PETROSOL Inc.

SEN'TI Environmental & Indigenous Services

Prepared for:

Public Services and Procurement Canada | Services publics et Approvisionnement Canada

Real Property Branch

Environmental Effects Evaluation

J.C. Van Horne Bridge
New Brunswick to Quebec

March 2019
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1. INTRODUCTION

1.1 CONTEXT

As custodial department of the interprovincial J.C. Van Horne (hereafter « JCVH ») Bridge, the Real Property branch of Public Services and Procurement Canada (hereafter « PSPC ») has planned renovation works on the structure and asphalt rehabilitation.

Although the proposed project is not a "designated Project" and therefore does not require an Environmental Assessment within the meaning of the *Canadian Environmental Assessment Act 2012* (CEAA 2012), considering:

- the proposed activity is carried out on federal lands;
- the proposed activity meets the definition of a "project" under CEAA 2012 Section 66;
- the Authority exercise a power or perform a duty in relation to the proposed activity;

PSPC has the responsibility to determine the significance of adverse environmental effects related to that project beforehand.

Consequently, PSPC mandated SEN'TI Environmental and Indigenous Services (hereafter "SEN'TI") to carry out an environmental effects evaluation regarding the proposed project (hereafter "Project") on the JCVH Bridge. SEN'TI outsourced this study to its partner Petrosol inc. (hereafter « Petrosol »).

1.2 OBJECTIVES

This document aims to anticipate any environmental effects that may be caused by the mentioned renovation Project in order to integrate these environmental preoccupations identified into project planning and decision making. Its main objectives are to mitigate or even avoid negative environmental effects before they occur.

The specific objectives of this evaluation were:

- to set the Project in its context and justify its implementation regarding identified needs;
- to identify and evaluate potential environmental effects related to the Project in accordance with guides, guidelines and standards published by the competent authorities;
- to provide for mitigation measures and/or compensatory measures related to these potential environmental effects, if required.

1.3 LIMITATIONS

The general terms and limitations of this study are provided in Appendix 4.

2. PROJECT SPECIFICATIONS

2.1 PROPONENT

The contact details of the Project initiator are presented below:

Public Services and Procurement Canada
Real Property Branch
3 Queen Street
Charlottetown (Prince Edward Island), C1A 4A2

Phone: 902 566-7594
Fax: 902 566-7514

Contact person: Peter Curley

2.2 GEOGRAPHICAL LOCATION

The study area corresponds to the JCVH Bridge, located between Listuguj First Nation / Pointe-à-la-Croix (Quebec) and Campbellton (New Brunswick) and crossing the Restigouche River.

Its geographic coordinates are 48° 00' 41'' North and 66° 40' 51'' West (NAD 83).

The geographical location of the study area at a regional scale is provided in Figure 1 while Figure 2 presents the location from a local scale. These figures are presented in Appendix 2.

2.3 CURRENT CONFIGURATION

JCVH Bridge is an interprovincial bridge built under a three-party agreement between the governments of Canada, New Brunswick and Quebec. Its construction started on June 1958 and it was opened to traffic, for the first time, on October 15th, 1961.

It is a steel deck bridge that measures 805 meters in length and carries two traffic lanes and two sidewalks. It consists of four deck-truss approach-spans joined in the middle with a cantilever-through-truss structure. The middle structure is composed of two anchor spans and one clear span over the navigational channel of 380 meters wide.

2.4 PROJECT JUSTIFICATION

As summarized in the PSPC Request for Proposal[1], several assessments have been conducted regarding JCVH Bridge current condition[2].

[1] Request for proposal: Environmental Assessment on the J.C. Van Horne Bridge, New Brunswick and Quebec – August 29th, 2018.
[2] Original documents were not provided.

In fact, the most recent study published, entitled "Structural load Evaluation Study", has concluded that several bracings members of the bridge presented weaknesses that must be strengthened or replaced to meet current standards.

Moreover, an Asphalt assessment report published in 2017, considering the overall condition of the asphalt wearing surface (ruts, cracks), reported that the bridge asphalt surface is at the end of its useful life. Note that the last full deck paving Project has been carried out in 2007 (cold milled and re-surfaced with new asphalt).

A photographic report of the JCVH Bridge current condition, provided by PSPC, is attached in Appendix 1.

2.5 WORK DESCRIPTION

As described in its Request for Proposal, PSPC has planned these works into four separate sub-Projects, described in the following paragraphs.

2.5.1. Sub-Project 1: "Program of work"

This first sub-Project, entitled "Program of work" in the PSPC proposal, consists in a series of minor repairs and/or upgrade upon several deficiencies identified on the JCVH Bridge, such as:

- repairing of the concrete piers and also north and south abutments including re-grouting of bearing plates (if required), crack sealing and waterproofing;
- extending steel ice shields;
- installation of a new-lifting jib including pier platform fitting-out;
- south abutment retaining wall's railings repairing including concrete caps and reinstallation of existing guardrails;
- rail adjustments and replacements;
- re-routing of deck drains;
- installation of new cotter pins on several bearing plates;
- installation of span catwalk's access protection (steel grillage).

It should be noted that this phase will not be conducted in-stream. However, equipment and materials could be delivered by a barge to repair the in-stream piers (above water concrete and grout repairs).

2.5.2. Sub-Project 2 : "Lateral bracing Project"

This second sub-Project, entitled "Lateral bracing Project" in the PSPC proposal, consists of repairing several weaknesses on the bridge bracing members.

It should be noted that PSPC has already mandated a consultant that is currently developing several repairing procedures. These work processes may include steel reinforcement or temporary support throughout current truss member repairing or removal.

2.5.3. Sub-Project 3: "Bridge deck paving"

The third sub-Project, entitled "Bridge Deck Paving" in the PSPC proposal, will consist of the bridge asphalt repairing or removal. Specifically, this will consist of asphalt removal and replacement of expansion joints, re-waterproofing of concrete deck and partial cold milling with reclaimed asphalt pavement (RAP) stockpiled off-site (location to be determined).

2.5.4. Sub-Project 4: "Repair of bridge member L34-L35"

The fourth sub-Project, entitled "Repair of bridge member L34-L35" in the PSPC proposal, will consist of repairing of the bridge member L34-L35 damaged by a truck. This bridge member is located above Salmon boulevard, in Campbellton.

2.6 WORK TIMELINE

PSPC is aiming to schedule these sub-projects for the summer / fall of 2019 with the exception of sub-project 4 which is likely to be anticipated for May / June 2019. The work on sub-project 4 is estimated at 2 to 3 working nights.

3. EXISTING ENVIRONMENT

The value of an environmental effects evaluation is dependent on a comprehensive description of the existing environment in which the Project is located. This chapter summarizes the collected information for this purpose according to the different environmental components: physical, biological and human.

3.1 STUDY AREA DELINEATION

Some aspects of the Project may have a different influence radius depending on the considered environment, regarding biological and human components particularly. Therefore, a limited study area and a remote study area have been defined to characterize, in a comprehensive way, all the environmental effects related to the Project that might occur. The delineation of the study area was based on:

- size and location of the Project footprint;
- access roads;
- biophysical settings.

3.1.1. Limited study area

The limited study area, as defined for the evaluation purpose, is centered on the JCVH Bridge, from the intersection with the street de la Mer in Pointe-à-la-Croix (QC) and Riverside Drive East in Listuguj to the intersection with Water Street in Campbellton (NB).

It corresponds to the PSPC work area delineation and it includes the natural and human elements that might be primarily affected by the environmental effects of the planned work. An arbitrary 50 meters radius buffer zone has been applied around the bridge to define this limited area. This area represents a surface area of approximatively 53 000 m^2.

To simplify the reading, this area will be designated as the study area in the following chapters, while for the remote study area, its full name will be used.

3.1.2. Remote study area

The remote study area covers a wider territory in order to appreciate the environmental effects that might affect the human and the biological components. In particular, this delimitation is relevant to evaluate the socio-economic profile of this territory but also the potential effects on the biological environment downstream of the Restigouche River.

An arbitrary 2 500 meters radius buffer zone, from the center of the bridge, has been considered to define this remote area, which represents a surface area of about 19.63 km^2.

The localisation of the two study areas is presented on the Figure 1 from a remote scale, while Figure 2 presents the local situation of the study area. These two figures are presented in Appendix 2.

3.2 INVENTORY APPROACH AND DATA SOURCES

In order to gather information about the biophysical and human environment, available databases and documents have been consulted from the authorities responsible of the territory management in this region, on the different levels of administration: federal, provincial and municipal. When required, some request for information have been also sent to them.

