategy. Although Best Management Practices (BMPs) are not enforceable by any federal legislation, they constitute an important approach to avoiding and minimizing the potential for environmental impacts of a project. TC does recognize that BMPs constitute an important means for the proponent to minimize impacts and achieve compliance with applicable federal legislative requirements. TC, DFO and EC have identified a number of BMPs for these works.

5.3.1. POTENTIAL ENVIRONMENTAL EFFECTS AND RECOMMENDED MITIGATION

Installation, Operation/Maintenance, and Decommissioning Activities on Site: Placement of infrastructure/stock at over-wintering site location, operation/maintenance activities as required (i.e., harvesting), decommissioning.

Environmental Components: Marine Water, Marine Sediment, Wildlife/Migratory Birds, Fish and Fish Habitat, Species at Risk, Designated and Sensitive Habitat Features, and Transportation and

Navigation.

Description of Effects: These activities could result in environmental impacts as follows:

- degradation of water quality and negative impacts on migratory birds, species at risk, and sensitive coastal habitat as a result of accidental events/spills (i.e., petroleum oil lubricants);
- changes in marine environmental quality as a result of the physical structure;
- contamination of marine environmental quality by operational waste;
- impact on marine mammals due to disturbance (i.e., noise, boat traffic, site access, human presence);
- impact on resident species or migratory birds due to disturbance (i.e., noise, boat traffic, site access, and human presence);
- any likely effect to any species of conservation concern and SARA listed wildlife, its residence, or its critical habitat;
- impact on aquatic animal health (i.e., disease transfer, reduced habitat quality) as a result of operational activities;
- introduction of invasive species into the marine environment;
- disruption or destruction of fish habitat as a result of the installation of the physical

structure; and,

- interference with navigation as a result of the physical structure.

Description of Mitigation: Mitigation measures for the above impacts are:

Transport Canada (TC)

- The proponent will comply with all conditions of the NWPA authorization issued by NWPP for the works.
- The proponent must ensure compliance with all *Canada Shipping Act* requirements for inspection and certification of the vessel and adequate training and appropriate certificate of competency for the operators.

Fisheries and Oceans Canada (DFO)

- The proponent is required to bring all operational waste (i.e., scraps of rope) back to shore and to ensure it is disposed or recycled in accordance with provincial regulations and/or municipal by-laws.
- Except in accordance with the conditions of a permit issued under the *Marine Mammals Regulations*, the proponent cannot fish, attempt to kill or move a marine mammal.
- The proponent is required to avoid disturbing marine mammals and to conduct work in an orderly fashion that generates minimal amounts

of interactions.

- When shellfish are transported and released in another watershed, the provincial *Fisheries Regulations* for NB require that those organisms have no disease or disease agent and that the organisms have no adverse effect on the genetic characteristics or size of fish populations of the receiving watershed. The proponent is therefore required to obtain the necessary License to release or transfer shellfish and/or an Import permit from the NB Introductions and Transfers Committee.
- As appropriate for an over-wintering oyster aquaculture site, the proponent is required to conduct regular health inspections of its stock as per the conditions of the DAA permits and to report any disease outbreak immediately to DFO.
- The proponent is required to properly dispose of dead or moribund oysters on-land rather than discarding them into the surrounding waters.
- The proponent is required to size anchors appropriately, or to install them permanently, to prevent dragging under tension or adverse weather conditions.
- The proponent should be aware that eelgrass (*Zostera marina*) is considered fish habitat. Except in accordance with the conditions of a License issued under Section 44 of the *Fisheries Act* or an authorization to destroy fish habitat

under Section 35 of the *Fisheries Act*, the proponent cannot harvest or knowingly destroy marine plants.

- Access to the intertidal zone by motor vehicles other than boats is prohibited under provincial regulations, unless operating such vehicle on ice or on frozen ground that is completely covered by snow.

Likelihood of Residual Effect

With mitigation measures in place, the likelihood of residual effects occurring is expected to be minimal.

Significance of Residual Effects

No significant adverse residual effects are likely with proper implementation of the identified mitigation measures.

5.3.2. EVALUATION OF RESIDUAL ENVIRONMENTAL EFFECTS

Following the application of mitigation measures, residual environmental effects are not significant based on the criteria used to determine significance described in Section 5.1 above. As shown in Table 3, the majority of criteria are negligible for each project activity and associated VEC. With proper implementation of the mitigative measures identified in Section 5.2, significant adverse residual effects are not likely to occur as a result of the project.

Table 3: Residual Environmental Effects Across all Project Phases for each VEC Following the Application of Mitigation Measures

VEC	Project Phase	Residual Environmental Effect	M	GE	F	R	D	S/NS
Marine Habitat (including Marine Waters and Marine Sediments)	Installation, Operation/Maintenance, and Decommissioning	Potential for minor, localized, degradation of habitat (i.e. water quality)	2	2	1	1	1	NS
Wildlife and Migratory Birds	Installation, Operation/Maintenance, and Decommissioning	Potential for minor, localized, disruption of habitat (i.e., disruption of migration activities)	2	3	1	1	1	NS
Species at Risk	Installation, Operation/Maintenance, and Decommissioning	None	2	2	1	1	1	NS
Fish and Fish Habitat	Installation, Operation/Maintenance, and Decommissioning	Potential for minor, localized, disruption of habitat (i.e., decline in macrofauna)	2	2	2	1	1	NS
Designated Areas and Other Sensitive Habitat Features	Installation, Operation/Maintenance, and Decommissioning	None	2	1	1	1	1	NS
Navigation	Installation, Operation/Maintenance, and Decommissioning	None	1	1	1	1	1	NS

M = Magnitude; GE = Geographic Extent; F = Frequency; R = Reversibility; D = Duration of Effect; and S/NS = Significant/Non-Significant

5.4. BEST MANAGEMENT PRACTICES

The RA and FAs have identified BMPs, which should be implemented by proponents to minimize the risk of adverse environmental effects and to facilitate compliance with applicable legislation (see Appendix C for applicable EC legislation):

The following BMPs could be important to compliance with the *Migratory Birds Convention Act (MBCA)* and SARA:

- Postpone transfer activities as late in the fall as possible to reduce the likelihood of interaction with wildlife potentially staging in the area during the fall migration (i.e. concentrations of migratory birds)
- Existing infrastructure, public access points and navigation routes should be used, wherever possible, as access routes to and from the over-wintering sites.
- Concentrations of seabirds, waterfowl or shorebirds and their habitat should not be approached at any time during transfer activities to and from the grow-out site, when anchoring equipment, accessing wharves or ferrying supplies.
- Vessels and machinery should be well muffled to reduce noise disturbance.
- During all project phases the proponent should ensure that wetlands or sensitive coastal habitats are not accessed by equipment, are not used as project staging areas, and infill material in these habitats.
- Every effort should be taken to ensure that negative impacts to salt marshes and other sensitive coastal wetlands are avoided.
- Ensure litter (including food scraps), waste or mortalities is not left in coastal areas since it can attract and/or artificially enhance populations of avian and mammalian predators of eggs and chicks of birds.
- Clean-up activities should not be undertaken on beaches and offshore islands during sensitive periods for migratory birds and species at risk.
- Should aquaculture equipment wash up on beaches identified as critical habitat during spring or summer, the proponents would be expected to contact the Canadian Wildlife Service (CWS) and New Brunswick Department of Natural Resources (NBDNR) to ensure that Piping Plovers, other species at risk, or beach nesting migratory birds are not disturbed during retrieval of equipment and to ensure compliance with SARA, the MBCA, and the *New Brunswick Endangered Species Act*. CWS and NBDNR may restrict access to some areas of beaches during sensitive periods.
- Scare permits will not be issued for projects subject to RCS.

The following BMPs could be important to compliance with the MBCA, SARA and Section 36 of the *Fisheries Act*:

- Equipment accessing the site should be kept in good repair and operating efficiently to reduce the potential for chronic spills.
- Motors should be re-fuelled with care to prevent drips or spills. Re-fuelling should take place at a location where spill cleanup equipment is readily available. If conducting winter harvesting activities on the ice, fueling or maintenance of equipment should be conducted off the ice, in areas with impermeable surfaces. In an emergency, if equipment must be fueled on the ice, an impermeable surface (i.e., a tarp or absorbent pad) should be used to assist in containing spills.
- Ensure anchors are made of clean and non-toxic material.
- Ensure concrete anchors are pre-cast and pre-cured away from the water to avoid seepage of potentially toxic substances into water.
- An Emergency Contingency Plan and Emergency Preparedness Plan should be in place for the project.
- Facility workers should be trained in the safe and effective use of fuel and chemicals. Spill response kits should be kept in a readily accessible location to facilitate rapid and

effective response.

- During winter harvesting activities, only re-fuel or conduct equipment maintenance off the ice, in areas with impermeable surfaces.
- If equipment must be fueled on the ice under extraordinary circumstances, use an impermeable surface (e.g. a tarp or absorbent pad) to help contain any spills.
- Any spill or leaks, including spills or leaks on the ice, should be promptly contained, cleaned up, and reported to the 24-hour environmental emergencies reporting system (1-800-565-1633) with the following information: location of the spill source; area of impact; dimensions of impact; area characteristics; wildlife in the area; and wind and current direction.
- The proponent is encouraged to install and remove structures, and transfer stock, in benign weather to minimize the potential for accidents and to minimize the suspension of fine sediment particles into the water column.

The following BMPs could be important to compliance with all other federal statutes:

- The proponent is encouraged to maintain and clean the structures, as appropriate for an over-wintering site, through air-drying or other environmentally friendly methods.
- The proponent is encouraged to select its site, to

deploy its structure and to adopt appropriate husbandry practices to minimize the colonization of marine organisms.

- When shellfish are transported and released in another watershed, the provincial *Fisheries Regulations* for N.B require that those organisms have no invasive organisms present. The proponent is therefore required to obtain the necessary License to release or transfer shellfish and/or an Import permit from the N.B. Introductions and Transfers Committee. Where the Introductions and Transfer policies do not apply, the proponent is encouraged to reduce the risks of losses through live transfers of aquatic animals by ensuring responsible movement of living aquatic animals within and across watershed boundaries. To that effect, any equipment that is being transferred from another water body and that has been in the marine environment should be cleaned of any sediments, plants or animals and washed with freshwater and/or sprayed with undiluted vinegar, or treated with hyper saline waters, prior to being mobilized to the project site.
- The proponent is encouraged to maintain a portable lavatory (such as a chemical toilet) which is accessible to staff during operations brought to land where the human waste will be disposed of as outlined by the manufacturer of the portable lavatory and in accordance with

applicable legislation.

- The proponent is encouraged to clean shellfish in the water where they were collected and to move them with a minimum amount of water. The ocean disposal of fish mortalities and offal requires a Disposal at Sea Permit under the *Canadian Environmental Protection Act 1999*.
- The water used for washing the stock should be obtained from an approved growing area, or from other safe sources approved by the CFIA.
- Disposal of fish offal or shellfish waste in the ocean requires a Disposal at Sea Permit under the Canadian Environmental Protection Act (CEPA 1999);
- Harrowing of the seafloor to manage waste accumulation also requires a Disposal at Sea Permit.
- The proponent is encouraged to learn to identify invasive species of concerns and to report any sightings to DFO.
- Employees should be trained in health and safety protocols (e.g. safe work practices, emergency response, municipal by-laws and federal and provincial legislation).
- Using proven technology, the over-wintering site should be engineered to withstand extreme weather conditions (i.e., design the site to work together as a system suitable for the particular

setting).

- Should aquaculture equipment wash-up in National Wildlife Areas or Migratory Bird Sanctuaries, or should beach clean-up activities be planned in these areas, the proponents would be expected to contact CWS to ensure that sensitive wildlife resources are not disturbed and to ensure compliance with the *National Wildlife Area Regulations* and the *Migratory Bird Sanctuary Regulations*. Failure to do so may result in charges under these regulations.
- Should aquaculture equipment wash-up on land within Kouchibouguac National Park, or should beach clean-up activities be planned, no access to the National Park should take place without the permission of Parks Canada.

5.5. ACCIDENTS AND MALFUNCTIONS

Accidents and malfunctions were considered relative to each identified VEC (refer to Section 5.0 and Table 2). With the nature of the projects to be captured under this RCSR, the potential environmental effects resulting from an accident/malfunction include:

- Potential fuel/oil spills and or hydraulic oil spills which could impact marine water/sediment/fish habitat quality/birds.
- Equipment rollover or loss to the marine environment could impact selected VECs.

- Workers could be injured or killed if accidents occur during the installation, operation/maintenance and/or decommissioning phases of the work.

Refer to the mitigation in Section 5.2.1. Project BMPs are also outlined in Section 5.2.2 for the above impacts.

Likelihood of Residual Effect

With mitigation measures in place the likelihood of residual effects occurring is expected to be minimal.

Significance of Residual Effects

No significant adverse residual effects are likely with proper implementation of the identified mitigation measures.

5.6. EFFECTS OF THE ENVIRONMENT ON THE PROJECT

Marine aquaculture sites are subject to the extreme nature of the environment in which they are located. Sites are exposed to water currents generated by forces of wind, tides, and density differences. Sites are also exposed to waves generated by wind and confluences of water currents. Potential environmental effects on the project include:

- Potential pathways and effects of the environment on the project include site damage due to extreme weather; and,
- Stock mortality due to disease/pathogen

transmission from wild to cultured stock.

Refer to the mitigation in Section 5.2.1. Project BMPs are also outlined in Section 5.2.2 for the above impacts.

Likelihood of Residual Effect

With mitigation measures in place the likelihood of residual effects occurring is expected to be minimal.

Significance of Residual Effects

No significant adverse residual effects are likely with proper implementation of the identified mitigation measures.

5.7. CUMULATIVE ENVIRONMENTAL EFFECTS

The Act requires that the assessment of potential environmental effects also consider the potential of cumulative environmental effects. Cumulative environmental effects are defined as “changes to the environment that are caused by an action in combination with other past, present and future human activities” (CEAA, 1999). Cumulative effects can occur when environmental effects take place so frequently in time or so densely in space that the effects of individual impacts cannot be assimilated. For example, an impact considered minor within the framework of a project might become more significant if the analysis of the other activities indicates that the VEC is already affected, or could be affected, in different ways.

Under the Act, the identification of likely future projects takes into consideration projects that are certain (i.e. approved, under

regulatory review, or officially announced to regulatory agencies) and reasonably foreseeable (i.e. identified in a development plan that is approved or under review, or conditional upon approval of a development plan that is under review) (CEAA, 1999). Hypothetical actions (i.e. conjectural or discussed on a conceptual basis) are not considered (CEAA, 1999).

Many of the potential effects associated with over-wintering of oyster stock are short-lived, localized, and reversible. Their capacity to act in cumulative manner is minimal. The oyster stock is essentially dormant for the duration that an over-wintering site would be in use. The operation/maintenance requirements are minimal, and the organic output from the site would be negligible. Furthermore, it is standard for applications for over-wintering sites to be in areas of deep water, oriented away from sensitive areas. Also, these sites are located in areas where other activities (i.e. fishing, pleasure boating) are decreasing because of the onset of freezing of eastern coastal water of NB. For these reasons, significant adverse cumulative environmental effects are not likely to occur.

However, TC must provide annual confirmation to the Agency of cumulative effects assessment for these works. Operating under the Canada-New Brunswick MOU for Aquaculture, the New Brunswick Shellfish Aquaculture Environmental Coordination Committee is implementing an Adaptive Management Process to ensure the sustainable development of the shellfish aquaculture sector. Yearly, the committee reviews the data resulting from field surveys and

research conducted by federal and provincial agencies. This committee tracks the continuously evolving scientific and technical knowledge related to the activities of this sector and recommends changes in shellfish aquaculture management practices. TC will work with this committee as part of its obligations to cumulative effects monitoring.

As an expert FA, EC has also agreed to work with TC and other interested parties in reviewing cumulative environmental effects resulting from multiple projects and activities affecting wildlife values in the Environmental Setting identified for the RCSR (Appendices A and B).

For these reasons, significant adverse cumulative environmental effects can likely be avoided.

5.8. FOLLOW-UP PROGRAMS

In the case of over-wintering sites for oyster aquaculture, project-specific follow-up programs are not required nor conducted.

5.9. ANY OTHER MATTER

Transportation and Navigation

The proponent should be aware that this EA decision is not an authorization under NWPA.

Other permits and approvals

The proponent should note that this EA should not be taken to imply approval of the project in accordance with any other federal or

provincial legislation, or municipal by-laws.

6. ROLES AND RESPONSIBILITIES

6.1. THE RESPONSIBLE AUTHORITY

TC is the sole RA involved in the RCSR. TC will be responsible for determining whether a project fits within the class, for recording the number of assessments conducted under the RCSR, and for updating the Registry as described in Section 1.5. TC will also provide a copy of the mitigation measures identified in the RCSR, along with the NWPA authorization, to the proponent(s) via the one window approach through DAA.

TC will be responsible for reviewing and amending the report as described in Section 7.0. TC will notify DFO and EC whenever this RCSR will be used for ensuring implementation of mitigation measures identified in Section 5.2.1 under their respective mandates.

6.2. THE FEDERAL AUTHORITIES

DFO has formalized a commitment with TC to use the process outlined in this RCSR to fulfill its mandates. DFO will therefore provide assistance to TC, the RA, in ensuring the implementation and monitoring of mitigation measures identified in Section 5.2.1 as per Section 20(2.1) of the Act for the works identified in this RCSR.

EC is also an expert federal authority. In this capacity, the department offered specialist knowledge and information pertinent to RCSR preparation (i.e. project-environment interactions of

concern and BMPs). EC is prepared to help TC communicate BMPs and conduct annual verification of cumulative effects.

Environmental legislation administered and enforced by EC includes general provisions that are applicable to a broad range of activities such as those associated with aquaculture (Appendix C). It is the responsibility of the proponent to comply with this legislation.

EC has indicated that it may audit and/or inspect any aquaculture project, including those subject to the RCSR, for compliance with EC-administered legislation. In this regard, BMPs identified in Section 5.3 should be considered by the proponent as an important means of minimizing impacts and achieving compliance with applicable federal legislative requirements. A finding that aquaculture activities are in contravention of federal environmental legislation may result in the suspension of federal permits in addition to enforcement action.

Should any other federal department be an RA for a project that is covered by this RCSR, they will be approached by TC and invited to provide written notification to TC that they agree to use the process outlined in the RCSR to fulfill the assessment requirements under their mandate. TC will then provide written notification to the Agency and ensure this is documented on the Registry.

6.3. THE PROPONENT

Project proponents are responsible for providing project specific information to DAA, and for ensuring that design standards and mitigation measures described in the RCSR are implemented. Proponents are also responsible for obtaining and operating in

accordance with all relevant licenses, permits, and authorizations and ensuring that the project meets all federal and provincial legislation and municipal by-laws. The proponent is encouraged to support an industry code of practice and to conduct site work using the BMPs detailed in this RCSR.

Growers using suspension methods may require entering into a Supplier Quality Assurance agreement with a federally registered processor. This agreement will describe what control methods the farmer has in place to eliminate or reduce the risk of microbiological contamination from project interactions with birds. Among other requirements, the oysters may have to be submerged for a minimum of 14 days prior to removal to market and bacteriological analysis must be conducted on samples of the oysters by an accredited laboratory. The CFIA typically reviews SQA agreements. The proponent should contact the DFO or the CFIA for more information regarding the SQA requirements.

The over-wintering facility must be decommissioned according to all federal, provincial and municipal regulations and guidelines for this type of facility. All decommissioning activities must be conducted pursuant to the provisions of the *Aquaculture Act, New Brunswick Acts, 1988, c. A-9.2*, and of the *New Brunswick Regulation 91 158* under the *Aquaculture Act*.

7. PROCEDURES FOR AMENDING THE REPLACEMENT CLASS SCREENING REPORT

The purpose of an amending procedure is to allow the modification of the RCSR after experience has been gained with its use and effectiveness. The reasons for such modification may include:

- clarification of ambiguous areas of document and procedures;
- streamlining or modifying the planning process in areas where problems may have arisen;
- extension of the application of the RCSR to RA(s) who were not previously declared users of the report;
- minor modifications and revisions to the scope of assessment to reflect new or changed regulatory requirements, policies or standards; and
- new procedures and/or environmental mitigation that have been developed over time.

The RA will notify the Agency in writing of its interest to amend the RCSR. It will discuss the proposed amendments with the Agency and affected federal government departments and may invite comment from stakeholders and the public on the proposed changes. The RA will then submit the amended RCSR to the Agency along with a statement providing a rationale for the amendment, and request that the Agency amend the RCSR.

The Agency may amend the RCSR without changing the declaration period if the changes:

- are minor;
- represent editorial changes intended to clarify or improve the screening process;
- do not materially alter the scope of the assessment required for these projects; and
- do not reflect new or changed regulatory requirements, policies, or standards.

The Agency may initiate a new declaration for the RCSR for the remaining balance of the original declaration period or for a new declaration period if the changes:

- are considered to be substantial; or
- represent modifications to the scope of the assessment required for these projects.

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9. ACKNOWLEDGEMENTS

We wish to acknowledge the contributions made by the following organizations to this document:

AMEC Earth & Environmental Limited

Canadian Environmental Assessment Agency

Canadian Food Inspection Agency

Fisheries and Oceans Canada

Environment Canada

New Brunswick Department of Agriculture and Aquaculture

Public Works and Government Services Canada

APPENDIX A: STUDY AREA DEFINITION

Note: The process for determining the study area for this RCSR was initiated by DAA who defined 27 Bay Management Areas (BMAs) along the eastern coast of NB, relative to existing CFIA zones. These BMAs capture the NB coastline from the Baie des Chaleurs through to the Nova Scotia border. For efficiency of the RCSR development, several of the BMAs were blended based on similar ecological characteristics. These larger areas were called Environmental Setting Areas and each has been characterized in support of this RCSR. Appendix A presents Table A.1 and Figure A.1, which show the DAA BMAs, the associated CFIA zones and the defined Environmental Setting Areas for this RCSR.

The defined RCSR study area captures the eastern expanse of NB coastline from the shoreline to approximately 5-10km offshore (varies along the coast). The rationale for definition of this study area was to help ensure that the RCSR considered the full potential of north/eastern NB coastline that can reasonably be expected to sustain over-wintering oyster aquaculture.

Table A-1: RCSR Study Area

Bay Management Areas (BMAs)	BMA Associated Water Bodies	CFIA Zones	RCSR Environmental Setting Areas* (Characterized in Appendix B)
1. MATAPEDIA/TIDE HEAD From: Matapedia To: Bridge crossing - Campbellton to Pointe-à-la-croix (Que.)	<ul style="list-style-type: none"> Rivière Restigouche River 	1A	1A Coastal
2. CAMPBELLTON/DALHOUSIE From: Bridge crossing - Campbellton to Pointe-à-la-croix (Que.) To: Delimitation line crossing from Inch Arran Point to Pointe Miguasha (Que.)	<ul style="list-style-type: none"> Rivière Restigouche River 	1B	
3. EEL RIVER/CHARLO From: Delimitation line crossing from Inch Arran Pointe to Pointe Miguasha (Que.) To: Hamilton Point	<ul style="list-style-type: none"> Eel Bay Eel River Gully Eel River Cove Chaleur Bay (area extending 2 km from shore) 	1C and 1D	1B Coastal
4. HERON ISLAND From: Delimitation line extending from Hamilton Point to coordinate point 706800E 5322880N (UTM NAD27, Zone 19) To: Delimitation line extending from Black Point to coordinate point 717300E 5319400N (UTM NAD27, Zone 19)	<ul style="list-style-type: none"> Shoal Bay Heron Channel Canning Cove McKinnon Cove Dickie Cove Portion of Chaleur Bay 	1E and 1F	
5. JACQUET RIVER From: Black Point To: Lower Belledune Point	<ul style="list-style-type: none"> Chaleur Bay, area extending 2 km from shore 	1G and 1H	
6. BELLEDUNE From: Lower Belledune Point To: Limestone Point near Deveraux	<ul style="list-style-type: none"> Chaleur Bay, area extending 2 km from shore 	2A and 2B	
7. NEPISIGUIT BAY From: Limestone Point near Deveraux To: Grindstone Point in Stone Haven	<ul style="list-style-type: none"> Portion of Chaleur Bay Nepisiguit Bay Bathurst Harbour Ronalds Cove 	2C, 2D, 2E, 2F, 2G	2 Offshore - see Note 1 below.
8. POKESHAW/ GRANDE ANSE/ MAISONNETTE From: Grindstone Pointe in Stone Haven To: Pointe de Maisonnette	<ul style="list-style-type: none"> Chaleur Bay, area extending 2 km form shore Grande Anse Anse Bleue 	2H, 2I, 2J	
9. OFFSHORE WATERS OF BAIE DES CHALEURS FROM DALHOUSIE TO MISCOU*	<ul style="list-style-type: none"> Chaleur Bay 	1Z, 2Z, portion of 3Z	

Table A-1: RCSR Study Area

Bay Management Areas (BMAs)	BMA Associated Water Bodies	CFIA Zones	RCSR Environmental Setting Areas* (Characterized in Appendix B)
10. CARAQUET	<ul style="list-style-type: none"> • Caraquet Bay • Rivière du Nord • Rivière Caraquet • Caraquet Harbour • Caraquet Channel • Chaleur Bay, area extending 2 km from shore 	3A, 3B, 3C	3 Coastal
11. SAINT-SIMON/ SHIPPAGAN/ LAMÈQUE Tidal waters between delimitation line crossing from Pointe de Pokesudie on Pokesudie Island to Pointe de Petite-Lamèque and mouth of Shippagan Gully	<ul style="list-style-type: none"> • Chaleur Bay, area extending 2 km from shore • Rivière St-Simon River • North St-Simon Bay • South St-Simon Bay • St-Simon Inlet • Petite-Passe de Pokesudie • Baie Brûlée Bay • Shippagan Bay • Ruisseau Bar • Petite-Lamèque Bay • Lameque Bay • Shippagan Harbour • Caribou Bay 	3D, 3E, 3F, 3G, 3H, 3I	
12. LAMEQUE AND MISCOU ISLANDS Tidal waters on/around Lamèque and Miscou Island from Pointe de Petite-Lamèque to mouth of Shippagan Gully	<ul style="list-style-type: none"> • Chaleur Bay, area extending 2 km from shore • Barchois de Pointe-Canot • Grande Batture • Miscou Channel • Miscou Harbour • Campbells River • MacGregors Mal Bay • Windsors Mal Bay 	3J, 3K, 3L, 3M	
13. LEGOULET/INKERMAN From: Mouth of Shippagan Gully To: Green Point in Four Roads	<ul style="list-style-type: none"> • Gulf of St Lawrence, area extending 2 km from shore • Baie de Petit-Pokemouche • Barchois à Colas • Pokemouche River (Lac Inkerman) • Baie de Pokemouche • Grande Anse/Cove 	3N, 3O	5 Coastal

Table A-1: RCSR Study Area

Bay Management Areas (BMAs)	BMA Associated Water Bodies	CFIA Zones	RCSR Environmental Setting Areas* (Characterized in Appendix B)
14. TRACADIE From: Green Point in Four Roads To: Pointe à Barreaux in Rivière-du-Portage	<ul style="list-style-type: none"> • Gulf of St Lawrence, area extending 2 km from shore • Baie de Tracadie • Ruisseau Sureau Blanc • Big Tracadie River • Big Tracadie River/The Lake • Ruisseau à Georges 	3P, 3Q	5 Coastal (cont'd)
15. TABUSINTAC From: Pointe à Barreaux in Rivière-du-Portage To: Old Seal Gully	<ul style="list-style-type: none"> • Gulf of St Lawrence, area extending 2 km form shore • Tabusintac River • Tabusintac Bay • French Cove 	4A	
16. OFFSHORE WATERS OF GULF OF ST LAWRENCE FROM MISCOU TO POINT ESCUMINAC*	<ul style="list-style-type: none"> • Gulf of St Lawrence 	Portion of 3Z, 4Z	4 Offshore - see Note 1 below.
17. MIRAMICHI From: Old Seal Gully To: Point Escuminac	<ul style="list-style-type: none"> • Neguac Bay • Gammon Bay • Miramichi Inner Bay • Miramichi River • Miramichi Bay • Napan Bay • Black River • Bay du Vin • Bay du Vin Harbour • Baie Ste-Anne • McLeans Cove • Herring Cove 	4B, 4C, 4D, 4E, 4F, 4G, 4I	6 Coastal
18. ESCUMINAC/POINTE SAPIN From: Point Escuminac To: Northshore limit of Kouchibouguac National Park	<ul style="list-style-type: none"> • Northumberland Strait, area extending 2 km from shore 	5A, portion of 5B	7 Coastal – see Note 2 below.
19. KOUCHIBOUGUAC NATIONAL PARK**	NO AQUACULTURE permitted in tidal waters within limits of the national park (portion of 5B, 5C, 5D).**		
20. RICHIBUCTO Tidal water from the mouth of Richibuto Gully to Richibucto Cape in Cap Lumière	<ul style="list-style-type: none"> • Northumberland Strait, area extending 2 km form shore • Rivière St-Charles • Le Barachois • Petite Rivière Aldouane • Anse à Fidèle • Richibucto Harbour • Richibucto River • Passe de l'Île • Baie du Village 	5E, 5F, 5G, 5H	7 Coastal – see Note 2 below.

Table A-1: RCSR Study Area

Bay Management Areas (BMAs)	BMA Associated Water Bodies	CFIA Zones	RCSR Environmental Setting Areas* (Characterized in Appendix B)
21. CÔTE STE-ANNE/ BOUCTOUCHE From: Richibucto Cape in Cap Lumière To: Ward Road near Bar-de-Cocagne/Cormierville	<ul style="list-style-type: none"> Northumberland Strait, area extending 2 km from shore Fond de la Baie Baie de Bouctouche Bouctouche Harbour 	6A, 6B, 6C, 6D, 6E	8 Coastal
22. COCAGNE From: Ward Road near Bar-de-Cocagne/Cormierville To: Wharf at Caissie Cape	<ul style="list-style-type: none"> Northumberland Strait, area extending 2 km from shore La Passe Cocagne Harbour 	6F, 6G, 6H	
23. SHEDIAC /CAP-PELÉ From: Wharf at Caissie Cape To: Fagan Point	<ul style="list-style-type: none"> Northumberland Strait, area extending 2 km from shore Shediac Bay Shediac Harbour 	7A, 7B, 7C, 7D	10 Coastal
24. SHEMOGUE From: Fagan Point To: Cape Bruin	<ul style="list-style-type: none"> Northumberland Strait, area extending 2 km from shore Shemogue Harbour Little Shemogue Harbour 	7E, 7F, 7G	
25. BAYFIELD From: Cape Bruin To: Cape Spear	<ul style="list-style-type: none"> Northumberland Strait, area extending 2 km from shore Spence Cove Peacock Cove 	7H, 7I	
26. BAIE VERTE From: Cape Spear To: Jackson's Point (NS)	<ul style="list-style-type: none"> Northumberland Strait, area extending 2 km from shore Baie Verte Anse Big Cove Big Cove 	7J, 7K, 7L	
27. OFFSHORE WATERS OF NORTHUMBERLAND STRAIT FROM POINT ESCUMINAC TO BAIE VERTE*	<ul style="list-style-type: none"> Northumberland Strait 	5Z, 6Z, 7Z	9 Offshore - see Note 1 below.

***Note 1:** The RCSR Environmental Setting Areas have been divided into two types – *coastal* and *offshore*. Each RCSR Environmental Setting Area was bounded, perpendicular to the shoreline, by existing CFIA zones. The *coastal* Environmental Setting Areas (1A, 1B, 3, 5, 7, 8 and 10) were further bounded, parallel to the shoreline, by a 2km offshore limit. The *offshore* Environmental Setting Areas (2, 4 and 9) start at the 2km limit of the *coastal* Environmental Setting Areas, and continue to the border of the existing inshore CFIA zones.

In summary, with this approach, the *coastal* Environmental Setting Areas (1A, 1B, 3, 5, 7, 8 and 10) are bounded with the shoreline, a 2km offshore limit, and existing CFIA bounds running perpendicular to the shoreline. The *offshore* Environmental Setting Areas (2, 4 and 9) are bounded by the 2km limit of the *coastal* Environmental Setting Areas, the offshore border of the existing inshore CFIA

zones, and existing CFIA bounds running perpendicular to the shoreline. Although the *offshore* RCSR Environmental Setting Areas (2, 4 and 9) follow the boundaries (perpendicular to the shoreline) of the offshore CFIA zones, the actual offshore CFIA zones (1Z-7Z) were not considered in this RCSR.

****Note 2: Kouchibouguac National Park** is an **exclusion zone for over-wintering aquaculture siting** with respect to this RCSR.

Definition of Kouchibouguac National Park of Canada as per the *Canada National Parks Act*:

Kouchibouguac National Park of Canada, in the Province of New Brunswick; in the County of Kent; all those parcels described under Firstly and Secondly as follows:

Firstly: All that parcel according to a plan recorded in the Canada Lands Surveys Records at Ottawa as 61463; said parcel containing about 23 882 hectares.

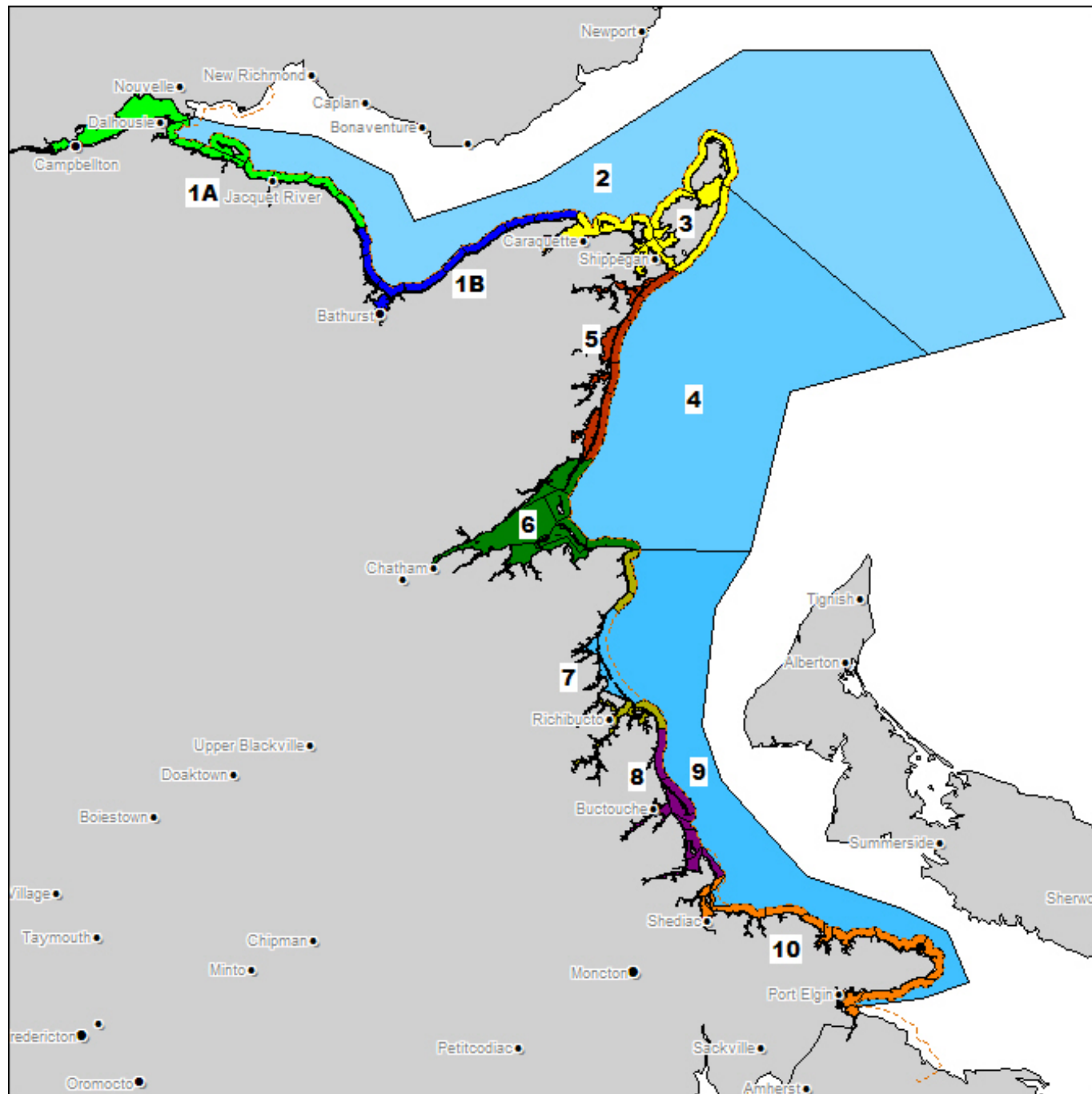
Secondly: All that parcel designated as "Remainder of 73" on a plan recorded in the Canada Lands Surveys Records at Ottawa as 59734, a copy of which is filed in the Registry Office at Richibucto as 2724A; said parcel containing about 40.9 hectares.

Said parcels containing together about 23 922.9 hectares.

Legend / Légende

----- 2 Km





APPENDIX B: ENVIRONMENTAL SETTING AREA INFORMATION

Note 1: Appendix B presents a description and illustration of each Environmental Setting Area defined for this RCSR. The descriptions have been adapted in consideration of the information provided in Sections 4.0 (Environmental Review Methods) and 5.0 (Issues Scoping and Valued Environmental Components) and the outcome of the issues scoping analysis.

Note 2: The Atlantic Canada Conservation Data Centre (ACCDC) supplied information regarding species at risk occurring in the study area. The ACCDC information has been reduced to include only the species occurring within the RCSR study area (refer to Appendix A) and temporal scope (i.e. October 1 to May 1) of the project.