The list of the main authorities contacted or consulted during this study, and their abbreviation used in the following chapter, is presented in the table below.

Table 1: List of authorities contacted or consulted

Authority Level	Name	Abbreviation used in the report
Government of Canada	Department of Environment and Climate Change Canada	ECCC
	Department of Natural Resources Canada	NRC
	Transport Canada	-
Government of Quebec	Ministère de l'Environnement et de la Lutte contre les Changements Climatiques	MELCC
	Ministère des Forêts, de la Faune et des Parcs	MFFP
Government of New Brunswick	Department of Environment and Local Government	DELG
	Department of Energy and Resource Development	DERD
Municipalities	Ville de Pointe-à-la-Croix (QC)	Pointe-à-la-Croix
	City of Campbellton (NB)	Campbellton
First Nation	First Nation of Listuguj (QC)	Listuguj

All the relevant documents gathered during this evaluation are attached in Appendix 3. A comprehensive list of all the bibliographical references and databases consulted is provided in Appendix 4.

3.3 PHYSICAL ENVIRONMENT

3.3.1. Climate

The study area's region is subject to a cool continental climate with temperate summer, ranked as "Dfb" under *Köppen classification*. This type of climate is characterized by significant seasonal temperature variations with warm to hot (and often humid) summers and cold (sometimes severely cold in the northern areas) winters. Precipitation is usually distributed throughout the year.

ECCC provides a weather conditions monitoring in this area through several weather stations. Considering a 50 kilometers radius around the JCVH Bridge, the weather station with the most recent data available has been used to describe the weather conditions in that area. The selected station is presented in the table below.

Table 2: Nearest weather station

Station Name	Province	Climate Id	Distance to the study area (km)	Data interval available
CHARLO A	NB	8100880	28.86 (Charlo Airport)	1981 – 2010

The monthly climate data extracted from ECCC database is presented in the table below.

Table 3: Weather data from 1981 to 2010 – Station CHARLO A (n°8100885)

Parameters	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Temperatures												
Daily maximum temperature (°C)	-7.6	-5.5	0.1	6.4	14.9	20.4	23.4	22.8	17.4	10.2	2.8	-3.8
Daily minimum temperature (°C)	-17.5	-16.2	-9.8	-2.5	2.9	8.7	12.4	11.5	6.7	1.1	-4.3	-12.1
Daily average temperature (°C)	-12.6	-10.9	-4.9	1.9	9.0	14.6	17.9	17.2	12.1	5.7	-0.7	-7.9
Standard deviation	2.1	2.7	1.9	1.0	1.5	1.4	1.0	1.1	1.4	1.1	1.5	2.6
Precipitation / Snow cover												
Precipitation (mm)	84.5	66.9	77.4	71.7	84.8	85.1	102.1	90.1	79.3	84.0	92.3	79.6
Average snow cover (cm)	52	73	62	18	0	0	0	0	0	0	3	17
Wind												
Average hourly wind speed (km/h)	71	71	74	74	61	52	56	59	51	56	60	68
Prevailing wind direction	W	W	NE	E	W	W	SW	W	W	SW	W	W

Based on ECCC's climate normal data, from 1981 to 2010 in that area:

- the average monthly temperature ranged from -12.6°C (January) to 17.9°C (July);
- the monthly average rainfall ranged from 6.5 mm (February) to 102.1 mm (July), that is to say about 997.6 mm of precipitation annually;
- the snow cover ranged from 3 cm (November) to 73 cm (February), mainly distributed from November to April;
- the average hourly wind speed ranged from 51 km/h to 71 km/h. Generally, wind was blowing towards a West direction, with the lowest speed recorded in the summer period from June to September (< 59 km/h).

3.3.2. Air quality

According to the Quebec's *Réseau de surveillance de la qualité de l'air* and New Brunswick's Air Quality Portal, there are no ambient air quality monitoring stations located in the study area. The nearest station is located in Bathurst, NB at about 88 km southeast to the study area.

According to the air quality monitoring report published in 2015 by New Brunswick's DELG, the industrial site AV Cell Inc. (paper products plant) located in Atholville, about 3.7 kilometers southwest from the study area, is monitored for sulphur dioxide (SO_2) emissions in Atholville and Listuguj. No data concerning this follow-up could be consulted. However, according to the prevailing winds in the area, generally blowing in the western direction, emissions from this industrial site might not occur in the vicinity of the study area. Furthermore, according to the Air

Quality Health Index provided by ECCC, air quality in Campbellton is generally ranked as "Low Risk". Note that there is no data from ECCC on the Quebec side of the study area.

3.3.3. Environmental noise

The level of ambient noise perceived by residents living near the JCVH Bridge is currently mainly related to road traffic between Campbellton and Pointe-à-la-Croix and Listuguj. The background noise levels in this area are estimated to be consistent of an average small urban area.

3.3.4. Geology

The study area is located in the Appalachian geological province. According to SIGEOM geological interactive map (Quebec's Ministère de l'Enérgie et des Ressources Naturelles, 2012) and the geological data provided by New Brunswick's DERD, local geology consists, from the top to the base of:

- horizontal layers of unconsolidated deposits composed of undifferentiated lake and marine sediments (sand, silt and clay) aged from the Quaternary, on both Quebec and New Brunswick shores;
- a bedrock composed of sandstone aged from the Silurian (La Garde formation) and grey to green mudstone aged from the Devonian (Pirate Cove formation) on the Quebec's shore;
- a bedrock composed of grey to green sandstone (Campbellton formation) and flow-layered rhyolite and volcanic conglomerate (Val amour formation) both aged from the Devonian on the New Brunswick's shore.

3.3.5. Topography and drainage

The study area is located in a large valley carved by the Restigouche River. Therefore, the local topography presents a gentle slope to the waterfront. The altitude on both sides of the JCVH Bridge ranges between 8 to 12 meters above sea level. Judging the overall topography, the study area surface drainage is mostly done by runoff in direction of the Restigouche River on impervious surfaces and by infiltration on grassy or uncovered areas.

3.3.6. Hydrology

The study area is included in the Restigouche River watershed of approximatively 10 000 km^2. The river has its source in the Appalachians and flows in an easterly direction before emptying into the Chaleurs Bay.

The study area is located in the estuary of the river, which begins at Tide Head located 8 kilometers upstream. After narrowing between Pointe-à-la-Croix and Campbellton, the Restigouche River gradually widens, exceeding 5 kilometers wide in places. Therefore, the flow at the site location is strongly influenced by the tidal range. In addition, several unnamed streams are flowing on both Quebec and New Brunswick shores, nearby the study area, following the Restigouche direction flow.

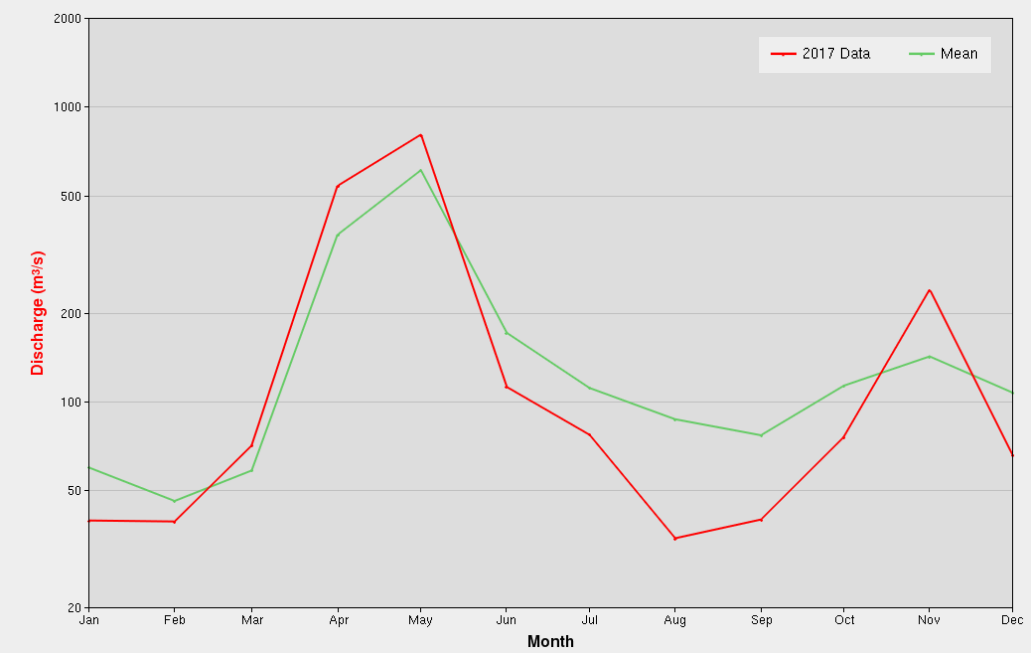
Hydrometric survey is provided by ECCC on the Restigouche River through the data collected on station n°01JB007 which is located 23 kilometers upstream of the study area in New Brunswick. There are no Hydrometric station located downstream.