Table B.1 RCSR Environmental Setting Area 1A

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Tide Head (47°59.10' N 66°33.56' W) to Limestone Point (47°48.78' N 65°43.42' W).</p>
<p>Marine Environment:</p>	<p>The marine environment consists of Chaleur Bay and several small inlets and harbours. The depth of the area ranges from approximately 0.3 to 13.7m (DFO, 2004).</p> <p>The mean tidal range in the area is approximately 0.4 to 2.9m (low to high tidal range). The tides are semi-diurnal. (DFO, 2006).</p>
<p>Fish and Fish Habitat:</p>	<p>According to Traditional Fishery Mapping (TFM) from DFO, the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Atlantic tomcod (<i>Microgadus tomcod</i>); • Atlantic lobster (<i>Homarus americanus</i>); • Rock crab (<i>Cancer irroratus</i>); • Moonsnail (<i>Lunatia heros</i>); • Atlantic deep-sea scallop (<i>Placopecten magellanicus</i>); • Whelk (<i>Buccinidae sp.</i>); and • Sea urchin (<i>Strongylocentrotus droebachiensis</i>). <p>The following nearshore fish and marine invertebrate species (i.e., shellfish) are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>);

Table B.1 RCSR Environmental Setting Area 1A

<p>Fish and Fish Habitat: (cont'd)</p>	<ul style="list-style-type: none"> • Atlantic salmon (<i>Salmo salar</i>); • American eel (<i>Anguilla rostrata</i>); • Striped bass (<i>Morone saxatilis</i>); • Blue mussel (<i>Mytilus edulis</i>); • Soft-shelled clam (<i>Mya arenaria</i>); • Bar clam (<i>Spisula solidissima</i>); and • Razor clam (<i>Ensis directus</i>). <p>A lobster spawning area is indicated as occurring within the bounds of this study area.</p>
<p>Wildlife:</p>	<p>No sensitive marine mammal species were identified as occurring within the study area (AC CDC, 2006).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>The following bird species have been identified by Erskine (1992) as being in the study area:</p> <ul style="list-style-type: none"> • American Black Duck (<i>Anas rubripes</i>) • American Robin (<i>Turdus migratorius</i>) • American Widgeon (<i>Anas americana</i>) • Bay-breasted Warbler (<i>Dendroica castanea</i>) • Belted Kingfisher (<i>Ceryle alcyon</i>) • Black Guillemot (<i>Cephus grylle</i>) • Black-and-White Warbler (<i>Mniotilta varia</i>) • Blackburnian Warbler (<i>Dendroica fusca</i>) • Black-throated Blue Warbler (<i>Dendroica caerulescens</i>) • Black-throated Green Warbler (<i>Dendroica virens</i>) • Blue-winged Teal (<i>Anas discors</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>)

Table B.1 RCSR Environmental Setting Area 1A

Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):	<ul style="list-style-type: none">• Broad-winged Hawk (<i>Buteo platypterus</i>)• Cape May Warbler (<i>Dendroica tigrina</i>)• Common Eider (<i>Somateria mollissima</i>)• Common Goldeneye (<i>Bucephala clangula</i>)• Common Grackle (<i>Quiscalus quiscula</i>)• Common Merganser (<i>Mergus merganser</i>)• Common Snipe (<i>Gallinago gallinago</i>)• Common Tern (<i>Sterna hirundo</i>)• Common Yellowthroat (<i>Geothlypis trichas</i>)• Double-crested Cormorant (<i>Phalacrocorax auritus</i>)• Eastern Phoebe (<i>Sayornis phoebe</i>)• Gray Catbird (<i>Dumetella carolinensis</i>)• Great Black-backed Gull (<i>Larus marinus</i>)• Great Blue Heron (<i>Ardea herodias</i>)• Herring Gull (<i>Larus argentatus</i>)• Killdeer (<i>Charadrius vociferus</i>)• Lincoln's Sparrow (<i>Melospiza lincolnii</i>)• Mallard (<i>Anas platyrhynchos</i>)• Northern Flicker (<i>Colaptes auratus</i>)• Northern Pintail (<i>Anas acuta</i>)• Northern Waterthrush (<i>Seiurus noveboracensis</i>)• Osprey (<i>Pandion haliaetus</i>)• Ovenbird (<i>Seiurus aurocapillus</i>)
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Table B.1 RCSR Environmental Setting Area 1A

<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl: (cont'd)</p>	<ul style="list-style-type: none"> • Philadelphia Vireo (<i>Vireo philadelphicus</i>) • Pied-billed Grebe (<i>Podilymbus podiceps</i>) • Red-eyed Vireo (<i>Vireo olivaceus</i>) • Ring-billed Gull (<i>Larus delawarensis</i>) • Ring-necked Duck (<i>Aythya collaris</i>) • Savannah Sparrow (<i>Passerculus sandwichensis</i>) • Solitary Vireo (<i>Vireo solitarius</i>) • Spotted Sandpiper (<i>Actitis macularia</i>) • Swamp Sparrow (<i>Melospiza georgiana</i>) • Tennessee Warbler (<i>Vermivora peregrina</i>) • Yellow-rumped Warbler (<i>Dendroica coronata</i>)
<p>Species at Risk:</p>	<p>Refer to Note 2 on Appendix B title page and Table B.2.</p>
<p>Designated Areas:</p>	<p>None identified as per AC CDC review (2006).</p>
<p>Transportation and Navigation:</p>	<p>The main sources of transportation in this area include container ships, commercial fishing and recreational boating. The area is generally ice free from March 15 to January 1 (Atlas of Canada, 2006).</p>

Table B.2 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
American Wigeon (<i>Anas americana</i>)	Uncommon to locally abundant from early March to early June and from late August to October; rare to locally common breeder; rare and somewhat local in winter.
Barrow's Goldeneye (Eastern population) (<i>Bucephala islandica</i>)	Rare to locally common from late October to mid-April; locally uncommon breeder.
Black Guillemot (<i>Cepphus grylle</i>)	Common breeder from mid-April to August; uncommon to locally abundant from September to early April.
Black Scoter (<i>Melanitta nigra</i>)	Uncommon from mid-April to May; rare to locally uncommon from mid-August to early November; locally uncommon in winter.
Black-crowned Night-heron (<i>Nycticorax nycticorax</i>)	Uncommon to locally abundant from early April to early November.
Brant (<i>Branta bernicla</i>)	Rare to locally common migrant from April to early June and from October to November; very rare visitor in summer and winter.
Common Tern (<i>Sterna hirundo</i>)	Common migrant and breeder from April to mid-December; may be very abundant locally in autumn.
Gadwall (<i>Anas strepera</i>)	Uncommon to locally common from mid-April to mid-October; very rare winter resident.
Gyr Falcon (<i>Falco rusticolus</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
Harlequin Duck (Eastern population) (<i>Histrionicus histrionicus</i>)	Locally rare from March to early May and from September to November; very local breeder; locally uncommon to common winter resident.
Horned Lark (<i>Eremophila alpestris</i>)	Locally uncommon breeder from April through mid-August, mostly along coasts, common to locally abundant migrant and winter resident from late September to April.
Northern Mockingbird (<i>Mimus polyglottos</i>)	Rare to locally uncommon breeder; rare to locally common migrant in October and November; a few birds overwinter at feeders.
Northern Pintail (<i>Anas acuta</i>)	Fairly common to common from early April to late May and from late August to early November; locally common breeder; rare winter resident.
Northern Shoveler (<i>Anas clypeata</i>)	Uncommon to fairly common from late March to early June and from September to early November; locally uncommon breeder; very rare winter resident.
Pine Grosbeak (<i>Pinicola enucleator</i>)	Uncommon to common transient and year-round resident; irregularly uncommon to abundant visitor outside of breeding habitats, usually from October to March.
Red-breasted Merganser (<i>Mergus serrator</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
White-winged Crossbill (<i>Loxia leucoptera</i>)	Uncommon to fairly common; transient year-round resident; uncommon to locally abundant erratic, irruptive visitor from October to March.
Wood Thrush (<i>Hylocichla mustelina</i>)	Rare to locally uncommon migrant and breeder from mid-April to early November; a few may remain into December.

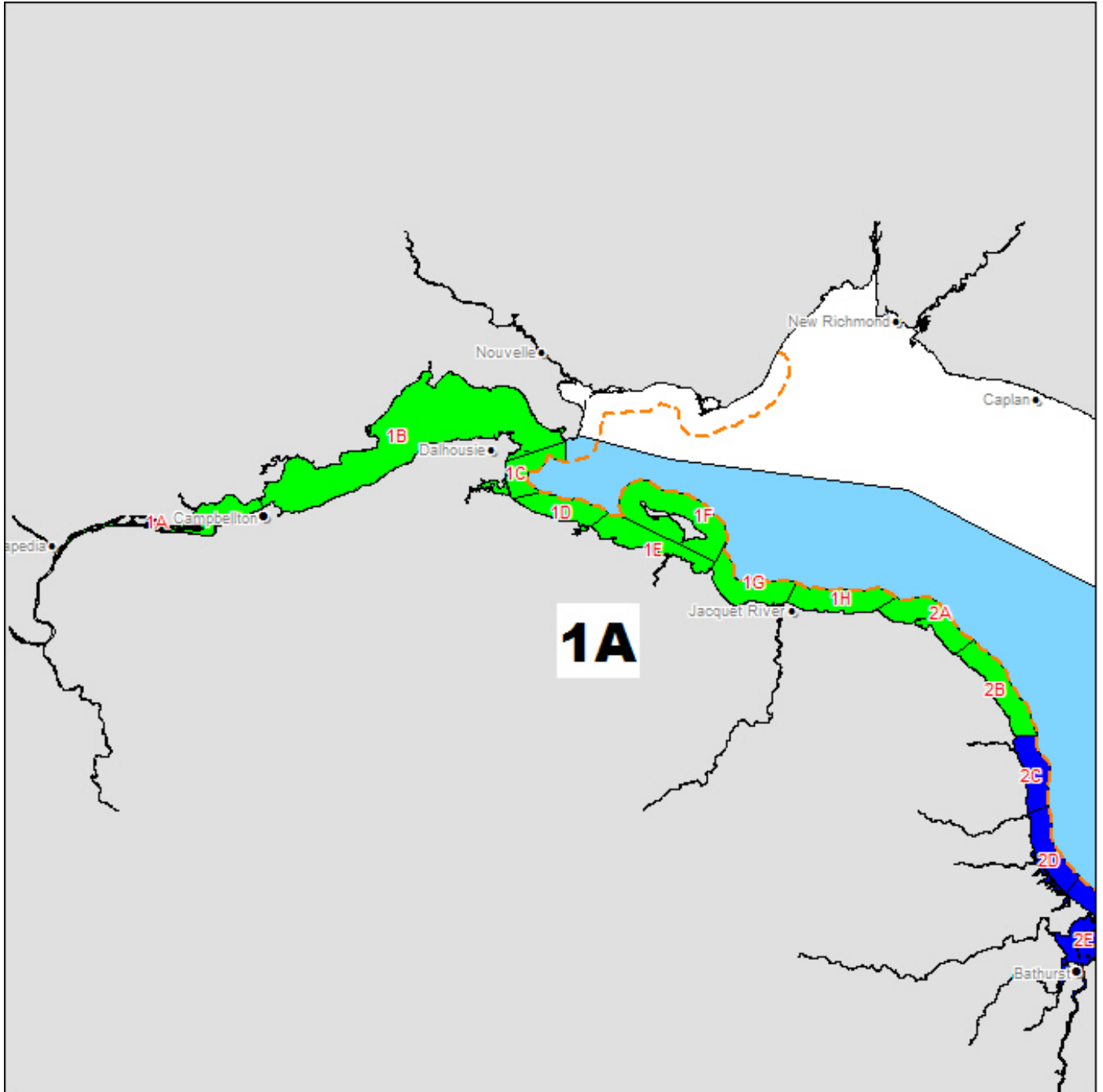


Table B.3 RCSR Environmental Setting Area 1B

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Limestone Point (47° 48.78' N 65° 43.42' W) to Maisonette (47° 49.91' N 65° 58.71' W).</p>
<p>Marine Environment:</p>	<p>Major embayment of Nepisiguit Bay and several small inlets and harbours. The depth of the area ranges from approximately 0.3 to 25.6 m (DFO, 2004).</p> <p>The mean tidal range in the area is approximately 0.1 to 2.1 meters (low to high tidal range).</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Dogfish (<i>Squalus acanthias</i>); • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Shark (general) (<i>Squaliformes sp.</i>); • Atlantic cod (<i>Gadus morhua</i>); • American plaice (<i>Hippoglossoides platessoides</i>); • Red Hake (<i>Urophycis chuss</i>); • Atlantic tomcod (<i>Microgadus tomcod</i>); • Atlantic lobster (<i>Homarus americanus</i>); • Rock crab (<i>Cancer irroratus</i>); • Toad crab (<i>Hyas areneus</i>); • Moon snail (<i>Lunatia heros</i>);

Table B.3 RCSR Environmental Setting Area 1B

<p>Fish and Fish Habitat (cont'd):</p>	<ul style="list-style-type: none"> • Periwinkle (<i>Littorina sp.</i>); • Atlantic deep-sea scallop (<i>Placopecten magellanicus</i>); • Whelk (<i>Buccinidae sp.</i>); and • Sea urchin (<i>Strongylocentrotus droebachiensis</i>). <p>The following nearshore fish and marine invertebrate species (i.e., shellfish) are listed as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>); • Atlantic salmon (<i>Salmo salar</i>); • American eel (<i>Anguilla rostrata</i>); • Striped bass (<i>Morone saxatilis</i>); • Blue mussel (<i>Mytilus edulis</i>); and • Soft-shelled clam (<i>Mya arenaria</i>). <p>Spawning areas for both lobster and herring are indicated as occurring within the bounds of this study area.</p>
<p>Wildlife:</p>	<p>No sensitive marine mammal species were identified as occurring within the study area (AC CDC, 2006).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>The following bird species have been identified by Erskine (1992) as being in the study area:</p> <ul style="list-style-type: none"> • American Black Duck (<i>Anas rubripes</i>) • American Robin (<i>Turdus migratorius</i>)

Table B.3 RCSR Environmental Setting Area 1B

**Migratory Birds,
Seabirds, Shorebirds,
and Waterfowl
(cont'd):**

- Belted Kingfisher (*Ceryle alcyon*)
- Black Guillemot (*Cephus grille*)
- Black-and-White Warbler (*Mniotilta varia*)
- Blackburnian Warbler (*Dendroica fusca*)
- Black-throated Green Warbler (*Dendroica virens*)
- Bobolink (*Dolichonyx oryzivorus*)
- Common Grackle (*Quiscalus quiscula*)
- Common Tern (*Sterna hirundo*)
- Common Yellowthroat (*Geothlypis trichas*)
- Dark-eyed Junco (*Junco hyemalis*)
- Double-crested Cormorant (*Phalacrocorax auritus*)
- Great Black-backed Gull (*Larus marinus*)
- Herring Gull (*Larus argentatus*)
- Killdeer (*Charadrius vociferus*)
- Osprey (*Pandion haliaetus*)
- Ovenbird (*Seiurus aurocapillus*)
- Philadelphia Vireo (*Vireo philadelphicus*)
- Red-breasted Merganser (*Mergus serrator*)
- Red-eyed Vireo (*Vireo olivaceus*)
- Ring-billed Gull (*Larus delawarensis*)

Table B.3 RCSR Environmental Setting Area 1B

Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):	<ul style="list-style-type: none">• Savannah Sparrow (<i>Passerculus sandwichensis</i>)• Spotted Sandpiper (<i>Actitis macularia</i>)• Tennessee Warbler (<i>Vermivora peregrina</i>)• Yellow-rumped Warbler (<i>Dendroica coronata</i>)
Species at Risk:	Refer to Note 2 on Appendix B title page and Table B.4
Designated Areas:	None identified as per AC CDC review (2006).
Transportation and Navigation:	The main sources of transportation in this area are commercial fishing and recreational boating. The area is generally ice free from April 15 to January 1 (Atlas of Canada, 2006).

Table B.4 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
Arctic Tern (<i>Sterna paradisaea</i>)	Locally uncommon migrant from late April to mid-June; uncommon breeder from early May to late August; rare from September to early November
Black Guillemot (<i>Cepphus grille</i>)	Common breeder from mid-April to August; uncommon to locally abundant from September to early April
Brant (<i>Branta bernicla</i>)	Rare to locally common migrant from April to early June and from October to November; very rare visitor in summer and winter
Common Tern (<i>Sterna hirundo</i>)	Common migrant and breeder from April to mid-December; may be very abundant locally in autumn
Eastern Bluebird (<i>Sialia sialis</i>)	Rare to uncommon migrant and breeder from March to October
Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>)	Uncommon to locally common breeder from June to August; rare migrant from mid-May to mid-June and from September to mid-November
Northern Mockingbird (<i>Mimus polyglottos</i>)	Rare to locally uncommon breeder; rare to locally common migrant in October and November; a few birds overwinter at feeders
Northern Pintail (<i>Anas acuta</i>)	Fairly common to common from early April to late May and from late August to early November; locally common breeder; rare winter resident
Pine Grosbeak (<i>Pinicola enucleator</i>)	Uncommon to common transient and year-round resident; irregularly uncommon to abundant visitor outside of breeding habitats, usually from October to March
Red Crossbill (<i>Loxia curvirostra</i>)	Erratic and irruptive; uncommon to locally abundant transient year-round resident; particularly irruptive in winter
Red-breasted Merganser (<i>Mergus serrator</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
Snowy Owl (<i>Nyctea scandiaca</i>)	Uncommon to locally abundant from early April to early November
Virginia Rail (<i>Rallus limicola</i>)	Uncommon to locally fairly common from early May to mid-September; some birds attempt to overwinter
White-winged Crossbill (<i>Loxia leucoptera</i>)	Uncommon to fairly common; transient year-round resident; uncommon to locally abundant erratic, irruptive visitor from October to March
Wood Thrush (<i>Hylocichla mustelina</i>)	Rare to locally uncommon migrant and breeder from mid-April to early November; a few may remain into December
Atlantic Salmon (<i>Salmo Salar</i>)	Anadromous; overwinters at sea (fall migration) and returns to freshwater in spring to spawn.

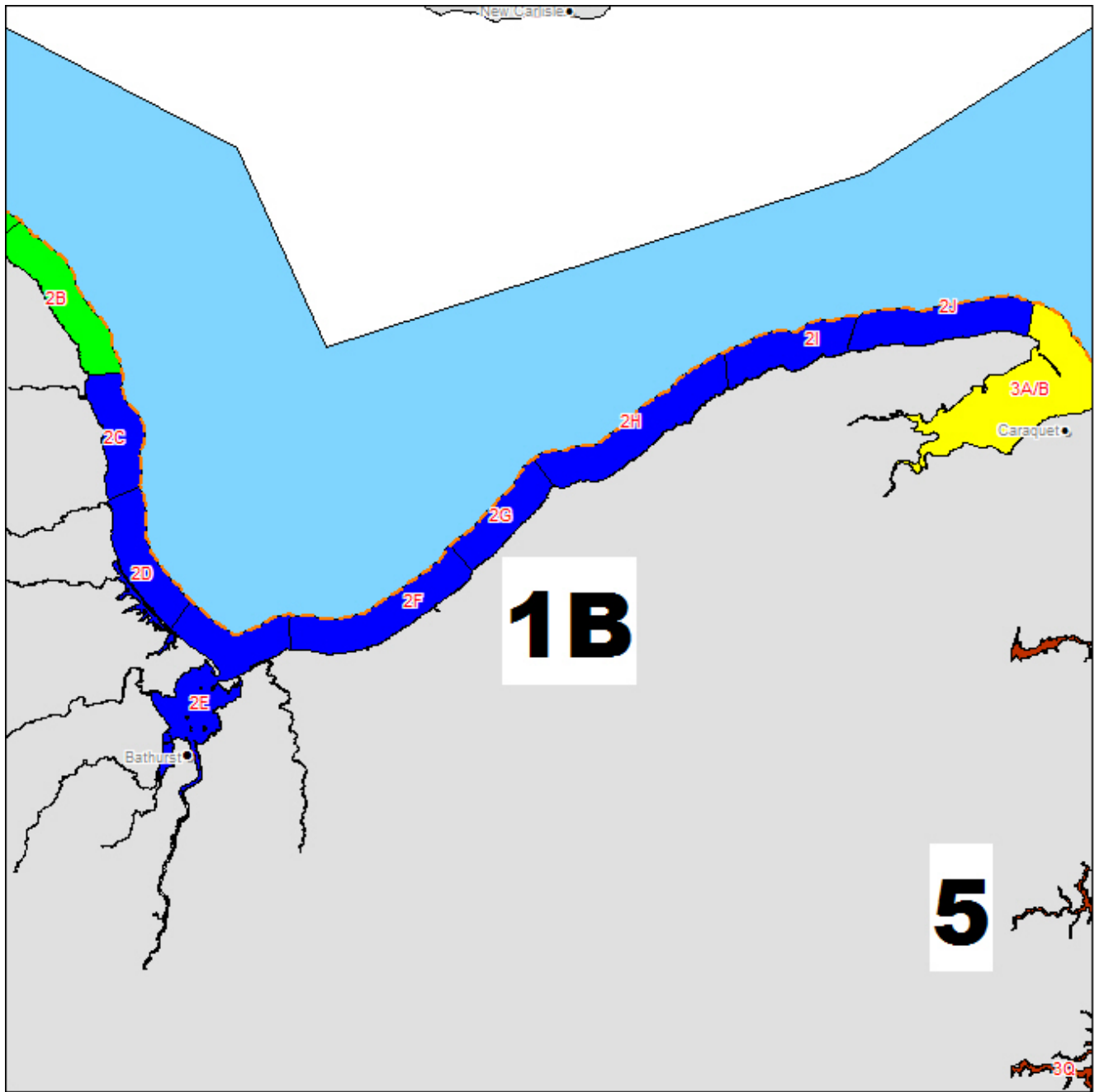


Table B.5 RCSR Environmental Setting Area 2

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Tide Head (48° 00.09' N 66° 45.03' W) to Sandy Point (47° 54.66' N 64° 27.85' W).</p>
<p>Marine Environment:</p>	<p>The depth of the area ranges from approximately 13.7 to 30.2 m (DFO, 2004). Tidal fluctuations affecting this area are negligible.</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Dogfish (<i>Squalus acanthias</i>); • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Atlantic tomcod (<i>Microgadus tomcod</i>); • Atlantic lobster (<i>Homarus americanus</i>) • Rock crab (<i>Cancer irroratus</i>); • Toad crab (<i>Hyas areneus</i>); • Quahog (<i>Mercenaria mercenaria</i>); • Atlantic deep-sea scallop (<i>Placopecten magellanicus</i>); • Northern shrimp (<i>Pandalus sp.</i>); • Short-finned squid (<i>Lolliguncula brevis</i>); • Whelk (<i>Buccinidae sp.</i>); and • Sea urchin (<i>Strongylocentrotus droebachiensis</i>).