Based on ECCC's hydrological data upstream:

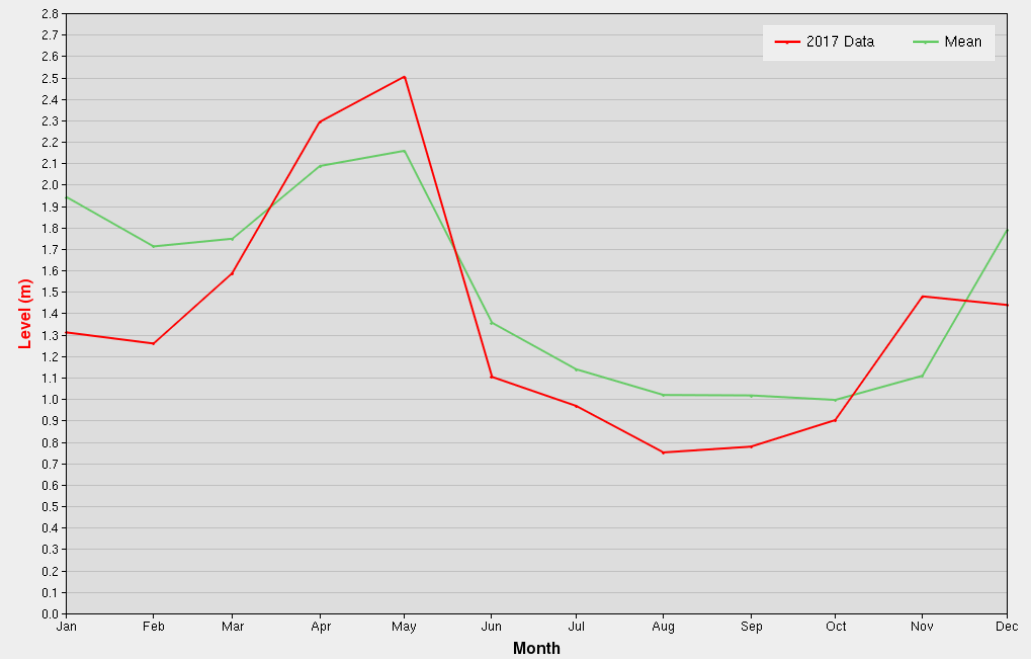
- In 2017, the average monthly discharge ranged from 39.4 m^3/s (January) to 803 m^3/s (May), with maximum discharge recorded in April and May. Over the period from 1968 to 2017, the average monthly discharge ranged from 46.3 m^3/s (February) to 613 m^3/s (May), with maximum monthly average discharge recorded at 1200 m^3/s in May 1969;
- In 2017, water level ranged 0.75 meter (August) to 2.504 meters (May), with a maximum water level recorded in April and May. Over the period from 2011 to 2017, water level ranged from 0.925 meter (August) to 2.280 meters (April).

Monthly discharge and water level data are presented in the graph below.

Graph 1: Monthly discharge – Station 01BJ007 (1968 - 2017)



Graph 2: Monthly water level – Station 01BJ007 (2011 - 2017)



3.3.7. Water quality

A water quality monitoring is provided by New Brunswick's DELG on the Restigouche River through station n°01JB007, located upstream.

For reference, the most recent data extracted from the Surface Water Quality Data Portal (2017 to 2018), has been used in the Water Quality Index (WQI) calculator tool provided by the Canadian Council of Ministers of the Environment (hereafter "CCME") in order to determine its quality based on the CCME *Guidelines for Freshwater Aquatic Life*. According to the results, the water quality of the Restigouche River is rated as "Excellent" (WQI is between 96.1 and 100).

There are no water quality survey stations downstream of the study area or on the Quebec's side of the river.

The water quality data from 2017 to 2018 gathered on this station is presented in the table 4.

Table 4: Water quality – station 01JB007 (2017 – 2018)

Parameters	Units	Number of entry	Mean concentrations	Minimum concentrations	Maximum concentrations	Median concentrations	CMME objectives
Alkalinity - total	mg/L	8	78,88	64	93	80	-
Aluminum	mg/L	8	0,015	0,005	0,046	0,0095	0,1
Ammonia - Total	mg/L	8	<0,05	<0,05	<0,05	<0,05	0,02
Arsenic	µg/L	8	<1	<1	<1	<1	5
Cadmium	µg/L	8	< 0,01	<0,01	<0,01	<0,01	-
Calcium	mg/L	8	26,4	21,3	29,1	28,25	-
Chloride	mg/L	8	1,48	1,2	1,9	1,4	150
Colour	TCU	8	7,5	5	17	5,5	-
Conductivity	µSIE/cm	8	170,75	139	192	179,5	-
Copper	µg/L	8	< 1	<1	<1	<1	-
Dissolved Organic Carbon	mg/L	8	1,61	0,8	3,5	1,45	-
Dissolved Oxygen	mg/L	8	10,59	8	14,2	10,35	5,5 - 9,5
E. coli	MPN/100 ml	7	7,71	1	27,5	3,1	-
Fluoride	mg/L	8	0,083	0,05	0,15	0,08	-
Hardness	mg/L	8	78,74	63,8	86,5	84,35	-
Iron	mg/L	8	0,025	0,02	0,05	0,02	300
Lead	µg/L	8	< 0,1	<0,1	<0,1	<0,1	1
Magnesium	mg/L	8	3,11	2,57	3,49	3,29	-
Nickel	µg/L	8	< 1	<1	<1	<1	-
Nitrate	mg/L	8	0,14	0,06	0,33	0,105	13
Nitrite	mg/L	8	< 0,05	<0,05	<0,05	<0,05	-
pH	pH	8	8,15	7,9	8,3	8,15	6,5 - 9
Potassium	mg/L	8	0,383	0,3	0,46	0,38	-
Sodium	mg/L	8	1,96	1,6	2,24	2,015	-
Sulphate	mg/L	8	5	4	6	5	-
Temperature	°C	8	14,2	2,2	25,4	14,7	-
Total Dissolved Solids	mg/L	8	87,13	73	98	90	-
Total Nitrogen	mg/L	8	0,225	0,2	0,4	0,2	-
Total Phosphorus	mg/L	8	0,004	0,002	0,007	0,004	0,01
Turbidity	NTU	8	0,375	0,1	1	0,3	-
Zinc	µg/L	8	< 1	<1	<1	<1	30

3.3.8. Groundwater

According to the local topography and geographical location of the study area, the direction of groundwater flow is supposedly oriented along the direction of flow of the Restigouche River, towards the east / northeast.

Based on the data gathered from the Hydrogeological Information System provided by the Quebec's MELCC and the Online Well Log System provided by New Brunswick's DELG, no well drilled for drinking water supply is located in the study area.

However, in the remote study area, 30 wells drilled for drinking water supply (according to the MELCC's codification) and 13 wells drilled for drinking water supply (according to DELG's codification) are respectively located in Quebec and New Brunswick. Among those wells, only three wells are located in the vicinity of the study area. These wells characteristics are presented in the table 5.

Table 5: Nearest drinking water or domestic well

Well Id	Installation date	Depth (meter)	Groundwater level (meter)	Address	Distance to the study area
2015-150-45700012	July 2015	15.2	0.31	39, rue de la Mer Pointe-à-la-Croix (QC)	200 meters east, supposedly downstream
21861	May 2014	39.62	27.43	11, Georges street Campbellton (NB)	630 meters southwest, supposedly upstream
11099	January 2005	106.68	59.44	16, Stanley Street Campbellton (NB)	740 meters southeast

According to the New Brunswick's GeoNB map viewer, there are two preliminary protected wellfields in Atholville (NB) protected under the Clean Water Act at respectively 2 kilometers and 2.3 kilometers southwest to the study area. According to the DELG's New Brunswick Groundwater chemistry Atlas (1994 – 2007), there are no major groundwater contamination in the area.

3.4 BIOLOGICAL ENVIRONMENT

3.4.1. Terrestrial habitat and vegetation

As defined by the Canadian Council on Ecological Areas (CCEA), the study area is located in the Atlantic maritime Ecozone, in the Northern New Brunswick Uplands Ecoregion, more precisely in the Ecodistrict n°484.