Table B.5 RCSR Environmental Setting Area 2

<p>Fish and Fish Habitat (cont'd):</p>	<p>The following nearshore fish species are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>); and • Atlantic salmon (<i>Salmo salar</i>). <p>An Atlantic herring spawning area is indicated as occurring within the bounds of this study area.</p>
<p>Wildlife:</p>	<p>Whales (in general) are listed as occurring in the area (DFO, 2004).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>Although not used for nesting purposes, a variety of migratory bird, seabird, shorebird, and/or waterfowl may be observed within this area for use as feeding, staging, or stop-over purposes.</p>
<p>Species at Risk:</p>	<p>None identified as per AC CDC review (2006).</p>
<p>Designated Areas:</p>	<p>None identified as per AC CDC review (2006).</p>
<p>Transportation and Navigation:</p>	<p>The main sources of transportation in this area are commercial fishing and container shipping. The area generally is ice free from March 15 to January 1 (Atlas of Canada, 2006).</p>

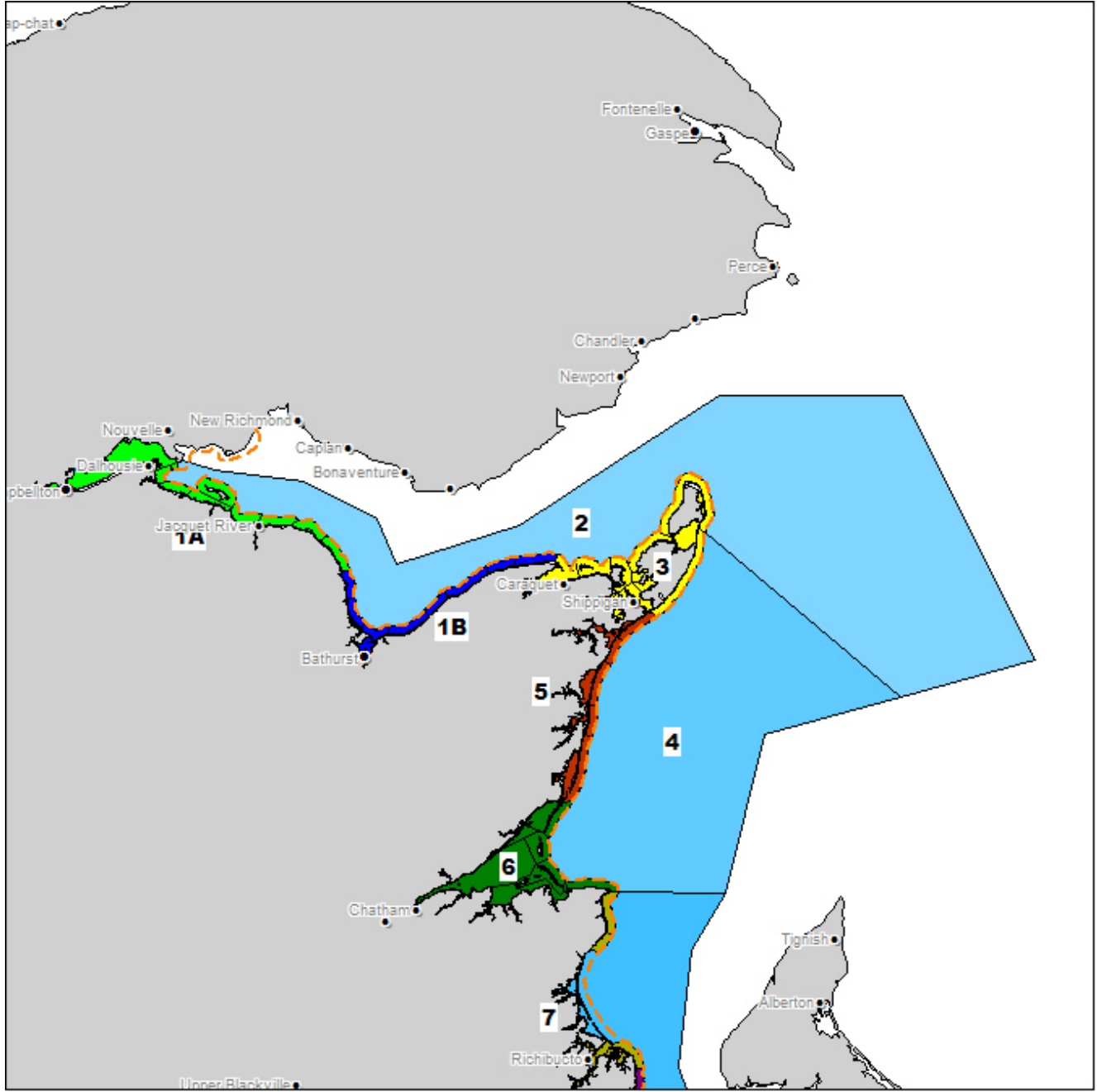


Table B.6 RCSR Environmental Setting Area 3

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Maisonette (47° 49.91' N 65° 58.71' W) to Shippagan Gully (47° 43.08' N 64° 39.97' W)</p>
<p>Marine Environment:</p>	<p>Major embayments of Caraquet Bay, Shippagan Bay, Lameque Bay, Miscou Harbour as well as smaller bays, inlets and harbours. The depth of the area ranges from approximately 0.3 to 16.7 m (DFO, 2004).</p> <p>The mean tidal range in the area is approximately 0.1 to 1.8 m (low to high tidal range). The tides are semi-diurnal. (DFO, 2006).</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Dogfish (<i>Squalus acanthias</i>); • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Atlantic lobster (<i>Homarus americanus</i>); • Rock crab (<i>Cancer irroratus</i>); • Moonsnail (<i>Lunatia heros</i>); • Periwinkle (<i>Littorina sp.</i>); and • Whelk (<i>Buccinidae sp.</i>). <p>The following nearshore fish and marine invertebrate species (i.e., shellfish) are indicated as occurring within this study area:</p>

Table B.6 RCSR Environmental Setting Area 3

<p>Fish and Fish Habitat (cont'd):</p>	<ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>); • Atlantic salmon (<i>Salmo salar</i>); • American eel (<i>Anguilla rostrata</i>); • Striped bass (<i>Morone saxatilis</i>); • Sea trout (<i>Salvelinus fontinalis</i>); • Blue mussel (<i>Mytilus edulis</i>); • Soft-shelled clam (<i>Mya arenaria</i>); • Bar clam (<i>Spisula solidissima</i>); • Razor clam (<i>Ensis directus</i>); • American oyster (<i>Crassostrea virginica</i>); and • Quahog (<i>Mercenaria mercenaria</i>). <p>An Atlantic herring spawning area is indicated as occurring within the bounds of this study area.</p>
<p>Wildlife:</p>	<p>Harbour seals (<i>Phoca vitulina</i>) are listed as occurring in the area (DFO, 2004).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>The following bird species have been identified by Erskine (1992) as being in the study area:</p> <ul style="list-style-type: none"> • American Black Duck (<i>Anas rubripes</i>) • American Robin (<i>Turdus migratorius</i>) • American Widgeon (<i>Anas americana</i>)

Table B.6 RCSR Environmental Setting Area 3

Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):	<ul style="list-style-type: none">• Bay-breasted Warbler (<i>Dendroica castanea</i>)• Belted Kingfisher (<i>Ceryle alcyon</i>)• Black-and-White Warbler (<i>Mniotilta varia</i>)• Black-crowned Night-Heron (<i>Nycticorax nycticorax</i>)• Blackpoll Warbler (<i>Dendroica striata</i>)• Black-throated Green Warbler (<i>Dendroica virens</i>)• Blue-winged Teal (<i>Anas discors</i>)• Bobolink (<i>Dolichonyx oryzivorus</i>)• Broad-winged Hawk (<i>Buteo platypterus</i>)• Cape May Warbler (<i>Dendroica tigrina</i>)• Common Grackle (<i>Quiscalus quiscula</i>)• Common Snipe (<i>Gallinago gallinago</i>)• Common Tern (<i>Sterna hirundo</i>)• Common Yellowthroat (<i>Geothlypis trichas</i>)• Dark-eyed Junco (<i>Junco hyemalis</i>)• Double-crested Cormorant (<i>Phalacrocorax auritus</i>)• Gray Catbird (<i>Dumetella carolinensis</i>)• Great Black-backed Gull (<i>Larus marinus</i>)• Great Blue Heron (<i>Ardea herodias</i>)
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Table B.6 RCSR Environmental Setting Area 3

Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):	<ul style="list-style-type: none">• Green-winged Teal (<i>Anas crecca</i>)• Herring Gull (<i>Larus argentatus</i>)• Horned Lark (<i>Eremophila alpestris</i>)• Killdeer (<i>Charadrius vociferus</i>)• Lincoln's Sparrow (<i>Melospiza lincolni</i>)• Mallard (<i>Anas platyrhynchos</i>)• Northern Flicker (<i>Colaptes auratus</i>)• Northern Harrier (<i>Circus cyaneus</i>)• Northern Pintail (<i>Anas acuta</i>)• Northern Shoveler (<i>Anas clypeata</i>)• Osprey (<i>Pandion haliaetus</i>)• Ovenbird (<i>Seiurus aurocapillus</i>)• Palm Warbler (<i>Dendroica palmarum</i>)• Pied-billed Grebe (<i>Podilymbus podiceps</i>)• Piping Plover (<i>Charadrius melodus</i>)• Red-breasted Merganser (<i>Mergus serrator</i>)• Red-eyed Vireo (<i>Vireo olivaceus</i>)• Ring-billed Gull (<i>Larus delawarensis</i>)• Ring-necked Duck (<i>Aythya collaris</i>)
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Table B.6 RCSR Environmental Setting Area 3

<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):</p>	<ul style="list-style-type: none"> • Ruby-crowned Kinglet (<i>Regulus calendula</i>) • Savannah Sparrow (<i>Passerculus sandwichensis</i>) • Sharp-tailed Sparrow (<i>Ammodramus caudacutus</i>) • Spotted Sandpiper (<i>Actitis macularia</i>) • Swamp Sparrow (<i>Melospiza georgiana</i>) • Tennessee Warbler (<i>Vermivora peregrina</i>) • Wood Duck (<i>Aix sponsa</i>) • Yellow-rumped Warbler (<i>Dendroica coronata</i>)
<p>Species at Risk:</p>	<p>Refer to Note 2 on Appendix B title page and Table B.7</p>
<p>Designated Areas:</p>	<p>None identified as per AC CDC (2006).</p>
<p>Transportation and Navigation:</p>	<p>The main sources of transportation in this area are commercial fishing and recreational boating. The area generally is ice free from April 15 to January 1 (Atlas of Canada, 2006).</p>

Table B.7 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
American Golden-Plover (<i>Pluvialis dominica</i>)	Rare migrant from early April to May; common to abundant migrant from early August to November
American Wigeon (<i>Anas americana</i>)	Uncommon to locally abundant from early March to early June and from late August to October; rare to locally common breeder; rare and somewhat local in winter
Black Guillemot (<i>Cepphus grylle</i>)	Common breeder from mid-April to August; uncommon to locally abundant from September to early April
Black Scoter (<i>Melanitta nigra</i>)	Uncommon from mid-April to May; rare to locally uncommon from mid-August to early November; locally uncommon in winter
Black-crowned Night-heron (<i>Nycticorax nycticorax</i>)	Uncommon to locally abundant from early April to early November
Black-headed Gull (<i>Larus ridibundus</i>)	Rare to uncommon visitor from early April to May; locally rare breeder; many remain through the winter
Black-legged Kittiwake (<i>Rissa tridactyla</i>)	Uncommon to locally abundant breeder from late April to late August; rare to locally common inshore until mid-October; rare in winter
Boreal Owl (<i>Aegolius funereus</i>)	Rare breeder from mid-March to August; locally uncommon migrant and winter visitor outside breeding range from September to March
Brant (<i>Branta bernicla</i>)	Rare to locally common migrant from April to early June and from October to November; very rare visitor in summer and winter
Common Murre (<i>Uria aalge</i>)	Common to locally abundant year-round resident; resident populations may be augmented from late September to late April
Common Tern (<i>Sterna hirundo</i>)	Common migrant and breeder from April to mid-December; may be very abundant locally in autumn
Eastern Bluebird (<i>Sialia sialis</i>)	Rare to uncommon migrant and breeder from March to October
Gadwall (<i>Anas strepera</i>)	Uncommon to locally common from mid-April to mid-October; very rare winter resident
Glaucous Gull (<i>Larus hyperboreus</i>)	Rare to locally uncommon visitor from early November through May; exceptionally rare visitor from June to early July
Harlequin Duck - Eastern population (<i>Histrionicus histrionicus</i> pop 1)	Locally rare from March to early May and from September to November; very local breeder; locally uncommon to common winter resident
Horned Lark (<i>Eremophila alpestris</i>)	Locally uncommon breeder from April through mid-August, mostly along coasts, common to locally abundant migrant and winter resident from late September to April
Hudsonian Godwit (<i>Limosa haemastica</i>)	Rare migrant in June; uncommon to locally common migrant from mid-July to early November
Iceland Gull (<i>Larus glaucoides</i>)	Uncommon to locally abundant visitor from October to May
Long-eared Owl (<i>Asio otus</i>)	Uncommon to locally common migrant and winter visitor from September to April; rare to locally uncommon breeder

Table B.7 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>)	Uncommon to locally common breeder from June to August; rare migrant from mid-May to mid-June and from September to mid-November
Northern Gannet (<i>Morus bassanus</i>)	Locally common breeder; common offshore in migration; uncommon offshore in winter
Northern Mockingbird (<i>Mimus polyglottos</i>)	Rare to locally uncommon breeder; rare to locally common migrant in October and November; a few birds overwinter at feeders
Northern Pintail (<i>Anas acuta</i>)	Fairly common to common from early April to late May and from late August to early November; locally common breeder; rare winter resident
Northern Shoveler (<i>Anas clypeata</i>)	Uncommon to fairly common from late March to early June and from September to early November; locally uncommon breeder; very rare winter resident
Pectoral Sandpiper (<i>Calidris melanotos</i>)	Fairly common to locally common migrant from late July to late October; some linger to late November; rare to locally uncommon migrant from mid-April to mid-May
Piping Plover (<i>Charadrius melodus</i>)	Locally uncommon from late September to early November; rare from early April to mid-May; rare and very local breeder; extremely rare in winter
Purple Sandpiper (<i>Calidris maritima</i>)	Rare to uncommon migrant from mid-April to early June and uncommon to locally uncommon from mid-July to early November; a few overwinter
Red Knot (<i>Calidris canutus</i>)	Rare to locally common from late October to mid-May; occasionally seen in the summer
Red-breasted Merganser (<i>Mergus serrator</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
Red-necked Phalarope (<i>Phalaropus lobatus</i>)	Common to abundant migrant offshore from late April to early June and from late June to late November; rare along coasts and very rare inland
Short-eared Owl (<i>Asio flammeus</i>)	Uncommon to locally fairly common migrant and winter visitor from early October to April; rare to uncommon breeder from April to September
Snowy Owl (<i>Nyctea scandiaca</i>)	Irregular; rare to locally common winter visitor from mid-October to early May; a few birds may linger into midsummer at coastal sites
Whimbrel (<i>Numenius phaeopus</i>)	Rare migrant from late April to early June and common to locally abundant from early July to late October; rare in summer and early winter
White-winged Crossbill (<i>Loxia leucoptera</i>)	Uncommon to fairly common; transient year-round resident; uncommon to locally abundant erratic, irruptive visitor from October to March
Willet (<i>Catoptrophorus semipalmatus</i>)	Rare to locally common visitor from mid-April to early October; some birds linger into November

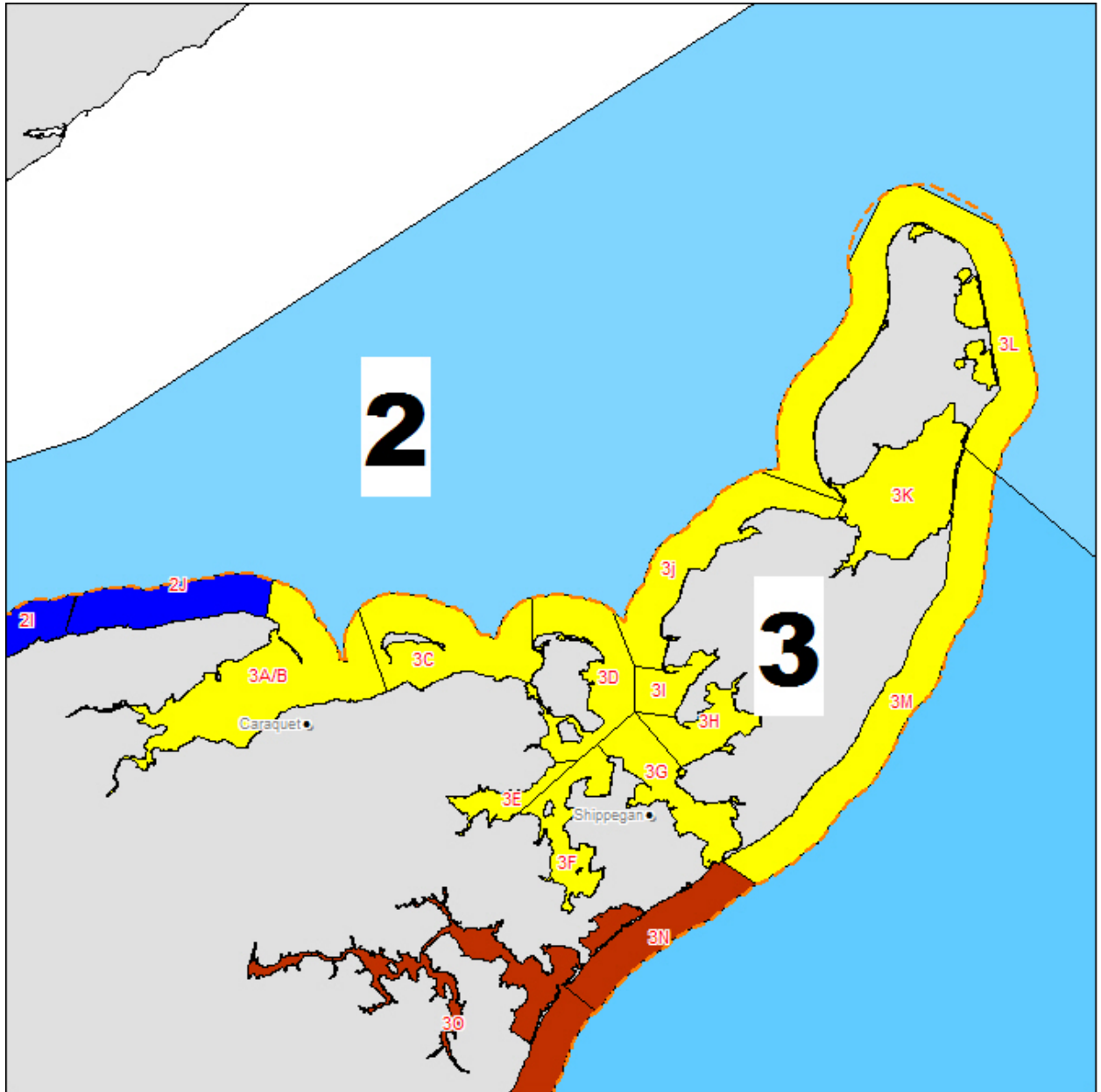


Table B.8 RCSR Environmental Setting Area 4

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>An area between 2 km offshore, following the inshore contour, and approximately 5.5 km - Sandy Point (47° 54.66' N 64° 27.85' W) to Point Escuminac (47° 04.36' N 64° 02.60' W).</p>
<p>Marine Environment:</p>	<p>Area 4 is the Gulf of St. Lawrence. The depth of the area ranges from approximately 16 to 25 m (DFO, 2004). Tidal fluctuations affecting this area are negligible.</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are listed as occurring within this study area:</p> <ul style="list-style-type: none"> • Bluefin tuna (<i>Thunnus thynnus</i>); • Dogfish (<i>Squalus acanthias</i>); • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Shark (<i>Squaliformes sp.</i>); • Atlantic cod (<i>Gadus morhua</i>); • Hake (<i>Urophycis tenuis</i>); • Winter flounder (<i>Pseudopleuronectes americanus</i>); • Atlantic lobster (<i>Homarus americanus</i>); • Rock crab (<i>Cancer irroratus</i>); • Periwinkle (<i>Littorina sp.</i>); • Atlantic deep-sea scallop (<i>Placopecten magellanicus</i>); • Short-finned squid (<i>Lolliguncula brevis</i>); • Whelk (<i>Buccinidae sp.</i>); and • Sea urchin (<i>Strongylocentrotus droebachiensis</i>). <p>The following nearshore fish and marine invertebrate species (i.e., shellfish) are listed as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Sea trout (<i>Salvelinus fontinalis</i>); and • Blue mussel (<i>Mytilus edulis</i>). <p>Atlantic lobster and rock crab spawning areas are indicated as occurring within the bounds of this study area.</p>

Table B.8 RCSR Environmental Setting Area 4

Wildlife:	Harbour seals (<i>Phoca vitulina</i>), harbour porpoise (<i>Phocoena phocoena</i>), and whales (in general) are listed as occurring in the area (DFO, 2004).
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	Although this study area would not be used for nesting purposes, a variety of migratory bird, seabird, shorebird, and/or waterfowl may be observed within this area for use as feeding, staging, or stop-over purposes.
Species at Risk:	None identified as per AC CDC review (2006).
Designated Areas:	None identified as per AC CDC review (2006).
Transportation and Navigation:	The main source of transportation in this area is commercial fishing. The area generally is ice free from Apr. 15 to Jan. 1 (Atlas of Canada, 2006).

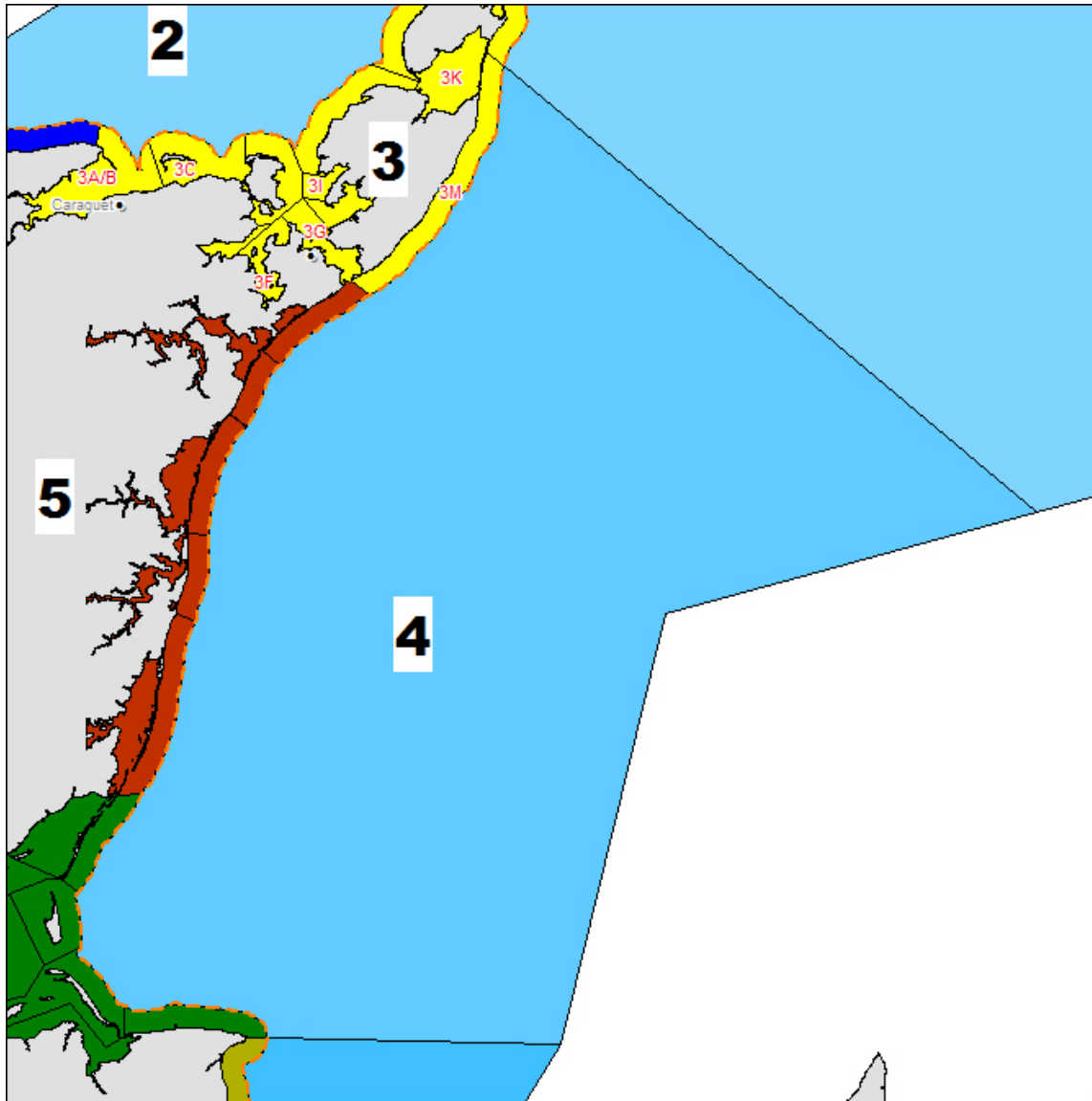


Table B.9 RCSR Environmental Setting Area 5

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Shippagan Gully (47° 43.08' N 64° 39.97' W) to Old Seal Gully (47° 16.63' N 64° 58.51' W).</p>
<p>Marine</p>	<p>Major embayments of Pokemouche Bay, Tracadie Bay and Tabusintac Bay as well as smaller, inlets and harbours. The depth of the area ranges from approximately 0.3 to 14.9 m (DFO, 2004).</p> <p>The mean tidal range in the area is approximately 0.3 to 1.3 m (low to high tidal range). The tides are semi-diurnal. (DFO, 2006).</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Dogfish (<i>Squalus acanthias</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Winter flounder (<i>Pseudopleuronectes americanus</i>); • Atlantic lobster (<i>Homarus americanus</i>); and • Rock crab (<i>Cancer irroratus</i>). <p>The following nearshore fish species are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>); • American eel (<i>Anguilla rostrata</i>);

Table B.9 RCSR Environmental Setting Area 5

<p>Fish and Fish Habitat (cont'd):</p>	<ul style="list-style-type: none"> • Striped bass (<i>Morone saxatilis</i>); • Sea trout (<i>Salvelinus fontinalis</i>); • Blue mussel (<i>Mytilus edulis</i>); • Soft-shelled clam (<i>Mya arenaria</i>); • Bar clam (<i>Spisula solidissima</i>); • Razor clam (<i>Ensis directus</i>); • American oyster (<i>Crassostrea virginica</i>); and • Quahog (<i>Mercenaria mercenaria</i>) <p>An Atlantic lobster spawning area is indicated as occurring within the bounds of this study area.</p>
<p>Wildlife:</p>	<p>No sensitive marine mammal species were identified as occurring within the study area (AC CDC, 2006).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>The following bird species have been identified by Erskine (1992) as being in the study area:</p> <ul style="list-style-type: none"> • American Black Duck (<i>Anas rubripes</i>) • American Widgeon (<i>Anas americana</i>) • Artic Tern (<i>Sterna paradisaea</i>) • Bay-breasted Warbler (<i>Dendroica castanea</i>) • Belted Kingfisher (<i>Ceryle alcyon</i>) • Black-and-White Warbler (<i>Mniotilta varia</i>) • Blackburnian Warbler (<i>Dendroica fusca</i>)

Table B.9 RCSR Environmental Setting Area 5

<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):</p>	<ul style="list-style-type: none">• Black-throated Green Warbler (<i>Dendroica virens</i>)• Blue-winged Teal (<i>Anas discors</i>)• Bobolink (<i>Dolichonyx oryzivorus</i>)• Cape May Warbler (<i>Dendroica tigrina</i>)• Common Grackle (<i>Quiscalus quiscula</i>)• Common Snipe (<i>Gallinago gallinago</i>)• Common Tern (<i>Sterna hirundo</i>)• Common Yellowthroat (<i>Geothlypis trichas</i>)• Gadwall (<i>Anas strepera</i>)• Gray Catbird (<i>Dumetella carolinensis</i>)• Great Black-backed Gull (<i>Larus marinus</i>)• Great Blue Heron (<i>Ardea herodias</i>)• Herring Gull (<i>Larus argentatus</i>)• Horned Lark (<i>Eremophila alpestris</i>)• Killdeer (<i>Charadrius vociferus</i>)• Northern Flicker (<i>Colaptes auratus</i>)• Northern Harrier (<i>Circus cyaneus</i>)• Northern Pintail (<i>Anas acuta</i>)• Olive-sided Flycatcher (<i>Contopus borealis</i>)• Ovenbird (<i>Seiurus aurocapillus</i>)
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Table B.9 RCSR Environmental Setting Area 5

<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):</p>	<ul style="list-style-type: none"> • Palm Warbler (<i>Dendroica palmarum</i>) • Philadelphia Vireo (<i>Vireo philadelphicus</i>) • Pied-billed Grebe (<i>Podilymbus podiceps</i>) • Piping Plover (<i>Charadrius melodus</i>) • Red-breasted Merganser (<i>Mergus serrator</i>) • Red-eyed Vireo (<i>Vireo olivaceus</i>) • Ring-billed Gull (<i>Larus delawarensis</i>) • Ruby-crowned Kinglet (<i>Regulus calendula</i>) • Savannah Sparrow (<i>Passerculus sandwichensis</i>) • Spotted Sandpiper (<i>Actitis macularia</i>) • Tennessee Warbler (<i>Vermivora peregrina</i>) • Winter Wren (<i>Troglodytes troglodytes</i>) • Yellow-rumped Warbler (<i>Dendroica coronata</i>)
<p>Species at Risk:</p>	<p>Refer to Note 2 on Appendix B title page and Table B.2</p>
<p>Designated Areas:</p>	<p>According to a search by AC CDC the following ESA's can be found in this area:</p> <ul style="list-style-type: none"> • Tracadie Beach, Sandspit & Lagoon ESA • Tracadie Sewage Lagoon ESA • Walshs Island ESA • Tabusintac River & Estuary ESA

Table B.9 RCSR Environmental Setting Area 5

Designated Areas (cont'd):	<ul style="list-style-type: none">• Blacklands Sandspit & Swinging Point ESA• Cedar Road Beach/Salt Marsh ESA• Grand Lac/Pointe a Barreau ESA• Jackos Point & Black Point ESA• Pointe De L'ile Marsh ESA• Tabusintac Gully & Sand Spits ESA• Val Comeau Sandspit ESA• Wishart Point Marsh ESA• Baie De Petit Pokemouche ESA• Grand Passage (Pokemouche Beaches) ESA• Green Point South (Tracadie Dune) ESA• Le Sentier Ecologique La Decouverte ESA• Mcconnell Brook ESA• Pallot Road ESA• Pointe Aux Rats Musque/Inkerman ESA• Pointe-a-bouleau/Ile au Cheval Beach ESA• Pokemouche Beach South/Plover Ground ESA• Pokemouche River & Estuary ESA <p>The Tabusintac Lagoon and River Estuary area is also listed as a wetland of international importance by the RAMSAR Convention on Wetlands (RAMSAR, 2001).</p>
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Table B.9 RCSR Environmental Setting Area 5

Transportation and Navigation:	The main source of transportation in this area is commercial fishing. The area generally is ice free from April 15 to January 1 (Atlas of Canada, 2006).
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Table B.10 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
American Three-toed Woodpecker (<i>Picooides tridactylus dorsalis</i>)	Rare to uncommon year-round resident; irruptive, especially in winter
American Wigeon (<i>Anas americana</i>)	Uncommon to locally abundant from early March to early June and from late August to October; rare to locally common breeder; rare and somewhat local in winter
Arctic Tern (<i>Sterna paradisaea</i>)	Locally uncommon migrant from late April to mid-June; uncommon breeder from early May to late August; rare from September to early November
Barrow's Goldeneye (Eastern population) (<i>Bucephala islandica</i>)	Rare to locally common from late October to mid-April; locally uncommon breeder
Black Scoter (<i>Melanitta nigra</i>)	Uncommon from mid-April to May; rare to locally uncommon from mid-August to early November; locally uncommon in winter
Black-crowned Night-heron (<i>Nycticorax nycticorax</i>)	Uncommon to locally abundant from early April to early November
Black-headed Gull (<i>Larus ridibundus</i>)	Rare to uncommon visitor from early April to May; locally rare breeder; many remain through the winter
Brant (<i>Branta bernicla</i>)	Rare to locally common migrant from April to early June and from October to November; very rare visitor in summer and winter
Brown Thrasher (<i>Toxostoma rufum</i>)	Rare breeder from late April to early August; rare to locally uncommon migrant from September to November; a few birds overwinter
Bufflehead (<i>Bucephala albeola</i>)	Common to locally abundant from late October to early May; rare at other times
Common Tern (<i>Sterna hirundo</i>)	Common migrant and breeder from April to mid-December; may be very abundant locally in autumn
Eastern Bluebird (<i>Sialia sialis</i>)	Rare to uncommon migrant and breeder from March to October
Gadwall (<i>Anas strepera</i>)	Uncommon to locally common from mid-April to mid-October; very rare winter resident
Glaucous Gull (<i>Larus hyperboreus</i>)	Rare to locally uncommon visitor from early November through May; exceptionally rare visitor from June to early July
Greater Scaup (<i>Aythya marila</i>)	Uncommon to abundant migrant from late February to May and from September to November; rare to locally common breeder; uncommon to locally common winter resident
Gyrfalcon (<i>Falco rusticolus</i>)	Very rare from mid-October to mid-April

Table B.10 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
Harlequin Duck - Eastern population (<i>Histrionicus histrionicus</i> pop 1)	Locally rare from March to early May and from September to November; very local breeder; locally uncommon to common winter resident
Horned Lark (<i>Eremophila alpestris</i>)	Locally uncommon breeder from April through mid-August, mostly along coasts, common to locally abundant migrant and winter resident from late September to April
Hudsonian Godwit (<i>Limosa haemastica</i>)	Rare migrant in June; uncommon to locally common migrant from mid-July to early November
Iceland Gull (<i>Larus glaucoides</i>)	Uncommon to locally abundant visitor from October to May
Indigo Bunting (<i>Passerina cyanea</i>)	Irregularly common migrant from April to May and again from mid-September to mid-November; rare and very local breeder from May to early September; a few birds overwinter
King Eider (<i>Somateria spectabilis</i>)	Rare migrant; rare to locally uncommon winter visitor
Lapland Longspur (<i>Calcarius lapponicus</i>)	Uncommon to locally common from late September to early May
Lesser Scaup (<i>Aythya affinis</i>)	Rare to uncommon migrant from mid-March to mid-May and from late August to early November; rare breeder; rare winter resident
Long-eared Owl (<i>Asio otus</i>)	Uncommon to locally common migrant and winter visitor from September to April; rare to locally uncommon breeder
Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>)	Uncommon to locally common breeder from June to August; rare migrant from mid-May to mid-June and from September to mid-November
Northern Gannet (<i>Morus bassanus</i>)	Locally common breeder; common offshore in migration; uncommon offshore in winter
Northern Mockingbird (<i>Mimus polyglottos</i>)	Rare to locally uncommon breeder; rare to locally common migrant in October and November; a few birds overwinter at feeders
Northern Pintail (<i>Anas acuta</i>)	Fairly common to common from early April to late May and from late August to early November; locally common breeder; rare winter resident
Northern Shoveler (<i>Anas clypeata</i>)	Uncommon to fairly common from late March to early June and from September to early November; locally uncommon breeder; very rare winter resident
Pectoral Sandpiper (<i>Calidris melanotos</i>)	Fairly common to locally common migrant from late July to late October; some linger to late November; rare to locally uncommon migrant from mid-April to mid-May
Pine Grosbeak (<i>Pinicola enucleator</i>)	Uncommon to common transient and year-round resident; irregularly uncommon to abundant visitor outside of breeding habitats, usually from October to March

Table B.10 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
Piping Plover (<i>Charadrius melodus</i>)	Locally uncommon from late September to early November; rare from early April to mid-May; rare and very local breeder; extremely rare in winter
Purple Sandpiper (<i>Calidris maritima</i>)	Rare to uncommon migrant from mid-April to early June and uncommon to locally uncommon from mid-July to early November; a few overwinter
Red Crossbill (<i>Loxia curvirostra</i>)	Erratic and irruptive; uncommon to locally abundant transient year-round resident; particularly irruptive in winter
Red Knot (<i>Calidris canutus</i>)	Rare to locally common from late October to mid-May; occasionally seen in the summer
Red-breasted Merganser (<i>Mergus serrator</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
Red-necked Grebe (Migratory) (<i>Podiceps grisegena</i>)	Fairly common migrant; rare breeder; very rare winter resident
Red-necked Phalarope (<i>Phalaropus lobatus</i>)	Common to abundant migrant offshore from late April to early June and from late June to late November; rare along coasts and very rare inland
Rough-legged Hawk (<i>Buteo lagopus</i>)	Irregularly rare to common visitor from mid-September to mid-May; locally uncommon breeder
Short-eared Owl (<i>Asio flammeus</i>)	Uncommon to locally fairly common migrant and winter visitor from early October to April; rare to uncommon breeder from April to September
Snowy Owl (<i>Nyctea scandiaca</i>)	Irregular; rare to locally common winter visitor from mid-October to early May; a few birds may linger into midsummer at coastal sites
Solitary Sandpiper (<i>Tringa solitaria</i>)	Uncommon from May to early October; rare in late April and mid-October
Vesper Sparrow (<i>Pooecetes gramineus</i>)	Uncommon migrant and breeder from mid-April to mid-November; rare in winter, although some birds have overwintered
Virginia Rail (<i>Rallus limicola</i>)	Uncommon to locally fairly common from early May to mid-September; some birds attempt to overwinter
Whimbrel (<i>Numenius phaeopus</i>)	Rare migrant from late April to early June and common to locally abundant from early July to late October; rare in summer and early winter
White-winged Crossbill (<i>Loxia leucoptera</i>)	Uncommon to fairly common; transient year-round resident; uncommon to locally abundant erratic, irruptive visitor from October to March
Willet (<i>Catoptrophorus semipalmatus</i>)	Rare to locally common visitor from mid-April to early October; some birds linger into November

Table B.10 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
Wilson's Phalarope (<i>Phalaropus tricolor</i>)	Rare to locally uncommon migrant from mid-May to mid- June; rare breeder; uncommon migrant from early August to October; a few birds linger into November
Atlantic Salmon (<i>salmo salar</i>)	Anadromous; overwinters at sea and returns to freshwater in spring to spawn.
Striped Bass (<i>Morone saxatilis</i>)	Anadromous; overwinters at sea and returns to freshwater in spring to spawn.