The terrestrial vegetation that can be found in that Ecoregion is mostly mixed wood forest, composed of closed stands of sugar maple, beech, and yellow birch on upland sites, whereas eastern hemlock, balsam fir, eastern white pine, and white spruce prevail in valleys. In the drier, northern part of the region, white, red and jack pine along with spruce and fir are more common.

From a local perspective, on both Quebec and New Brunswick shores, the majority of the study area's land is located in a small urban area and the use is mainly dedicated to road infrastructure. Consequently, the shrub and trees strata are sparsely represented in the study area, terrestrial vegetation is mostly reduced to the herbaceous and moss strata.

3.4.2. Wetlands

According to the Quebec's MELCC wetlands database, the wetlands mapping of the study area's Quebec side is currently under survey (November 2018).

According to the Wetlands mapping provided by the New Brunswick's GeoNB, there are currently no wetlands in the study area's New Brunswick side. However, there are two unnamed Regulated Wetlands, located respectively 1 kilometer to the south and 1 kilometer to the southeast of the study area, and one Provincially Significant Wetland located 1.2 kilometer to the southeast of the study area. These designated wetlands are included in the remote study area.

Regulated Wetlands are regulated under the Watercourse and Wetland Alteration Program of GNB, that is to say that any activity involving disturbance of the soil or cutting trees in or within a 30 meters buffer around the wetland boundary requires a permit. On the other hand, Provincially Significant Wetlands are not regulated but although existing activities are allowed to be continued, only limited new development will be permitted in or within 30 meters of that perimeter. Considering the Project and the location to the study area, none of these rules apply.

The location of these wetlands is provided in Figure 3A presented in Appendix 2.

3.4.3. Wildlife

3.4.3.1. *Mammals*

According to the Ecological Framework of Canada, this ecoregion provides habitat for lots of mammals species including: Moose (*Alces alces*), Black Bear (*Ursus americanus)*, White-tailed Deer (*Odocoileus virginianus)*, Red Fox (*Vulpes vulpes*), Snowshoe Hare (*Lepus americanus)*, Porcupine (*Erethizon dorsatum)*, Fisher (*Pekania pennanti*), Coyote (*Canis latrans)*, Beaver (*Castor canadensis)*, Bobcat (*Lynx rufus*), and Marten (*Martes americana*).

3.4.3.2. *Avifauna*

The avifauna that inhabit the Chaleur's Bay coast is very diverse, with both migratory and resident species. According to IBA Canada, an Important Bird Area (ref. NB001) designated as "Restigouche River Estuary" is located approximatively 7.5 kilometers east, downstream of the study area. It is primarily identified as an Important Birds Area due to the important number of migratory birds, especially of Black Scoters (*Melanitta americana*) that stage there during spring migration and, to a lesser extent, Red-breasted Merganser (*Mergus Serrator)* and Bufflehead (*Bucephala albeola*). It has been reported that the birds arrive within 24 hours of ice-out and consistent numbers remain until the end of May.

The study area is included in both breeding birds' inventory plots n°19FP72 (Quebec) and n°19FP91 (New Brunswick) of respectively the Quebec Breeding Birds Atlas and the Maritimes Breeding Birds Atlas. According to the records from 2010 to 2014, about 81 breeding birds species have been confirmed nesting within these two inventory plots according to the codification of the Maritimes and Quebec's Breeding Birds Atlas. These species are listed in the Table 6.

Table 6: Confirmed breeding birds (inventory plot 19FP71 / 19FP72)

Common name	Scientific Name	Inventory plot location	Status
American Wigeon	*Anas americana*	19FP72	R
American Black Duck	*Anas rubripes*	19FP72 / 19FP71	R
Mallard	*Anas platyrhynchos*	19FP72 / 19FP71	R
Northern Shoveler	*Spatula clypeata*	19FP72	M
Ring-necked Duck	*Aythya collaris*	19FP72	M
Red-breasted Merganser	*Mergus Serrator*	19FP72	NM
Rock pigeon	*Columba Livia*	19FP71	R
Tree swallow	*Tachycineta bicolor*	19FP71 / 19FP72	NM
Bank swallow	*Riparia riparia*	19FP71 / 19FP72	NM
Common Yellowthroat	*Geothlypis trichas*	19FP71 / 19FP72	NM
Chipping Sparrow	*Spizella passerina*	19FP71 / 19FP72	NM
Savannah Sparrow	*Passerculus sandwichensis*	19FP71 / 19FP72	NM
Fox Sparrow	*Passerella iliaca*	19FP71	NM
Song Sparrow	*Melospiza melodia*	19FP71 / 19FP72	N
White throated Sparrow	*Zonotrichia albicollis*	19FP71 / 19FP72	N
Lincoln's Sparrow	*Melospiza lincolnii*	19FP71 / 19FP72	NM
Canada Warbler	*Cardellina canadensis*	19FP71	NM
Yellow-rumped Warbler	*Setophaga coronata*	19FP71	N
Blackpoll Warbler	*Setophaga striata*	19FP71	NM
Hairy Woodpecker	*Dryobates villosus*	19FP72	R
Pileated Woodpecker	*Dryocopus pileatus*	19FP72	R
Yellow-bellied Sapsucker	*Sphyrapicus varius*	19FP72	NM
Alder Flycatcher	*Empidonax alnorum*	19FP72	NM
Least Flycatcher	*Empidonax minimus*	19FP72	NM
Eastern Phoebe	*Sayornis phoebe*	19FP72	NM
Red-eyed Vireo	*Vireo olivaceus*	19FP72	NM
Cliff Swallow	*Petrochelidon pyrrhonota*	19FP72	NM
Red-breasted Nuthatch	*Sitta canadensis*	19FP72	R
Veery	*Catharus fuscescens*	19FP72	NM
Hermit Trush	*Catharus guttatus*	19FP72	N
Nashville Warbler	*Leiothlypis ruficapilla*	19FP72	NM
Northern Parula	*Setophaga americana*	19FP72	NM
Chestnut-sided Warbler	*Setophaga pensylvanica*	19FP72	NM
Magnolia Warbler	*Setophaga magnolia*	19FP72	NM
Black-throated Blue Warbler	*Setophaga caerulescens*	19FP72	NM
Blackburnian Warbler	*Setophaga fusca*	19FP72	NM
Black and White Warbler	*Mniotilta varia*	19FP72	NM
American Redstart	*Setophaga ruticilla*	19FP72	NM
Ovenbird	*Seiurus aurocapilla*	19FP72	NM
Northern Waterthrush	*Parkesia noveboracensis*	19FP72	NM
Green-winged Teal	*Anas crecca*	19FP72 / 19FP71	NM
Ruffed Grouse	*Bonasa umbellus*	19FP72	R
Osprey	*Pandion haliaetus*	19FP72	NM
American Kestrel	*Falco sparverius*	19FP72	NM
Merlin	*Falco columbarius*	19FP72	NM
Sora	*Porzana Carolina*	19FP72 / 19FP71	NM
Killdeer	*Charadrius vociferus*	19FP72 / 19FP71	NM
Spotted sandpiper	*Actitis macularius*	19FP72	NM

Common name	Scientific Name	Inventory plot location	Status
Belted Kingfisher	*Megaceryle alcyon*	19FP72 / 19FP71	N
Downy woodpecker	*Dryobates pubescens*	*19FP72 / 19FP71*	R
Eastern Kingbird	*Tyrannus tyrannus*	19FP72	NM
Blue-headed Vireo	*Vireo atricapilla*	19FP72	V
Blue Jay	*Cyanocitta cristata*	19FP72 / 19FP71	R
American Crow	*Corvus brachyrhynchos*	19FP72 / 19FP71	R
Common Raven	*Corvus corax*	19FP72 / 19FP71	R
Barn Swallow	*Hirundo rustica*	19FP72 / 19FP71	NM
Golden-crowned kinglet	*Regulus satrapa*	19FP72	R
Ruby-crowned kinglet	*Regulus calendula*	19FP72	NM
Eastern bluebird	*Sialia sialis*	19FP72	NM
American Robin	*Turdus migratorius*	19FP72 / 19FP71	NM
Gray catbird	*Dumetella carolinensis*	19FP72	NM
European Starling	*Sturnus vulgaris*	19FP72 / 19FP71	R
Bobolink	*Dolichonyx oryzivorus*	19FP72	NM
Rose-breasted Grosbeak	*Pheucticus ludovicianus*	19FP72	NM
Cedar Waxwing	*Bombycilla cedrorum*	19FP72 / 19FP71	N
Yellow Warbler	*Setophaga petechia*	19FP72 / 19FP71	NM
Swamp sparrow	*Melospiza georgiana*	19FP72 / 19FP71	NM
Red-winged Blackbird	*Agelaius phoeniceus*	19FP72 / 19FP71	N
Common grackle	*Quiscalus quiscula*	19FP72 / 19FP71	N
Purple Finch	*Haemorhous purpureus*	19FP72	R
American Goldfinch	*Spinus tristis*	19FP72 / 19FP71	R
House Sparrow	*Passer domesticus*	19FP72	R
Bald Eagle	*Haliaeetus leucocephalus*	19FP71	NM
Pine siskin	*Spinus spinus*	19FP71	E
Ruby-throated Hummingbird	*Archilochus colubris*	19FP71	NM
Virginia Rail	*Rallus limicola*	19FP71	NM
Baltimore Oriole	*Icterus galbula*	19FP71	NM
Black-capped Chickadee	*Poecile atricapillus*	19FP71 / 19FP72	R
Mourning Dove	*Zenaida macroura*	19FP71	R
Northern Flicker	*Colaptes auratus*	19FP72 / 19FP71	N

Legend: R: Resident / N: Confirmed Breeder / M: Migrant / V: Visitor / E: Exotic species

This table presents only confirmed breeders within these two inventory plots. Other species, classified as potential breeders according to the codification of both Breeding Birds Atlases, such as Great Blue Heron (*Ardea herodias)* or Canada Goose (*Branta canadensis*) can be commonly observed in this area. Comprehensive summary sheets identifying all the species counted and observed in these two inventory plots (19FP71 and 19FP72) are presented in Appendix 3.

According to ECCC, the study area is located within the nesting zone C4 where the nesting period is between mid-April to late August. Considering that the bridge may provide a suitable nesting habitat for several species of birds, the Project might affect the avifauna in the study area since it is scheduled to start in summer / fall 2019. In addition, it is noted that migratory birds are protected under the Migratory Birds Convention Act (MBCA) which protects migratory birds, their eggs, nests and their young through the Migratory Birds Regulations (MBR).

3.4.3.3. *Ichtyological fauna*

Rivers flowing into the Ecoregion are essential for Atlantic salmon and other commercially important oceanic species that return to interior streams to spawn. Brook trout (*Salvelinus fontinalis*), Alewife (*Alosa pseudoharengus*), Halibut (*Hippoglossus hippoglossus)* and Striped Bass (*Morone saxatilis)* are highly sought after by sport and commercial fishers.

According to the Fish Book published by New Brunswick's DERD (2018) and the Fishing Regulations Webmap, there is a recreational fishery area located in the tidal water upstream of the JCVH Bridge. Fish species in that area includes: Burbot (Lota lota), Eel (*Anguilla rostrata*), Alewife (*Alosa pseudoharengus)*, Shad (*Alosa sapidissima)*, Rainbow Smelt (*Osmerus mordax)*, Sturgeon (*Acipenser oxyrinchus oxyrinchus)*, White perch (*Morone americana)* and Yellow Perch (*Perca flavescens)*. Upstream in the Restigouche River, Atlantic salmon (*Salmo salar)*, Striped Bass and Brook trout can be found in freshwater.

According to MELCC's Freshwater sport fish consumption guide, Brook trout and Rainbow smelt are located downstream of the JCVH Bridge in the Restigouche River. There are no recordings available upstream.

3.4.4. Species of conservation concern

The Centre de Données sur le Patrimoine Naturel du Québec (here-after "CDPNQ) is an integrated unit in the administrative structures of the MELCC and the MFFP in charge of conservation data for the Province of Quebec. In the same way, Atlantic Canada Conservation Data Centre (hereafter "ACCDC") is part of the NatureServe Network, a non-government agency which provides conversation data for the Atlantic Provinces, including New Brunswick.

Both services were contacted to obtain a list of plants and animals species of conservation concern that could potentially occur in the vicinity of the Project. About this data, only S1, S2 and S3 ranked species have been taken into account since they are considered extremely rare to uncommon in each Province. S4 and S5 ranked species are not discussed since these species are widespread and their occurrence is common.

3.4.4.1. *Plant species of conservation concern*

According to the information collected from these databases, there are no plant species of conservation concern in the study area. However, there are 35 plants species of provincial conservation concern (rank S1 to S3) confirmed in the remote study area, although none of them are ranked at risk.

The plant species of provincial conservation concern in the remote study area are presented in Table 7.

Table 7: Plant species of conservation concern in the remote study area

Common name	Scientific Name	Province	Records	Provincial Rarity rank	Provincial General Status Rank
PLANTS					
Red Wooly Plantain	*Plantago eriopoda*	Quebec	1	S3	Sensitive
Spongy arrowhead	*Sagittaria montevidensis*	Quebec	3	S2	Threatened
Estuary Beggarticks	*Bidens hyperborea*	New Brunswick	4	S3	4 Secure
Limestone Rockcress	*Arabis divaricarpa*	New Brunswick	5	S1	2 May be At Risk
Sea Lungwort	*Mertensia maritima*	New Brunswick	1	S3S4	4 Secure
American Yellow Rocket	*Barbarea orthoceras*	New Brunswick	2	S2S3	3 Sensitive
Tall Goldenrod	*Solidago altissima*	New Brunswick	1	S2S3	4 Secure
Northern Gentian	*Gentianella amarelle ssp. acuta*	New Brunswick	4	S3	4 Secure
Gray Tansy Mustard	*Descurainia inca ssp. Incana*	New Brunswick	4	S1	2 May be At Risk
Soapberry	*Shepherdia canadensis*	New Brunswick	1	S2	3 Sensitive
Eastern White Water-Crowfoot	*Ranunculus longirostris*	New Brunswick	1	S2	5 Undetermined
Greenish Sedge	*Carex viridula var. elatior*	New Brunswick	1	S1	2 May be at Risk
Matted Spikerush	*Elocharis intermedia*	New Brunswick	1	S3	4 Secure
Smooth Sweet Cicely	*Osmorhiza longistylis*	New Brunswick	1	S2	3 Sensitive
Nuttall's Waterweed	*Elodea nurttallii*	New Brunswick	1	S2	3 Sensitive
Fragrant Green Orchid	*Platanthera huronensis*	New Brunswick	1	S2?	5 Undetermined
Showy Lady's-Slipper	*Cypripedium reginae*	New Brunswick	1	S3	3 Sensitive
Thread-leaved Pondweed	*Stuckenia filiformis ssp. Alpine*	New Brunswick	1	S2S3	3 Sensitive
Blunt-leaved Pondweed	*Potamogeton obtusifolius*	New Brunswick	1	S3	4 Secure
Lance-leaf Grape-Fern	*Botrychium lanceolatum var. angustisegmentum*	New Brunswick	1	S3	3 Sensitive
Steller's Rockbrake	*Cryptogramma stelleri*	New Brunswick	1	S3	4 Secure
Maidenhair Spleenwort	*Asplenium trichomanes*	New Brunswick	1	S2	3 Sensitive
Northeastern Paintbrush	*Castilleja septentrionalis*	New Brunswick	2	S2	3 Sensitive
Water Mudwort	*Limosella aquatic*	New Brunswick	2	S1	2 May be At Risk
Long-bracted Frog Orchid	*Coeloglossum viride var. virescens*	New Brunswick	1	S2	2 May be At Risk
Fragrant Wood Fern	*Dryopteris fragrans var. remotiuscula*	New Brunswick	2	S3	4 Secure
Southern Mudwort	*Limonsella australis*	New Brunswick	3	S3	4 Secure
NONVASCULAR PLANTS					
Flexuous Peatmoss	*Sphagnum flexuosum*	New Brunswick	1	S2	3 Sensitive
Long-stalked Fine Wet Moss	*Campylium radicale*	New Brunswick	1	S1S2	5 Undetermined

Common name	Scientific Name	Province	Records	Provincial Rarity rank	Provincial General Status Rank
Narrow-leafed Chain-Teeth Moss	*Tortula cernua*	New Brunswick	1	S1?	2 May be At Risk
Long-stalked Beardless Moss	*Hennediella heimii*	New Brunswick	1	SH	2 May be At Risk
Greater Pawwot	*Barbilophozia lycopodioides*	New Brunswick	1	S2?	6 Not Assessed
Curled Notchwort	*Anastrophyllum saxicola*	New Brunswick	1	S1?	6 Not Assessed
Rooftop Leskea Moss	*Pseudoleskeella tectorum*	New Brunswick	1	S1	2 May be At Risk

Legend: S1: Extremely rare in province / S2: Rare in province / S3: Uncommon in province / S4: Widespread, common and apparently secure in province

About the rare plant species identified in this area (S1 Rank), based on their natural habitats that may include rocky soil (Greenish Sedge, Curled Notchwort), bare rock (Limestone rockcress, Rooftop Leskea Moss), roadsides (Gray Tansy Mustard), marine wetlands (Water Mudwort) or wooded areas (Long-stalked Fine Wet Moss, Narrow-leafed Chain-Teeth Moss), the Project is not anticipated to adversely impact these species.