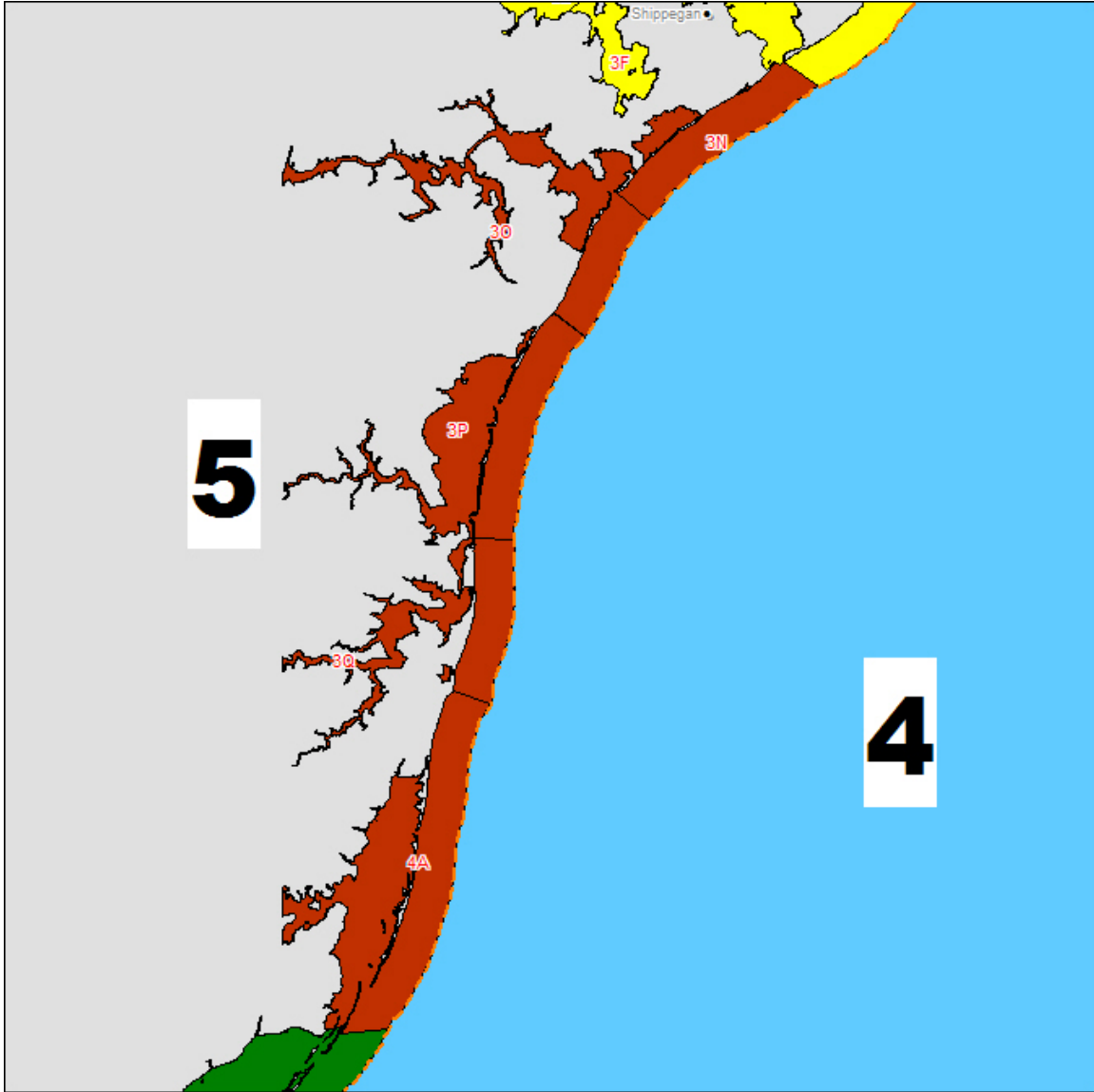


Table B.11 RCSR Environmental Setting Area 6

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Old Seal Gully (47° 16.63' N 64° 58.51' W) to Point Escuminac (47° 04.40' N 64° 47.82' W).</p>
<p>Marine Environment:</p>	<p>Major embayments of Neguac Bay and Miramichi Bay as well as smaller bays, inlets and harbours. The depth of the area ranges from approximately 0.2 to 12.9 m (DFO, 2004). The mean tidal range in the area is approximately 0.2 to 1.6 m (low to high tidal range). The tides are semi-diurnal. (DFO, 2006).</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO (2004), the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Dogfish (<i>Squalus acanthias</i>); • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Atlantic lobster (<i>Homarus americanus</i>); and • Rock crab (<i>Cancer irroratus</i>). <p>The following nearshore fish species are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>); • American eel (<i>Anguilla rostrata</i>); • Blue mussel (<i>Mytilus edulis</i>); • Soft-shelled clam (<i>Mya arenaria</i>); • Bar clam (<i>Spisula solidissima</i>);

Table B.11 RCSR Environmental Setting Area 6

<p>Fish and Fish Habitat (cont'd):</p>	<ul style="list-style-type: none"> • Razor clam (<i>Ensis directus</i>); • American oyster (<i>Crassostrea virginica</i>); and • Quahog (<i>Mercenaria mercenaria</i>). <p>An Atlantic lobster spawning area is indicated as occurring within the bounds of this study area.</p> <p>Note - a southern Gulf of St. Lawrence strain of striped bass (<i>Morone saxatilis</i>) spawning area is located in the Miramichi Estuary. This area is the only site where spawning of this strain of striped bass occurs in the Gulf of St. Lawrence (Department of Fisheries and Oceans, 2001).</p>
<p>Wildlife:</p>	<p>No sensitive marine mammal species were identified as occurring within the study area (AC CDC, 2006).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>The following bird species have been identified by Erskine (1992) as being in the study area:</p> <ul style="list-style-type: none"> • American Black Duck (<i>Anas rubripes</i>) • American Robin (<i>Turdus migratorius</i>) • Artic Tern (<i>Sterna paradisaea</i>) • Bay-breasted Warbler (<i>Dendroica castanea</i>) • Belted Kingfisher (<i>Ceryle alcyon</i>) • Black-and-White Warbler (<i>Mniotilta varia</i>) • Black-throated Green Warbler (<i>Dendroica virens</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>) • Common Grackle (<i>Quiscalus quiscula</i>) • Common Tern (<i>Sterna hirundo</i>)

Table B.11 RCSR Environmental Setting Area 6

<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):</p>	<ul style="list-style-type: none">• Dark-eyed Junco (<i>Junco hyemalis</i>)• Double-crested Cormorant (<i>Phalacrocorax auritus</i>)• Gray Catbird (<i>Dumetella carolinensis</i>)• Great Black-backed Gull (<i>Larus marinus</i>)• Herring Gull (<i>Larus argentatus</i>)• Killdeer (<i>Charadrius vociferus</i>)• Northern Flicker (<i>Colaptes auratus</i>)• Northern Harrier (<i>Circus cyaneus</i>)• Osprey (<i>Pandion haliaetus</i>)• Palm Warbler (<i>Dendroica palmarum</i>)• Piping Plover (<i>Charadrius melodus</i>)• Red-breasted Merganser (<i>Mergus serrator</i>)• Red-eyed Vireo (<i>Vireo olivaceus</i>)• Ring-billed Gull (<i>Larus delawarensis</i>)• Ruby-crowned Kinglet (<i>Regulus calendula</i>)• Savannah Sparrow (<i>Passerculus sandwichensis</i>)• Solitary Vireo (<i>Vireo solitarius</i>)• Swamp Sparrow (<i>Melospiza georgiana</i>)• Tennessee Warbler (<i>Vermivora peregrina</i>)
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Table B.11 RCSR Environmental Setting Area 6

<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):</p>	<ul style="list-style-type: none"> • Winter Wren (<i>Troglodytes troglodytes</i>) • Yellow-rumped Warbler (<i>Dendroica coronata</i>)
<p>Species at Risk:</p>	<p>Refer to Note 2 on Appendix B title page and Table B.12</p>
<p>Designated Areas:</p>	<p>According to a search by AC CDC the following ESA's can be found in this area:</p> <ul style="list-style-type: none"> • Bartibog River ESA • Bay du Vin Island ESA • Bay Du Vin River ESA • Black River ESA • Cheval Point ESA • Egg Island ESA • Grand Dune Inlet ESA • Hay Island/Ile au Foin ESA • Loggieville ESA • Miramichi River & Estuary ESA • Napan Bay ESA • Neguac Beach Sand Spits ESA • Point Aux Carr ESA • Portage Island National Wildlife Area ESA

Table B.11 RCSR Environmental Setting Area 6

Designated Areas (cont'd):	<ul style="list-style-type: none">• Fox Island ESA• Huckleberry Island ESA• Point Escuminac ESA• Preston Beach/McLeans Cove Salt Marsh ESA
Transportation and Navigation:	The main sources of transportation in this area are container shipping, commercial fishing and recreational boating. The area generally is ice free from March 15 to January 1 (Atlas of Canada, 2006).

Table B.12 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
American Wigeon (<i>Anas americana</i>)	Uncommon to locally abundant from early March to early June and from late August to October; rare to locally common breeder; rare and somewhat local in winter
Arctic Tern (<i>Sterna paradisaea</i>)	Locally uncommon migrant from late April to mid-June; uncommon breeder from early May to late August; rare from September to early November
Black Scoter (<i>Melanitta nigra</i>)	Uncommon from mid-April to May; rare to locally uncommon from mid-August to early November; locally uncommon in winter
Brant (<i>Branta bernicla</i>)	Rare to locally common migrant from April to early June and from October to November; very rare visitor in summer and winter
Brown Thrasher (<i>Toxostoma rufum</i>)	Rare breeder from late April to early August; rare to locally uncommon migrant from September to November; a few birds overwinter
Bufflehead (<i>Bucephala albeola</i>)	Common to locally abundant from late October to early May; rare at other times
Common Tern (<i>Sterna hirundo</i>)	Common migrant and breeder from April to mid-December; may be very abundant locally in autumn
Eastern Bluebird (<i>Sialia sialis</i>)	Rare to uncommon migrant and breeder from March to October
Eastern Meadowlark (<i>Sturnella magna</i>)	Rare to uncommon migrant and breeder from mid-March to mid-November; rare visitor from November to March
Gadwall (<i>Anas strepera</i>)	Uncommon to locally common from mid-April to mid-October; very rare winter resident
Greater Scaup (<i>Aythya marila</i>)	Uncommon to abundant migrant from late February to May and from September to November; rare to locally common breeder; uncommon to locally common winter resident
Horned Lark (<i>Eremophila alpestris</i>)	Locally uncommon breeder from April through mid-August, mostly along coasts, common to locally abundant migrant and winter resident from late September to April
Hudsonian Godwit (<i>Limosa haemastica</i>)	Rare migrant in June; uncommon to locally common migrant from mid-July to early November
Lesser Scaup (<i>Aythya affinis</i>)	Rare to uncommon migrant from mid-March to mid-May and from late August to early November; rare breeder; rare winter resident
Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>)	Uncommon to locally common breeder from June to August; rare migrant from mid-May to mid-June and from September to mid-November
Northern Gannet (<i>Morus bassanus</i>)	Locally common breeder; common offshore in migration; uncommon offshore in winter
Northern Mockingbird (<i>Mimus polyglottos</i>)	Rare to locally uncommon breeder; rare to locally common migrant in October and November; a few birds overwinter at feeders
Northern Pintail (<i>Anas acuta</i>)	Fairly common to common from early April to late May and from late August to early November; locally common breeder; rare winter resident

Table B.12 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
Northern Shoveler (<i>Anas clypeata</i>)	Uncommon to fairly common from late March to early June and from September to early November; locally uncommon breeder; very rare winter resident
Piping Plover (<i>Charadrius melodus</i>)	Locally uncommon from late September to early November; rare from early April to mid-May; rare and very local breeder; extremely rare in winter
Red Knot (<i>Calidris canutus</i>)	Rare to locally common from late October to mid-May; occasionally seen in the summer
Red-breasted Merganser (<i>Mergus serrator</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
Whimbrel (<i>Numenius phaeopus</i>)	Rare migrant from late April to early June and common to locally abundant from early July to late October; rare in summer and early winter
Whip-Poor-Will (<i>Caprimulgus vociferus</i>)	Locally rare breeder from mid-May to September; rare to uncommon migrant
White-winged Crossbill (<i>Loxia leucoptera</i>)	Uncommon to fairly common; transient year-round resident; uncommon to locally abundant erratic, irruptive visitor from October to March
Atlantic Salmon (<i>salmo salar</i>)	Anadromous; overwinters at sea and returns to freshwater in spring to spawn.
Striped Bass (<i>Morone saxatilis</i>)	Anadromous; overwinters at sea and returns to freshwater in spring to spawn.

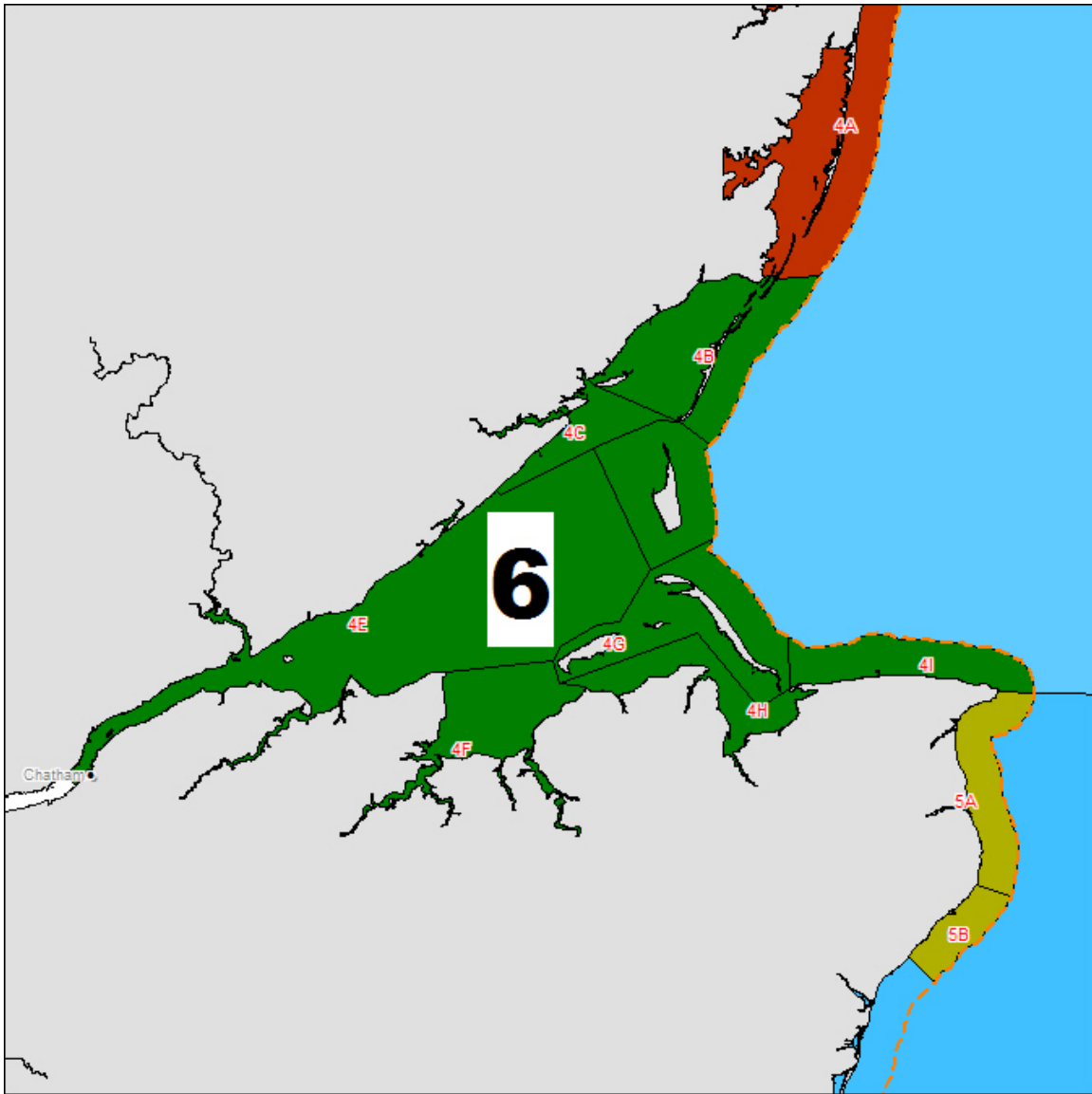


Table B.13 RCSR Environmental Setting Area 7

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Point Escuminac (47° 04.40' N 64° 47.82' W) to Cap Lumiere (46° 40.44' N 64° 42.66' W). The tidal waters of Kouchibouquac National Park are specifically excluded from this Area for the purposes of this RCSR.</p>
<p>Marine Environment:</p>	<p>Major embayment of Richibucto Harbour as well as smaller bays, small inlets and harbours. The depth of the area ranges from approximately 0.3 to 7.9 m (DFO, 2004). The mean tidal range in the area is approximately 0.1 to 1.4 m (low to high tidal range). The tides are semi-diurnal. (DFO, 2006).</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are indicated as occurring within this study area:</p> <p style="padding-left: 40px;">Atlantic herring (<i>Clupea harengus harengus</i>);</p> <p style="padding-left: 40px;">Winter flounder (<i>Pseudopleuronectes americanus</i>);</p> <p style="padding-left: 40px;">Atlantic lobster (<i>Homarus americanus</i>); and</p> <p style="padding-left: 40px;">Rock crab (<i>Cancer irroratus</i>).</p> <p>The following nearshore fish species are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>); • Atlantic salmon (<i>Salmo salar</i>); • American eel (<i>Anguilla rostrata</i>); • Striped bass (<i>Morone saxatilis</i>); • Soft-shelled clam (<i>Mya arenaria</i>); • Bar clam (<i>Spisula solidissima</i>); • Razor clam (<i>Ensis directus</i>); and • American oyster (<i>Crassostrea virginica</i>).

Table B.13 RCSR Environmental Setting Area 7

Fish and Fish Habitat (cont'd):	Atlantic herring, Atlantic lobster and rock crab spawning areas are indicated as occurring within the bounds of this study area.
Wildlife:	Harbour seals (<i>Phoca vitulina</i>) are listed as occurring in the area (DFO, 2004).
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	<p>The following bird species have been identified by Erskine (1992) as being in the study area:</p> <ul style="list-style-type: none"> • American Black Duck (<i>Anas rubripes</i>) • American Robin (<i>Turdus migratorius</i>) • American Widgeon (<i>Anas americana</i>) • Bay-breasted Warbler (<i>Dendroica castanea</i>) • Black-and-White Warbler (<i>Mniotilta varia</i>) • Blackburnian Warbler (<i>Dendroica fusca</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>) • Cape May Warbler (<i>Dendroica tigrina</i>) • Eastern Kingbird (<i>Tyrannus tyrannus</i>) • Killdeer (<i>Charadrius vociferus</i>) • Osprey (<i>Pandion haliaetus</i>) • Piping Plover (<i>Charadrius melodus</i>) • Red-eyed Vireo (<i>Vireo olivaceus</i>) • Savannah Sparrow (<i>Passerculus sandwichensis</i>) • Swamp Sparrow (<i>Melospiza georgiana</i>) • Tennessee Warbler (<i>Vermivora peregrina</i>) • Upland Sandpiper (<i>Bartramia longicauda</i>) • White-throated Sparrow (<i>Zonotrichia albicollis</i>) • Yellow-rumped Warbler (<i>Dendroica coronata</i>)
Species at Risk:	Refer to Note 2 on Appendix B title page and Table B.14

Table B.13 RCSR Environmental Setting Area 7

Designated Areas:	According to a search by AC CDC the following ESA's can be found in this area: Escuminac Beaches ESA Escuminac River ESA Pointe-sapin Pond ESA Richibucto Estuary ESA Richibucto-village Estuary ESA South Richibucto Dune ESA York Point Island ESA
Transportation and Navigation:	The main source of transportation in this area is commercial fishing. The area generally is ice free from Mar. 15 to Jan. 1 (Atlas of Canada, 2006) and has icebreaker service available from Jan. 1 to Apr. 26 (Canadian Coast Guard, 2006).

Table B.14 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
American Wigeon (<i>Anas americana</i>)	Uncommon to locally abundant from early March to early June and from late August to October; rare to locally common breeder; rare and somewhat local in winter
Boreal Owl (<i>Aegolius funereus</i>)	Rare breeder from mid-March to August; locally uncommon migrant and winter visitor outside breeding range from September to March
Brant (<i>Branta bernicla</i>)	Rare to locally common migrant from April to early June and from October to November; very rare visitor in summer and winter
Common Tern (<i>Sterna hirundo</i>)	Common migrant and breeder from April to mid-December; may be very abundant locally in autumn
Eastern Bluebird (<i>Sialia sialis</i>)	Rare to uncommon migrant and breeder from March to October
Horned Lark (<i>Eremophila alpestris</i>)	Locally uncommon breeder from April through mid-August, mostly along coasts, common to locally abundant migrant and winter resident from late September to April
Northern Mockingbird (<i>Mimus polyglottos</i>)	Rare to locally uncommon breeder; rare to locally common migrant in October and November; a few birds overwinter at feeders
Northern Pintail (<i>Anas acuta</i>)	Fairly common to common from early April to late May and from late August to early November; locally common breeder; rare winter resident
Pine Grosbeak (<i>Pinicola enucleator</i>)	Uncommon to common transient and year-round resident; irregularly uncommon to abundant visitor outside of breeding habitats, usually from October to March
Piping Plover (<i>Charadrius melodus</i>)	Locally uncommon from late September to early November; rare from early April to mid-May; rare and very local breeder; extremely rare in winter
Red Crossbill (<i>Loxia curvirostra</i>)	Erratic and irruptive; uncommon to locally abundant transient year-round resident; particularly irruptive in winter
Red-breasted Merganser (<i>Mergus serrator</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
Upland Sandpiper (<i>Bartramia longicauda</i>)	Rare to uncommon from mid-April to late September; occasionally seen on offshore islands as late as November
Vesper Sparrow (<i>Pooecetes gramineus</i>)	Uncommon migrant and breeder from mid-April to mid-November; rare in winter, although some birds have overwintered
Whip-Poor-Will (<i>Caprimulgus vociferus</i>)	Locally rare breeder from mid-May to September; rare to uncommon migrant
White-winged Crossbill (<i>Loxia leucoptera</i>)	Uncommon to fairly common; transient year-round resident; uncommon to locally abundant erratic, irruptive visitor from October to March
Wood Thrush (<i>Hylocichla mustelina</i>)	Rare to locally uncommon migrant and breeder from mid-April to early November; a few may remain into December
Striped Bass (<i>Morone saxatilis</i>)	Anadromous; overwinters at sea and returns to freshwater in spring to spawn.