3.4.4.2. *Animal species of conservation concern*

According to the information collected from these databases, there are no animal species of conservation concern in the study area. However there is a total of 16 species of provincial conservation concern in the vicinity of the project, in which there are 5 species listed in the Schedule 1 of the Species at Risk Act (hereafter "SARA") .

The Table 8 identifies these species and their status regarding the SARA and for information, their status regarding the Province and COSEWIC.

Table 8: Animals species of provincial and national concern in the remote study area

Common name	Scientific Name	Province	Records	COSEWIC Status	SARA Rank	Listed on SARA Schedule 1	Provincial rarity rank	Provincial General Status Rank
AVIFAUNA								
Nelson's Sparrow	*Ammodramus nesloni*	Quebec	1	-	-	-	S3	Sensitive
Bald Eagle	*Haliaeetus leucocephalus*	Quebec	1	-	-	-	S3S4	Vulnerable
Northern Mockingbird	*Minus Polyglottos*	New Brunswick	1	-	-	-	S2B, S2M	3 Sensitive
Chimney Swift	*Chaetura pelagica*	New Brunswick	2	Threatened	Threatened	Yes	S2S3B, S2M	1 At Risk
Common Nighthawk	*Chordeiles minor*	New Brunswick	2	Threatened	Threatened	Yes	S3B, S4M	1 At Risk
Killdeer	*Charadrius vociferous*	New Brunswick	1	-	-	-	S3B, S3M	3 Sensitive
Turkey Vulture	*Cathartes aura*	New Brunswick	1	-	-	-	S3B, S3M	4 Secure
Baltimore Oriole	*Icterus galbula*	New Brunswick	2	-	-	-	S3B, S3M	4 Secure
Wilson's snipe	*Gallinago delicate*	New Brunswick	1	-	-	-	S3S4B, S5M	4 Secure

Common name	Scientific Name	Province	Records	COSEWIC Status	SARA Rank	Listed on SARA Schedule 1	Provincial rarity rank	Provincial General Status Rank
Ring-billed Gull	*Larus delawarensis*	New Brunswick	2	-	--	-	S3S4B, S5M	4 Secure
Red-breasted Merganser	*Mergus serrator*	New Brunswick	1	-	-	-	S3B, S5M, S4S5M	4 Secure
Barn Swallow	*Hirundo rustica*	New Brunswick	1	Threatened	Threatened	Yes	S2B, S2M	3 Sensitive
Bufflehead	*Bucephala albeola*	New Brunswick	1	-	-	-	S3M, S2N	3 Sensitive
HERPETOFAUNA								
Wood Turtle	*Glyptemys insculpta*	New Brunswick	1	Threatened	Threatened	Yes	S2S3	1 At Risk
MAMMALS								
Canadian Lynx	*Lynx Canadensis*	New Brunswick	1	Not At Risk	-	-	S3	1 At Risk
Woodland Caribou	*Rangifer tarandus*	New Brunswick	1	Endangered	Endangered	Yes	SX	0.1 Extirpated

Legend: S1: Extremely rare in province / S2: Rare in province / S3: Uncommon in province / S4: Widespread, common and apparently secure in province / X: Extinct or Extirpated in province

About the species listed on the Schedule 1 of SARA:

- Barn Swallow (*Hirundo rustica*) is listed on the Schedule 1 of SARA and has a SARA rank of Threatened. In addition, this species has a provincial rarity rank of S2B, S2M and a Provincial General status of 3 Sensitive. According to the SARA Registry, this species nest in and on artificial structures, including barns and other outbuildings, garages, houses, under bridges decks or on piers, and road culverts. According to the breeding dates from the Maritime Breeding Atlas, this species is breeding from late May to late August. **Consequently, the JCVH bridge is a suitable habitat for Barn Swallow and the Project might anticipate to adversely impact this species;**

- Chimney Swift (*Chaetura pelagica*) is listed on the Schedule 1 of SARA and has a SARA rank of Threatened. In addition, this species has a provincial rarity rank of S2S3B, S2M and a Provincial General status of 1 At Risk. According to the SARA Registry (ECCC), this species prefer to nest in urban and rural areas, where there are available house chimneys, although a small part of that population continue to nest in hollow trees' trunks. Since there is no building in the study area, the Project does not have suitable habitat for the Chimney swift, consequently it is not anticipated to adversely impact this species;

- Common Nighthawk (*Chordeiles minor*) is listed on the Schedule 1 of SARA and has a SARA rank of Threatened. In addition, these species has a provincial rarity rank of S3B, S4M and a Provincial General status of 1 At Risk. According to the SARA Registry, this species nest in a wide range of open vegetation-free habitats, including dunes, beaches, recently harvested forests, burnt-over areas, logged areas, rocky outcrops, rocky barrens, grasslands, pastures, peat bogs, marshes, lakeshores, and river banks. This species also inhabits mixed and coniferous forests. Since the vicinity of the project is mostly urban, there is no suitable habitat for the Common Nighthawk. Consequently, the Project is not anticipated to adversely impact this species;

- Wood Turtle (*Glyptemys insculpta*) is listed on the Schedule 1 of SARA and has a SARA rank of Threatened. In addition, this species has a provincial rarity rank of S2S3 and a Provincial General status of 1 At Risk. According to the SARA Registry, this species belong to the freshwater turtles, therefore it is associated with rivers and streams with sandy or gravel-sandy bottoms and it usually nest on sand beaches or banks. Wooded areas are essential habitat for the Wood Turtle even if females also lay in gravel holes, at the edges of roads and railways, in utility right-of-way, in farming fields, pastures and former fields. Since the study area is located in brackish water and the surrounding area is not wooded, there is no suitable habitat for the Wood Turtle. Consequently, the Project is not anticipated to adversely impact this species;

- Woodland Caribou (*Rangifer trandus*) is listed on the Schedule 1 of SARA and has a SARA rank of Endangered. In addition, this species has a COSEWIC rank of Endangered, a provincial rarity rank of SX and a Provincial General status of 0.1 Extirpated. Consequently, the Project is not anticipated to adversely impact this species since it has been extirpated from New Brunswick.

Furthermore, two species listed on the Schedule 1 of SARA, but not mentioned in ACCDC or CDPNQ databases, were reported in the vicinity of the JCVH Bridge:

- Peregrine Falcon (*Falco peregrinus)* have been reported visiting the JCVH Bridge in the last three years. This species is classified under Special Concern species in the Schedule 1 of SARA. According to the Species at Risk Public Registry, this species nest on cliff ledges, but sometimes on the ledges of tall buildings or bridges. Consequently, the study area represents a suitable habitat for these species and the Project could have a negative impact on them;

- Little Brown Myotis (*Myotis lucifugus*) have been reported roosting on and under the JCVH Bridge. Although, bats have not been identified through the ACCDC or CDPNQ searches, they have been recorded in Québec and New Brunswick. These species have been listed as Endangered on Schedule 1 of SARA, and a recovery strategy has been developed by ECCC.

About the species of Provincial conservation concern, the Red-Breasted Merganser and Bufflehead usually inhabit coastal bays and large bodies of water such as Chaleur's bay. According to the breeding dates from the Maritime Breeding Atlas, these species are breeding from late May to late August. However, the bridge area is already very developed and disturbed by noise and boat/foot traffic. Therefore, these species will likely not be breeding or nesting in the immediate surroundings of the JCVH Bridge.

Apart from them, considering the common habitat of the other species identified, that may include salt marshes (Nelson's Sparrow), forest and mountainous areas (Turkey Vulture, Canadian Lynx), near large bodies of water (Bald Eagle), lawns and parking lot (Killdeer, Ring-billed Gull), shrubby vegetation (Northern Mockingbird), forest edges (Baltimore Oriole) or pond edges (Wilson's snipe), the Project is not anticipated to adversely impact these species.

3.4.5. Conservation, significant natural and protected areas

Conservation Areas are federally or provincially managed areas which may include protected natural areas, wildlife management areas or protection areas, national wildlife areas, Important Birds Area and designated wetlands. Significant Natural Areas may include Environmentally Significant Areas (ESAs), critical natural areas, nature

reserves and National or Provincial parks. In addition, designated watershed and protected wellfields have been included to that list.

According to the MELCC data, there are two Wildlife habitats ("Habitat du Poisson" and "Aire de Concentrations d'Oiseaux Aquatiques") located on the Quebec's section of Restigouche River under the bridge. These areas concern Fishes and Aquatic birds' habitats. Considering that the Project includes only renovation works of a current structure and has no intent in altering the current study area, it is not anticipated to adversely impact these wildlife habitats.

The table 9 identifies the protected areas in the vicinity of the Project, sorted by their distance to the study area and the remote study area, their regulatory framework and if available, their status in regards of the International Union for Conservation of Nature (IUCN rank). The location of all these protected areas is presented in the Figure 3A on a local scale, while Figure 3B presents these areas on a remote scale. These two figures are included in Appendix 2.

Table 9: Nearest Conservation or Significant Natural Areas

Name	Province	Type	Distance to the study area	Target	Regulatory framework	IUCN rank
Within the study area						
Unnamed	Quebec	Wildlife habitat	Restigouche River (Quebec's side)	Aire de Concentrations d'Oiseaux Aquatiques (ACOA)	Loi sur la conservation et la mise en valeur de la faune	IV (Habitat or species management area)
Unnamed	Quebec	Wildlife habitat	Restigouche River (Quebec's side)	Habitat du Poisson	Loi sur la conservation et la mise en valeur de la faune	-
Within the remote study area						
Unnamed	New Brunswick	Regulated Wetland	1.8 km south	Wetland	Watercourse and wetland alteration regulation	-
Unnamed	New Brunswick	Regulated Wetland	2 km southeast	Wetland	Watercourse and wetland alteration regulation	-
Unnamed	New Brunswick	Provincially Significant Wetland	2.2 km southeast	Wetland	-	-
Sugar Loaf provincial park	New Brunswick	Provincial park	2.3 km south	Park	Park Acts	IV (Habitat or species management area)
Habitat floristique du Marais-de-Listuguj	Quebec	Protected natural area	2.4 km west	Spongy arrowhead (*Sagittaria montevidensis)*	Loi sur les espèces menacées ou vulnérables	-
Outside the remote study area						
Unnamed	New Brunswick	Protected wellfields	3 km southwest	Wellfield	Clean Water Act	-
Lacs Prichard/Smith Lakes	New Brunswick	Protected watershed	3.5 km south	Lacs Prichard/Smith Lakes watercourses and watershed	Clean Water Act	-

Name	Province	Type	Distance to the study area	Target	Regulatory framework	IUCN rank
Unnamed	New Brunswick	Protected wellfields	3.7 km southwest	Wellfield	Clean Water Act	-
Marais-de-la-Pointe-à-Bourdeau	Quebec	Protected natural area	4.4 km west	Spongy arrowhead (*Sagittaria montevidensis)*	Loi sur les espèces menacées ou vulnérables	-
Restigouche River Estuary	Quebec / New Brunswick	Important Birds Area	7.5 km east	*Black scoter (Melanitta americana)*	Migratory Birds Convention Act	-
Réserve Ecologique de Ristigouche	Quebec	Nature reserve	16.5 km northwest	Maple bush and yellow birch ecosystem	Loi sur la conservation du patrimoine naturel	Ia (Strict Nature Reserve)
Miguasha	Quebec	National park	27 km northeast	Park	Loi sur les Parcs	III (Natural Monument)

3.5 HUMAN ENVIRONMENT

3.5.1. Administrative framework

The Quebec side of the study area was the original home of the Mi'gmaq nation. Listuguj was founded in 1853, as one of the oldest Native reserve in the Gaspésie's south shore. It was formerly known as Restigouche until 1994. Listuguj is governed by a band council, called the Listuguj Mi'gmaq Government, elected under an election system based on section 11 of the Indian Act. The band council is responsible for health, education, culture, housing, employment, justice, environment, policing, social assistance and economic development matters. Note that the band council provides for a lot of job in Listuguj. According to Indigenous Services Canada, of the 4094 people registered in the Listuguj Mi'gmaq Government, only 2087 people are living in the federal reserve (42.87 km^2) in January 2019.

Settlers arrived in the Pointe-à-la-Croix around 1750 and this city was formerly known as Cross Point until 1983. In 2016, Pointe-à-la-Croix's population was about 1408 people spread over a total land area of 394.85 km^2. Pointe-à-la-Croix is a local municipality included in the Avignon Regional County Municipality. The municipal Council is competent in urban planning, economic development, roads, public transit, public safety, water distribution, waste disposal, recreation and recreation and community life.

Campbellton was founded in 1837 and acquired its town status in 1889 and city status in 1958. In 2016, the population was about 6883 people spread over a land area of 18.66 km^2. Campbellton is included in the Restigouche County. The municipal Council is competent in urban planning, economic development, roads, public transit, public safety, water distribution, waste disposal, recreation and recreation and community life.

3.5.2. Socio-economic profile

According to the data from the 2016 Census provided by Statistics Canada, in 2016 the total census population of the cities included in the study area was about 9805, with the largest population located in Campbellton. In these three cities, the population has globally declined since 2011, with a decrease that range between 3.4 % (Pointe-à-la-Croix) to 18.8 %[3] (Listuguj). The density in these three cities ranged from 3.5 (Pointe-à-la-Croix) to 370.50 (Campbellton) habitant/km^2.

The main portion of the population is aged 15 to 64 years old (60.9 % in Campbellton to 64.7 % in Pointe-à-la-Croix) which is comparable to the overall situation in Quebec and New Brunswick. Although the youth population in Listuguj is more important (25.4 %) than in the Province, the age group 0 to 14 years is slightly smaller in Pointe-à-la-Croix and Campbellton than in the rest of Quebec and New Brunswick, reflecting an aging population. In these three cities, the population with degrees, certificate or high school diplomas was ranged from 63.36 % (Pointe-à-la-Croix) to 73.35 % (Campbellton) which is slightly lower than in Quebec (80.05 %) and New Brunswick (77.95 %).

In 2016, there were approximatively 739 and 735 private dwellings respectively in Pointe-à-la-Croix and Listuguj, and 3443 private dwellings in Campbellton while the percentage of private dwellings used by permanent residents

[3] Note that, according to Statistics Canada, the Global non-response rate ranged from 21.5% to 25.4% in Lituguj.

ranged from 91 to 93 %. The median economic families incomes in 2016 in these three cities ranged between $ 42.1 K and $ 60.4 K which is way less important than the overall incomes of each province.

The employment situation in this area present weaker employment indicators compared to the provincial indicators. Note that the employment indicators are better on the New Brunswick's side.

The data extracted from the 2016 Census is presented in the table 10.

Table 10: Local socio-economic data

Indicators		Province of Quebec	Pointe-à-la-Croix (QC)	Listuguj (QC)	Province of New Brunswick	Campbellton (NB)
Population	Total census population 2016	8164361	1408*	1514*	747101	6883
	Total census population 2011	7903001	1457	1865	751171	7385
	Variation between 2011 and 2016	3.3%	-3.4%*	-18.8%*	-0.5%	-6.8%
	Population density (hab/sq.km)	6.00	3.50	35.5	10.50	370.50
Age	Age 0 to 14 years	16.3%	14.7%	25.4%	14.8%	12.9%
	Age 15 to 64 years	65.4%	64.7%	62.9%	65.3%	60.9%
	Age 65 years and over	18.3%	20.6%	11.8%	19.9%	26.2%
Education	People with certificates, diploma or degrees (15 years and over)	80.05%	63.36%	73.20%	77.95%	73.35%
Private dwellings	Total private dwellings	3 858 943	739*	735*	359721	3443
	Private dwellings used by permanent residents	92%	89.5%*	94%*	89%	91%
Annual median incomes	Lone parent families	52 708.00 $	40 320.00 $	30 357.00 $	42 992.00 $	35 808.00 $
	Families without children	70 075.00 $	48 192.00 $	49 536.00 $	67 988.00 $	59 648.00 $
	Families with children	105 246.00 $	81 152.00 $	75 264.00 $	100 315.00 $	93 227.00 $
	All census families	79 378.00 $	58 496.00 $	42 112.00 $	74 353.00 $	60 416.00 $
Employment situation	Unemployment rate	7.2 %	12.5 %	32.6 %	11.2 %	11 %
	Participation rate	64.1 %	48.3 %	50.3 %	61.5 %	53 %
	Employment rate	59.5 %	41.8 %	33.9 %	54.7 %	47.1 %