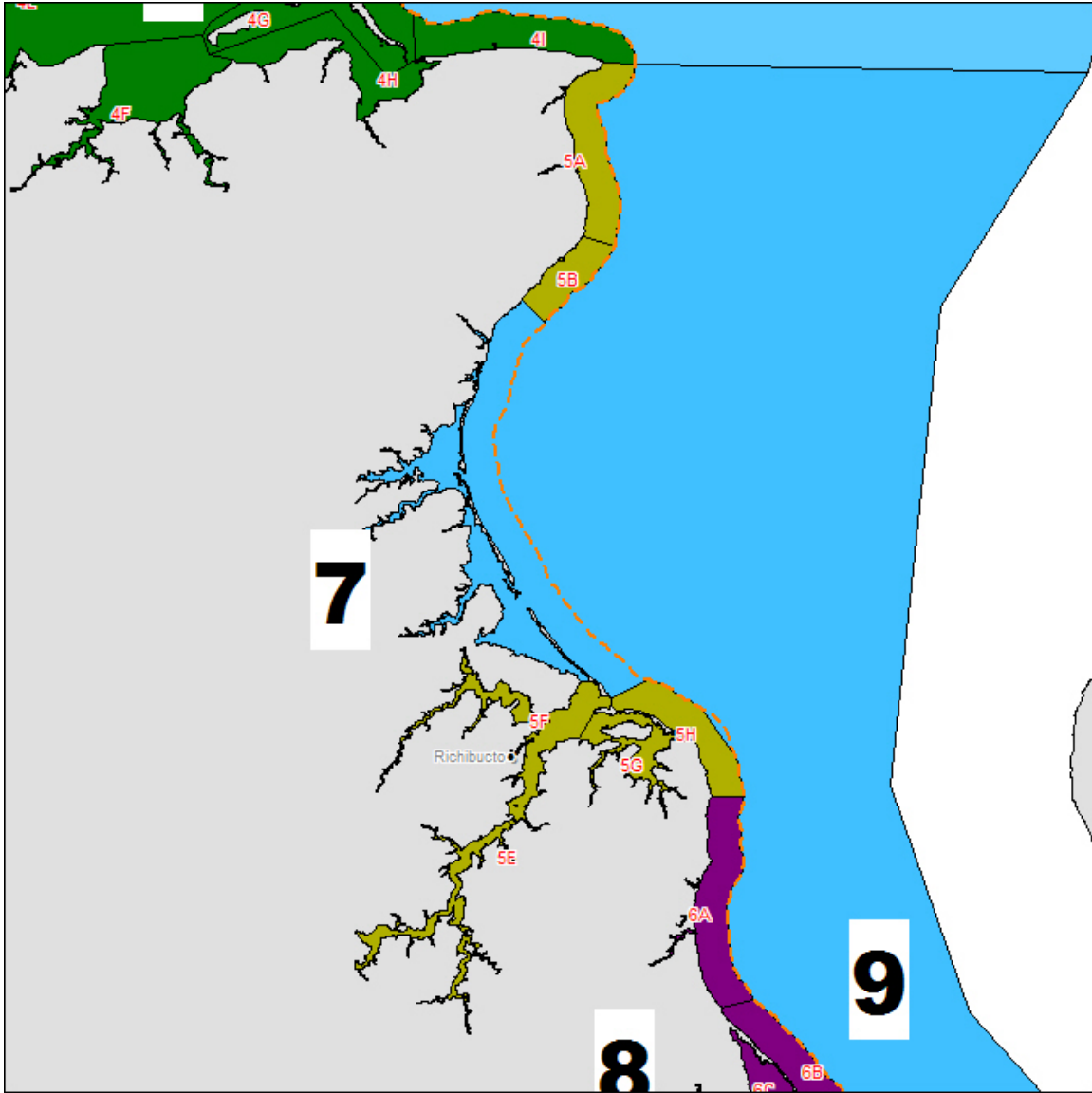


Table B.15 RCSR Environmental Setting Area 8

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Starts at Cap Lumiere (46° 40.44' N 64° 42.66' W) and follows the shoreline to Cap des Cassie (46° 20.43' N 64° 31.55' W), including all islands and water bodies within a 2 km range from the shore.</p>
<p>Marine Environment:</p>	<p>Area 8 consists of the major embayments of Bouctouche Bay and Cocagne Harbour as well as smaller bays and several small inlets and harbours. The depth of the area ranges from approximately 0.3 to 7.9 m (DFO, 2004).</p> <p>The mean tidal range in the area is approximately 0.1 to 1.1 m (low to high tidal range). The tides are semi-diurnal. (DFO, 2006).</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Winter flounder (<i>Pseudopleuronectes americanus</i>); • Atlantic lobster (<i>Homarus americanus</i>); • Rock crab (<i>Cancer irroratus</i>); • Moonsnail (<i>Lunatia heros</i>); • Periwinkle (<i>Littorina sp.</i>); and • Sea urchin (<i>Strongylocentrotus droebachiensis</i>). <p>The following nearshore fish and shellfish species are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>); • Atlantic salmon (<i>Salmo salar</i>); • American eel (<i>Anguilla rostrata</i>); • Blue mussel (<i>Mytilus edulis</i>); • Soft-shelled clam (<i>Mya arenaria</i>); • Bar clam (<i>Spisula solidissima</i>); • Razor clam (<i>Ensis directus</i>);

Table B.15 RCSR Environmental Setting Area 8

	<ul style="list-style-type: none"> • American oyster (<i>Crassostrea virginica</i>); and • Quahog (<i>Mercenaria mercenaria</i>). <p>Atlantic herring, Atlantic lobster and rock crab spawning areas are indicated as occurring within the bounds of this study area.</p>
Wildlife:	<p>Harbour seals (<i>Phoca vitulina</i>) and harbour porpoise (<i>Phocoena phocoena</i>) are indicated as occurring in the area (DFO, 2004).</p>
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	<p>The following bird species have been identified by Erskine (1992) as being in the study area:</p> <ul style="list-style-type: none"> • American Black Duck (<i>Anas rubripes</i>) • American Robin (<i>Turdus migratorius</i>) • American Widgeon (<i>Anas americana</i>) • Bay-breasted Warbler (<i>Dendroica castanea</i>) • Belted Kingfisher (<i>Ceryle alcyon</i>) • Blackburnian Warbler (<i>Dendroica fusca</i>) • Bobolink (<i>Dolichonyx oryzivorus</i>) • Common Grackle (<i>Quiscalus quiscula</i>) • Common Tern (<i>Sterna hirundo</i>) • Dark-eyed Junco (<i>Junco hyemalis</i>) • Gray Catbird (<i>Dumetella carolinensis</i>) • Great Blue Heron (<i>Ardea herodias</i>) • Green-winged Teal (<i>Anas crecca</i>) • Horned Lark (<i>Eremophila alpestris</i>) • Killdeer (<i>Charadrius vociferus</i>) • Northern Flicker (<i>Colaptes auratus</i>) • Osprey (<i>Pandion haliaetus</i>) • Piping Plover (<i>Chardrius melodus</i>) • Ruby-crowned Kinglet (<i>Regulus calendula</i>) • Savannah Sparrow (<i>Passerculus sandwichensis</i>) • Spotted Sandpiper (<i>Actitis macularia</i>)

Table B.15 RCSR Environmental Setting Area 8

	<ul style="list-style-type: none"> • White-throated Sparrow (<i>Zonotrichia albicollis</i>) • Willet (<i>Catoptrophorus semipalmatus</i>) • Yellow-rumped Warbler (<i>Dendroica coronata</i>)
Species at Risk:	Refer to Note 2 on Appendix B title page and Table B.16.
Designated Areas:	<p>According to a search by AC CDC the following ESA's can be found in this area:</p> <ul style="list-style-type: none"> • Buctouche Bar ESA • Chockpish Dune ESA • Black River Estuary ESA • Buctouche River ESA • Cocagne Bar ESA • Cocagne Island ESA • Cocagne River ESA • Little Buctouche River ESA • Mill Creek ESA
Transportation and Navigation:	<p>The main sources of transportation in this area are commercial fishing and recreational boating.</p> <p>The area generally is ice free from Apr. 1 to Jan. 1 (Atlas of Canada, 2006) .</p>

Table B.16 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
American Wigeon (<i>Anas americana</i>)	Uncommon to locally abundant from early March to early June and from late August to October; rare to locally common breeder; rare and somewhat local in winter
Barrow's Goldeneye (Eastern population) (<i>Bucephala islandica</i>)	Rare to locally common from late October to mid-April; locally uncommon breeder
Black-headed Gull (<i>Larus ridibundus</i>)	Rare to uncommon visitor from early April to May; locally rare breeder; many remain through the winter
Brant (<i>Branta bernicla</i>)	Rare to locally common migrant from April to early June and from October to November; very rare visitor in summer and winter
Common Tern (<i>Sterna hirundo</i>)	Common migrant and breeder from April to mid-December; may be very abundant locally in autumn
Eastern Bluebird (<i>Sialia sialis</i>)	Rare to uncommon migrant and breeder from March to October
Horned Lark (<i>Eremophila alpestris</i>)	Locally uncommon breeder from April through mid-August, mostly along coasts, common to locally abundant migrant and winter resident from late September to April
Hudsonian Godwit (<i>Limosa haemastica</i>)	Rare migrant in June; uncommon to locally common migrant from mid-July to early November
Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>)	Uncommon to locally common breeder from June to August; rare migrant from mid-May to mid-June and from September to mid-November
Northern Mockingbird (<i>Mimus polyglottos</i>)	Rare to locally uncommon breeder; rare to locally common migrant in October and November; a few birds overwinter at feeders
Piping Plover (<i>Charadrius melodus</i>)	Locally uncommon from late September to early November; rare from early April to mid-May; rare and very local breeder; extremely rare in winter
Red Knot (<i>Calidris canutus</i>)	Rare to locally common from late October to mid-May; occasionally seen in the summer
Red-breasted Merganser (<i>Mergus serrator</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
Red-necked Phalarope (<i>Phalaropus lobatus</i>)	Common to abundant migrant offshore from late April to early June and from late June to late November; rare along coasts and very rare inland
Snowy Owl (<i>Nyctea scandiaca</i>)	Irregular; rare to locally common winter visitor from mid-October to early May; a few birds may linger into midsummer at coastal sites
White-winged Crossbill (<i>Loxia leucoptera</i>)	Uncommon to fairly common; transient year-round resident; uncommon to locally abundant erratic, irruptive visitor from October to March
Willet (<i>Catoptrophorus semipalmatus</i>)	Rare to locally common visitor from mid-April to early October; some birds linger into November
Wood Thrush (<i>Hylocichla mustelina</i>)	Rare to locally uncommon migrant and breeder from mid-April to early November; a few may remain into December

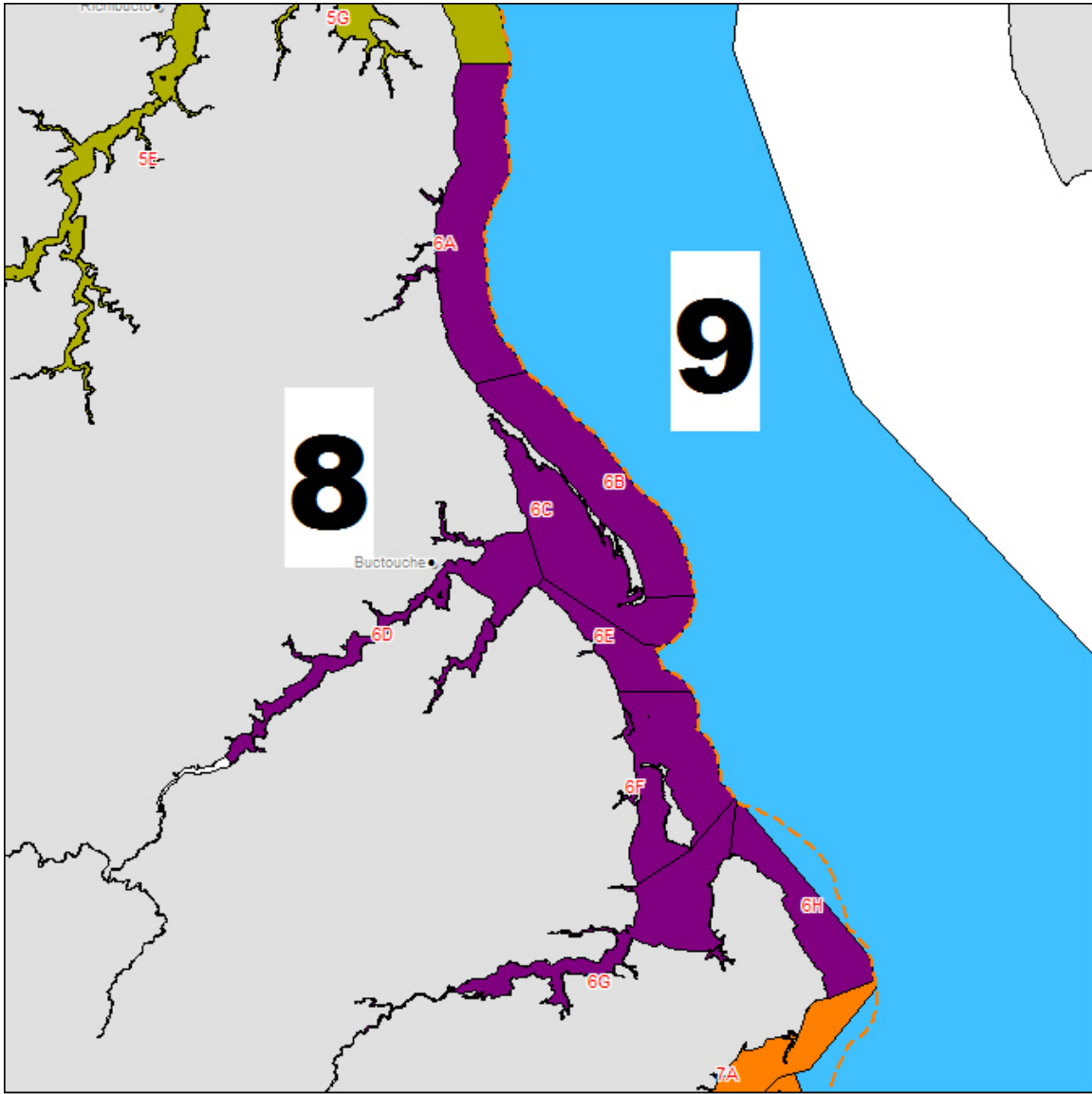


Table B.17 RCSR Environmental Setting Area 9

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>An area between 2 km offshore, following the inshore contour, and approximately 5.5 km offshore - Point Escuminac (47° 04.36' N 64° 02.60' W) to Jackson Point (46° 00.86' N 64° 02.60' W).</p>
<p>Marine Environment:</p>	<p>Area 9 is the Northumberland Strait. The depth of the area ranges from approximately 8 to 28 m (DFO, 2004). Tidal fluctuations affecting this area are negligible.</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Bluefin tuna (<i>Thunnus thynnus</i>); • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Atlantic cod (<i>Gadus morhua</i>); • Hake (<i>Urophycis tenuis</i>); • Winter flounder (<i>Pseudopleuronectes americanus</i>); • Atlantic lobster (<i>Homarus americanus</i>); • Rock crab (<i>Cancer irroratus</i>); • Moonsnail (<i>Lunatia heros</i>); • Bar clam (<i>Spisula solidissima</i>); • Periwinkle (<i>Littorina sp.</i>); • Atlantic deep-sea scallop (<i>Placopecten magellanicus</i>); • Whelk (<i>Buccinidae sp.</i>); and • Sea urchin (<i>Strongylocentrotus droebachiensis</i>). <p>No nearshore fish species are indicated as occurring within this study area.</p>

Table B.17 RCSR Environmental Setting Area 9

Fish and Fish Habitat (cont'd):	Atlantic herring, Atlantic lobster, and rock crab spawning areas are indicated as occurring within the bounds of this study area. An Atlantic deep-sea scallop enhancement site has also been indicated as occurring within this study area.
Wildlife:	Harbour seals (<i>Phoca vitulina</i>), harbour porpoise (<i>Phocoena phocoena</i>), and whales (in general, including the fin whale (<i>Balaenoptera physalus</i>)) are indicated as occurring in the area (DFO, 2004).
Migratory Birds, Seabirds, Shorebirds, and Waterfowl:	Although this study area would not be used for nesting purposes, a variety of migratory bird, seabird, shorebird, and/or waterfowl may be observed within this area for use as feeding, staging, or stop-over purposes.
Species at Risk:	None identified as per AC CDC review (2006).
Designated Areas:	None identified as per AC CDC review (2006).
Transportation and Navigation:	The main source of transportation in this area is commercial fishing. The area generally is ice free from April 1 to January 1 (Atlas of Canada, 2006).

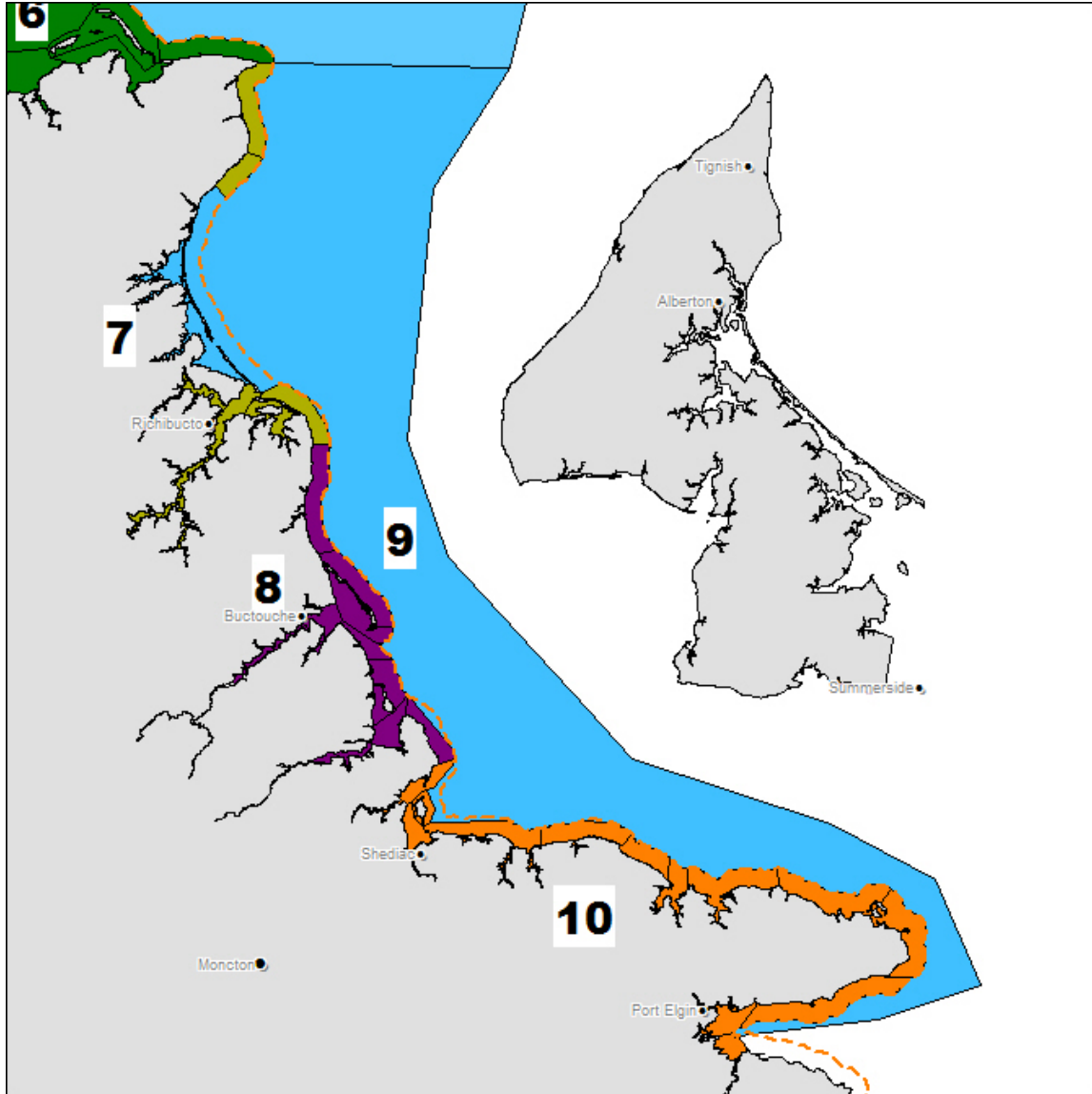


Table B.18 RCSR Environmental Setting Area 10

<p>Approximate Boundaries of Environmental Setting Area:</p>	<p>Cap des Cassie (46° 40.44' N 64° 42.66' W) to Jackson Point (46° 00.00' N 64° 03.46' W)</p>
<p>Marine Environment:</p>	<p>Major embayments of Shediac Bay, Shemogue Harbour, Little Shemogue Harbour and Baie Verte as well as smaller bays, inlets and harbours. The depth of the area ranges from approximately 0.3 to 10.19 m (DFO, 2004). The mean tidal range in the area is approximately 0.2 to 2.8 m (low to high tidal range). The tides are semi-diurnal. (DFO, 2006).</p>
<p>Fish and Fish Habitat:</p>	<p>According to TFM from DFO, the following inshore fish and marine invertebrate species (i.e., crustaceans, shellfish, and echinoderms) are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Atlantic herring (<i>Clupea harengus harengus</i>); • Atlantic mackerel (<i>Scomber scombrus</i>); • Shark (<i>Squaliformes sp.</i>); • Hake (<i>Urophycis tenuis</i>); • Winter flounder (<i>Pseudopleuronectes americanus</i>); • Atlantic lobster (<i>Homarus americanus</i>); • Rock crab (<i>Cancer irroratus</i>); • Moonsnail (<i>Lunatia heros</i>); • Periwinkle (<i>Littorina sp.</i>); • Atlantic deep-sea scallop (<i>Placopecten magellanicus</i>); • Short-finned squid (<i>Lolliguncula brevis</i>); and • Whelk (<i>Buccinidae sp.</i>).

Table B.18 RCSR Environmental Setting Area 10

<p>Fish and Fish Habitat (cont'd):</p>	<p>The following nearshore fish species are indicated as occurring within this study area:</p> <ul style="list-style-type: none"> • Alewife (<i>Alosa pseudoharengus</i>); • Rainbow smelt (<i>Osmerus mordax</i>); • Atlantic salmon (<i>Salmo salar</i>); • American eel (<i>Anguilla rostrata</i>); • Striped bass (<i>Morone saxatilis</i>); • Blue mussel (<i>Mytilus edulis</i>); • Soft-shelled clam (<i>Mya arenaria</i>); • Bar clam (<i>Spisula solidissima</i>); • Razor clam (<i>Ensis directus</i>); • American oyster (<i>Crassostrea virginica</i>); and • Quahog (<i>Mercenaria mercenaria</i>). <p>Atlantic herring and rock crab spawning areas are indicated as occurring within the bounds of this study area.</p>
<p>Wildlife:</p>	<p>Harbour porpoise (<i>Phocoena phocoena</i>) are indicated as occurring in the area (DFO, 2004).</p>
<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl:</p>	<p>The following bird species have been identified by Erskine (1992) as being in the study area:</p> <ul style="list-style-type: none"> • American Bittern (<i>Botaurus lentiginosus</i>) • American Black Duck (<i>Anas rubripes</i>) • American Robin (<i>Turdus migratorius</i>) • American Widgeon (<i>Anas americana</i>)

Table B.18 RCSR Environmental Setting Area 10

Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):	<ul style="list-style-type: none">• Bay-breasted Warbler (<i>Dendroica castanea</i>)• Belted Kingfisher (<i>Ceryle alcyon</i>)• Black-and-White Warbler (<i>Mniotilta varia</i>)• Blackburnian Warbler (<i>Dendroica fusca</i>)• Black-throated Green Warbler (<i>Dendroica virens</i>)• Blue-winged Teal (<i>Anas discors</i>)• Bobolink (<i>Dolichonyx oryzivorus</i>)• Broad-winged Hawk (<i>Buteo platypterus</i>)• Common Grackle (<i>Quiscalus quiscula</i>)• Common Yellowthroat (<i>Geothlypis trichas</i>)• Dark-eyed Junco (<i>Junco hyemalis</i>)• Gray Catbird (<i>Dumetella carolinensis</i>)• Great Blue Heron (<i>Ardea herodias</i>)• Green-winged Teal (<i>Anas crecca</i>)• Killdeer (<i>Charadrius vociferus</i>)• Northern Flicker (<i>Colaptes auratus</i>)• Northern Harrier (<i>Circus cyaneus</i>)• Northern Pintail (<i>Anas acuta</i>)• Osprey (<i>Pandion haliaetus</i>)• Ovenbird (<i>Seiurus aurocapillus</i>)
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Table B.18 RCSR Environmental Setting Area 10

<p>Migratory Birds, Seabirds, Shorebirds, and Waterfowl (cont'd):</p>	<ul style="list-style-type: none"> • Pied-billed Grebe (<i>Podilymbus podiceps</i>) • Piping Plover (<i>Charadrius melodus</i>) • Red-breasted Merganser (<i>Mergus serrator</i>) • Ring-necked Duck (<i>Aythya collaris</i>) • Ruby-crowned Kinglet (<i>Regulus calendula</i>) • Savannah Sparrow (<i>Passerculus sandwichensis</i>) • Sharp-tailed Sparrow (<i>Ammodramus caudacutus</i>) • Spotted Sandpiper (<i>Actitis macularia</i>) • Swamp Sparrow (<i>Melospiza georgiana</i>) • Tennessee Warbler (<i>Vermivora peregrina</i>) • Willet (<i>Catoptrophorus semipalmatus</i>) • Wood Duck (<i>Aix sponsa</i>) • Yellow-rumped Warbler (<i>Dendroica coronata</i>)
<p>Species at Risk:</p>	<p>Refer to Note 2 on Appendix B title page and Table B.19.</p>
<p>Designated Areas:</p>	<p>According to a search by AC CDC the following ESA's can be found in this area:</p> <ul style="list-style-type: none"> • Shediac Island ESA • Baie Verte ESA • Grant Point ESA

Table B.18 RCSR Environmental Setting Area 10

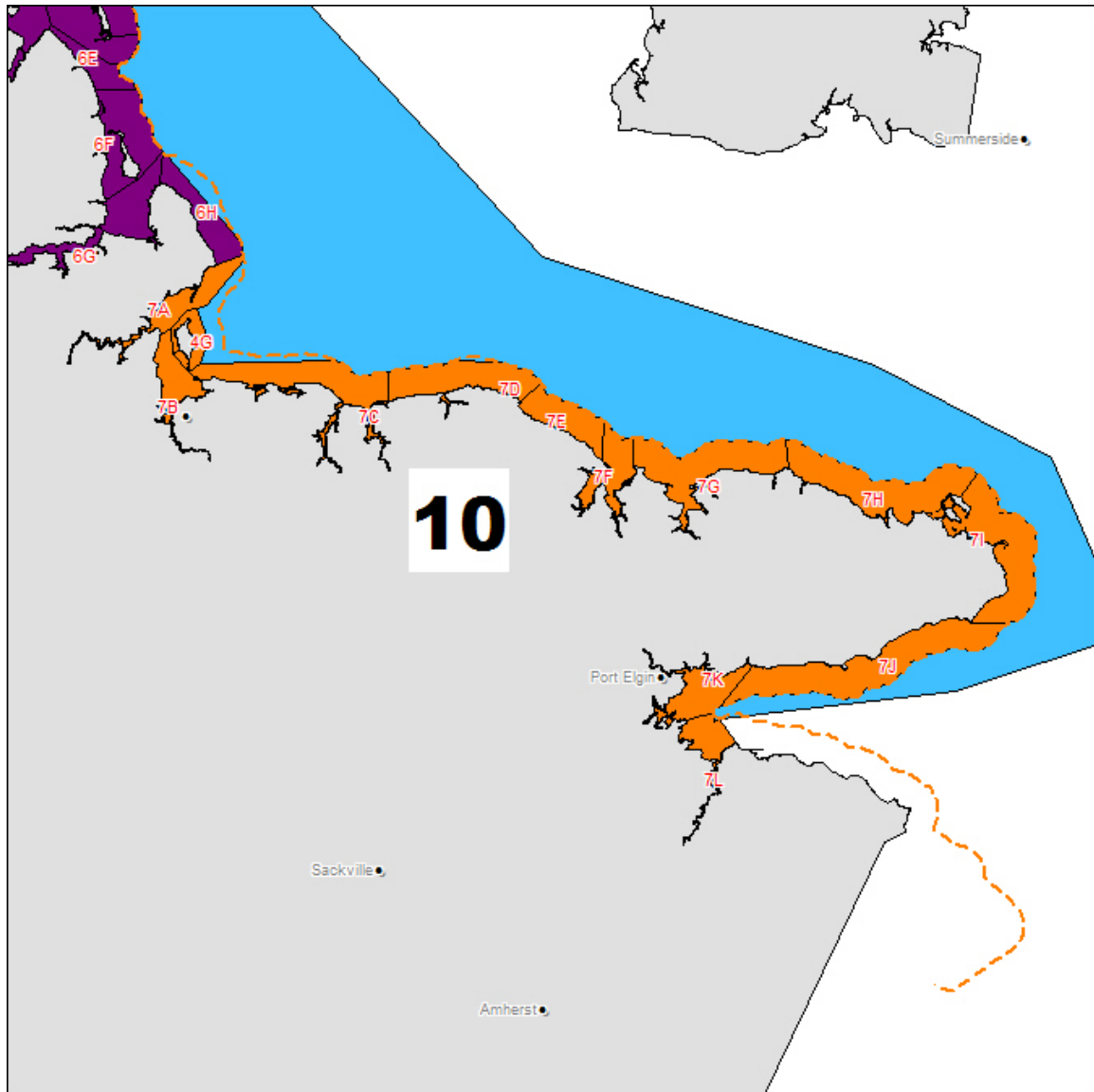
Designated Areas (cont'd):	<ul style="list-style-type: none">• Johnson's Point ESA• Little Cape ESA• Petit Barachois ESA• Cape Jourimain National Wildlife Area ESA• Upper Cape Coast ESA
Transportation and Navigation:	The main sources of transportation in this area are commercial fishing and recreational boating. The area generally is ice free from Apr. 1 to Jan. 1 (Atlas of Canada, 2006).

Table B.19 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
American Golden-Plover (<i>Phuivialis dominica</i>)	Rare migrant from early April to May; common to abundant migrant from early August to November
American Wigeon (<i>Anas americana</i>)	Uncommon to locally abundant from early March to early June and from late August to October; rare to locally common breeder; rare and somewhat local in winter
Barrow's Goldeneye (Eastern population) (<i>Bucephala islandica</i>)	Rare to locally common from late October to mid-April; locally uncommon breeder
Black-headed Gull (<i>Larus ridibundus</i>)	Rare to uncommon visitor from early April to May; locally rare breeder; many remain through the winter
Brant (<i>Branta bernicla</i>)	Rare to locally common migrant from April to early June and from October to November; very rare visitor in summer and winter
Bufflehead (<i>Bucephala albeola</i>)	Common to locally abundant from late October to early May; rare at other times
Common Tern (<i>Sterna hirundo</i>)	Common migrant and breeder from April to mid-December; may be very abundant locally in autumn
Eastern Bluebird (<i>Sialia sialis</i>)	Rare to uncommon migrant and breeder from March to October
Gadwall (<i>Anas strepera</i>)	Uncommon to locally common from mid-April to mid-October; very rare winter resident
Glaucous Gull (<i>Larus hyperboreus</i>)	Rare to locally uncommon visitor from early November through May; exceptionally rare visitor from June to early July
Green Heron (<i>Butorides virescens</i>)	Rare from late April to early November, local breeder
Hudsonian Godwit (<i>Limosa haemastica</i>)	Rare migrant in June; uncommon to locally common migrant from mid-July to early November
Iceland Gull (<i>Larus glaucoides</i>)	Uncommon to locally abundant visitor from October to May
Nelson's Sharp-tailed Sparrow (<i>Ammodramus nelsoni</i>)	Uncommon to locally common breeder from June to August; rare migrant from mid-May to mid-June and from September to mid-November
Northern Mockingbird (<i>Mimus polyglottos</i>)	Rare to locally uncommon breeder; rare to locally common migrant in October and November; a few birds overwinter at feeders
Northern Pintail (<i>Anas acuta</i>)	Fairly common to common from early April to late May and from late August to early November; locally common breeder; rare winter resident
Northern Shoveler (<i>Anas clypeata</i>)	Uncommon to fairly common from late March to early June and from September to early November; locally uncommon breeder; very rare winter resident
Pectoral Sandpiper (<i>Calidris melanotos</i>)	Fairly common to locally common migrant from late July to late October; some linger to late November; rare to locally uncommon migrant from mid-April to mid-May
Pine Grosbeak (<i>Pinicola enucleator</i>)	Uncommon to common transient and year-round resident; irregularly uncommon to abundant visitor outside of breeding habitats, usually from October to March

Table B.19 List of Sensitive Species Potentially Occurring in the Environmental Setting Area (AC CDC, 2006) and Associated Seasonal Occurrence:

Species	Seasonal Occurrence
Piping Plover (<i>Charadrius melodus</i>)	Locally uncommon from late September to early November; rare from early April to mid-May; rare and very local breeder; extremely rare in winter
Purple Martin (<i>Progne subis</i>)	Locally uncommon breeder from late April to August; common migrant in April and September; a few may arrive as early as late March; and some may remain until late October
Red Knot (<i>Calidris canutus</i>)	Rare to locally common from late October to mid-May; occasionally seen in the summer
Red-breasted Merganser (<i>Mergus serrator</i>)	Uncommon to locally abundant migrant from late March to May and from October to November; common winter resident; uncommon to locally common breeder.
Red-necked Phalarope (<i>Phalaropus lobatus</i>)	Common to abundant migrant offshore from late April to early June and from late June to late November; rare along coasts and very rare inland
Red-shouldered Hawk (<i>Buteo lineatus</i>)	Locally uncommon from late September to early November; rare from early April to mid-May; rare and very local breeder; extremely rare in winter
Rough-legged Hawk (<i>Buteo lagopus</i>)	Irregularly rare to common visitor from mid-September to mid-May; locally uncommon breeder
Snowy Owl (<i>Nyctea scandiaca</i>)	Irregular; rare to locally common winter visitor from mid-October to early May; a few birds may linger into midsummer at coastal sites
Whimbrel (<i>Numenius phaeopus</i>)	Rare migrant from late April to early June and common to locally abundant from early July to late October; rare in summer and early winter
White-winged Crossbill (<i>Loxia leucoptera</i>)	Uncommon to fairly common; transient year-round resident; uncommon to locally abundant erratic, irruptive visitor from October to March
Willet (<i>Catoptrophorus semipalmatus</i>)	Rare to locally common visitor from mid-April to early October; some birds linger into November
Wilson's Phalarope (<i>Phalaropus tricolor</i>)	Rare to locally uncommon migrant from mid-May to mid-June; rare breeder; uncommon migrant from early August to October; a few birds linger into November



APPENDIX C: APPLICABLE LEGISLATION ADMINISTERED BY ENVIRONMENT CANADA

Note: This has been adapted from the Fact Sheet for marine finfish aquaculture as prepared by EC.

<p><i>Fisheries Act</i></p> <p>Pollution Prevention Provisions</p> <p>Prohibits the deposit of remains or offal or fish or marine animals on the shore, beach or bank of any water or on the beach between the high and low water marks, or leaving decayed or decaying fish in any net or other fishing apparatus.</p> <p>Prohibits the deposition of deleterious substances into waters frequented by fish.</p>	<ul style="list-style-type: none"> • Promotes pollution prevention and sustainable management practices, including provisions for contingency planning, to ensure that water quality is maintained for healthy ecosystems.
<p><i>Migratory Birds Convention Act and associated regulations (Migratory Birds Regulations, Migratory Bird Sanctuary Regulations)</i></p> <p>Prohibits the hunting of migratory bird except under authority of a permit, and “hunt” means chase, pursue, worry, follow after or on the trail of, lie in wait for, or attempt in any manner to capture, kill, injure or harass a migratory bird, whether or not the migratory bird is captured, killed or injured”. (s 5(1))</p> <p>Prohibits the disturbance, destruction or taking of a nest, egg, nest shelter, eider duck shelter or duck box of a migratory bird, or have in his possession a live migratory bird, or a carcass, skin, nest or egg of a</p>	<ul style="list-style-type: none"> • Sustainable siting is to ensure that migratory birds are not killed, harmed or harassed as result of activities associated with shellfish aquaculture facilities.

<p>migratory bird except under authority of a permit.</p> <p>The <i>Migratory Birds Convention Act</i> states that “no person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area” (s.5.1(1)), and “No person or vessel shall deposit a substance or permit a substance to be deposited in any place if the substance, in combination with one or more substances, results in a substance — in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area — that is harmful to migratory birds.” (s.5.1(2)).</p>	<ul style="list-style-type: none"> • Promotes pollution prevention and sustainable management practices, including provisions for contingency planning, to ensure that water quality is maintained for healthy ecosystems.
<p><i>Wildlife Area Regulations</i></p> <p>In National Wildlife Areas, it is prohibited to</p> <p>(a) hunt or fish,</p> <p>(b) be in possession of any firearm, slingshot, bow and arrow, shot other than non-toxic shot or any instrument that could be used for the purpose of hunting,</p> <p>(b.1) be in possession of, while fishing, any lead sinkers or lead jigs that weigh less than 50 grams,</p> <p>(c) have in his possession any animal, carcass, nest, egg or a part of any of those things,</p>	

- (d) damage, destroy or remove a plant,
- (e) carry on any agricultural activity, graze livestock or harvest any natural or cultivated crop,
- (f) allow any domestic animal to run at large,
- (g) swim, picnic, camp or carry on any other recreational activity or light or maintain a fire,
- (h) operate a conveyance,
- (i) destroy or molest animals or carcasses, nests or eggs thereof,
- (j) remove, deface, damage or destroy any artifact, natural object, building, fence, poster, sign or other structure,
- (k) carry on any commercial or industrial activity,
- (l) disturb or remove any soil, sand, gravel or other material, or
- (m) dump or deposit any rubbish, waste material or substance that would degrade or alter the quality of the environment,

unless he does so under and in accordance with a permit issued by the Minister pursuant to section 4.”
(s3(1))

(2) Where the Minister has published a notice in a local newspaper or posted a notice at the entrance of any wildlife area or on the boundary of any part thereof permitting an activity described in subsection (1), any person may carry on the activity described in the notice if the activity is carried on in accordance with the notice.

<p><i>Species at Risk Act</i></p> <p>The Minister of Environment's responsibilities under the Act include the protection and recovery of migratory birds and species at risk on federal lands other than those under the responsibility of the Minister of Fisheries and Oceans or those individuals under the responsibility of Parks Canada Agency. However, there are no federal lands affected by this project. Under the <i>Accord for the protection of Species at Risk</i>, it is understood that the provinces and territories will undertake actions and enforce prohibitions for the conservation of species at risk that come under their management authority. SARA allows the federal government to enact protective prohibitions in cases where a province or territory fails to provide effective protection for a species.</p> <p>SARA makes it an offence in sections 32 and 33 to:</p> <ul style="list-style-type: none"> • kill, harm, harass, capture or take an individual of a listed species that is extirpated, endangered or threatened; • possess, collect, buy, sell or trade an individual of a listed species that is extirpated, endangered or threatened, or its part or derivative; • damage or destroy the residence of one or more individuals of a listed endangered or threatened species or of a listed extirpated species if a recovery strategy has 	<ul style="list-style-type: none"> • Sustainable siting is to ensure that species at risk, are not killed, harmed or harassed as result of activities associated with shellfish aquaculture facilities.
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<p>recommended its reintroduction.</p>	
<p>Canadian Environmental Protection Act (1999)</p> <p>Enables the control of toxic substances.</p> <p>Disposal at Sea Regulations: Substances listed in the Act may be permitted for disposal at sea, including dredged material, fisheries waste, ships, inert matter, uncontaminated organic matter and bulky substances.</p> <p>New Substances Notification Regulations: Specifies notification requirements for substances not on the Domestic Substances List which can include chemicals, polymers, micro-organisms or organisms (this would include genetically modified animals, bacteria, etc.)</p>	<ul style="list-style-type: none"> • Toxic substances listed under the Act may be controlled and regulated. A substance is toxic if it is entering or may enter the environment in a quantity or concentration or under conditions that may have a harmful or dangerous effect on the environment or its biological diversity or on human life/health. • The disposal of fish offal or shellfish waste into the ocean requires a Disposal at Sea permit. Harrowing of the seafloor to manage waste accumulation also requires a Permit. • The import or manufacture of substances not listed on the Domestic Substances List (e.g. new products, genetically modified organisms) must be assessed. Importers and manufacturers of substances not listed are required to notify Environment Canada pursuant to the <i>New Substances Notification Regulations</i>.