*: data revised by Statistics Canada on August 15th, 2018

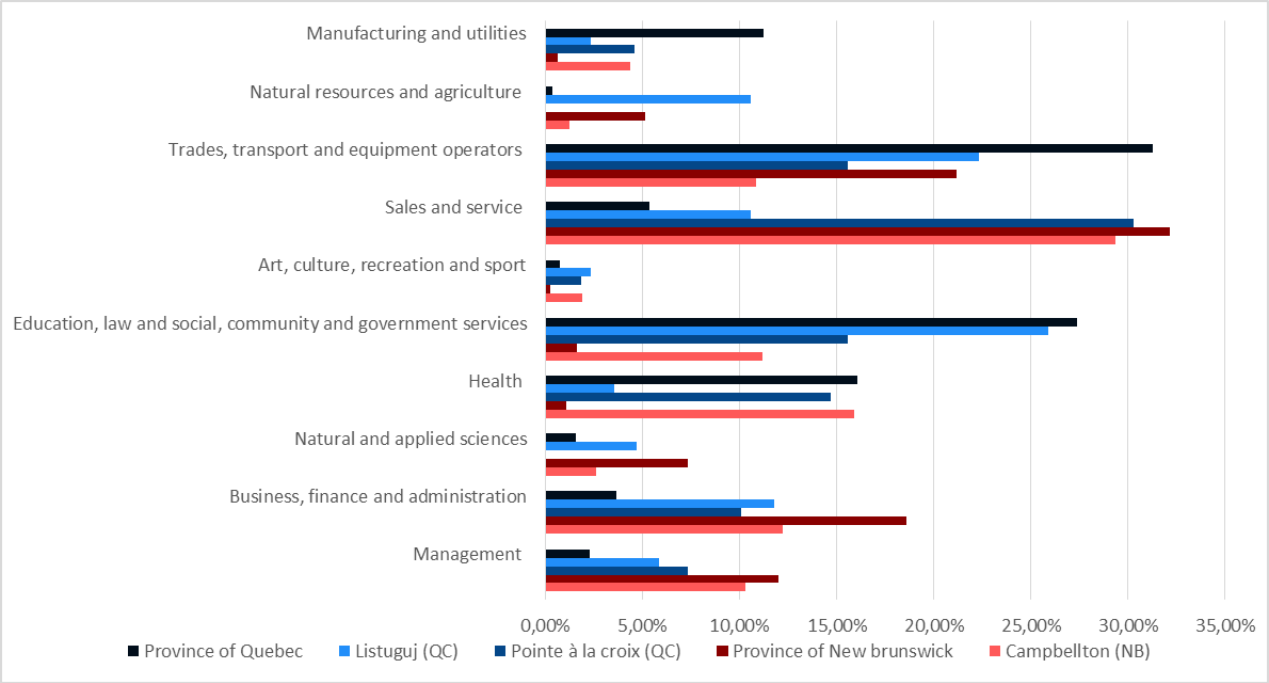
3.5.3. Local Economy

According to the 2016 census data, the highest percentage of people in Pointe-à-la-Croix and Campbellton were employed in sales and service operations (i.e. 30.28 % and 29.37 %) while in Listuguj, people were employed in education, law, social, community and government services occupations (25.88 %).

Moreover, the second and third highest proportions of population in those cities are employed respectively in health occupations (Campbellton: 15.91 %), business, finance and administration occupations (Campbellton: 12.24 %; Listuguj: 11.76 %), trades, transport and equipment operators related occupations (Pointe-à-la-Croix: 15.6 %; Listuguj: 22.35 %) and education, law, social, community and government services related occupations (Pointe-à-la-Croix: 15.6 %).

The Labour force repartition, extracted from the 2016 Census, is presented in the graph below.

Graph 3: Local Labour Force distributions by occupations



3.5.4. Existing Land Use

The main part of the study area, i.e. the JCVH Bridge, Subway road and the Interprovincial Boulevard, is essentially occupied by road infrastructures.

According to Campbellton's Land Use Plan provided by the Planning division of Restigouche Regional Service Commission, the New Brunswick's terrestrial portion of the study area is classified under Central Commercial (CC) zone on the eastern side of the Bridge and Parks (P) zone on the western side of the bridge. In accordance to Campbellton's zoning bylaw, the primary use of CC zones includes collective housing (under certain conditions), commercial and services activities (automobile sales room, banks, funeral home, hotel, car wash, retail store, service station or public garage, tavern, bed and breakfast, tv or radio station), parks, institutional activities (government building or public services building). Secondary use of CC zones include single housing, boarding house or indoor storage of articles for sale linked to a first use.

The Quebec's land portion of the study area is occupied by the Listuguj Marina on the western side of the road. The eastern side of the road, included at the intersection of the Interprovincial Boulevard and the street de la Mer, is occupied by a sand beach.

3.5.5. Land transportation

The JCVH Bridge links Subway Street in Campbellton and the Interprovincial Boulevard in Pointe-à-la-Croix and Listuguj. The limited speed on that road section is 50 km/h. According to Transport Québec data, in 2016 the daily

flow on the bridge was relatively important, with an average flow of 12 400 vehicles per day. It ranged between 11 100 vehicles per day in the winter period and 13 400 vehicles in the summer period.

Note that the nearest bridge that link Quebec and New Brunswick is the Interprovincial Bridge on Bell Island located 18 kilometers to the west from the study area.

3.5.6. Navigation and harbours

The study area of the project is mainly located over the Restigouche River where many vessels (recreational boats, fishing boat) circulate. Consequently, several harbours are located in or nearby the study area:

- a marina, offering recreational boating and kayak activities, is located in the study area, on the Listuguj territory;
- according to Quebec's Ministère des Transport data, there are two ports located downstream of the study area, a recreational port located in Oak Bay and a transom port in Miguasha;
- according to Fisheries and Oceans Canada, the nearest commercial fishery ports are located downstream in Carleton (Quebec) and New Mills (New Brunswick).

Since the Restigouche River is considered as navigable waters by the *Navigation Protection Act*, an authorization will be required prior to the work according to Transport Canada.

3.5.7. Tourism and recreational activities

Tourism is relatively important in Chaleur Bay, largely due to its preserved landscape and wildlife. Sport fishing is one of the main recreational activity in the area due to the presence of Bass and Atlantic salmon in the Restigouche River. This area is included in the recreational fishery area n°1 according to the Quebec's MFFP and in the Restigouche recreational fishery area according to New Brunswick's DERD.

This area offers many other recreational activities such as ice fishing, hiking, ornithological trails and winter activities.

3.5.8. Fishery

According to the Listuguj Comprehensive Community Book, commercial fishery represents a source of employment for few members of the Mi'gmaq community. In 2000, Listuguj launched its commercial fishing operation for lobster, snow crab, rock crab, shrimp, turbot, and cod.

In addition, the Mi'gmaq community in Listuguj have a very valuable relationship with the Atlantic salmon since it represents a major food fishery. On the Quebec shore, there are two major wharves located on both the western side (Listuguj) and on the eastern side (Pointe-à-la-Croix) of the JCVH Bridge where boats leave for fishing. Therefore, Atlantic salmon fishery represents a significant human activity that takes place from early June to late August in this area.

3.5.9. Landscape

The inhabitants of this region are very attached to the overall aesthetic of this almost preserved typical landscape that attracts a lot of tourists during the summer.

The local landscape is composed with mixed wood forest of sugar maple and yellow birch, steep slopes, and small cities located at the edge of the bay. The study area itself, i.e. the JCVH Bridge, has been part of the local landscape since 1961 and is a major path between Quebec and New Brunswick that allows provincial exchange.

In addition, the Restigouche River is recognized part of the Canadian Heritage Rivers System, which is a joint program administered by the federal, provincial and territorial governments to conserve and protect the best examples of Canada's river heritage, to give them national recognition, and to encourage the public to enjoy and appreciate them.

3.5.10. Historic heritage and archeological resources

According to the Listuguj Comprehensive Community Plan (2013), there is one culturally significant area for the Mi'gmaq people on Moffat's Lane, located upstream the study area at about 1.3 kilometer to the south east. This area hosts the Listuguj's Pow Wow every year in August. According to that document, sites of spiritual or archeological values are scattered on the Listuguj territory but mostly in the forested areas (mounds or burial grounds).

In addition, according to the Canada's Historical Places website, the National Historic Site of Canada "Battle of Restigouche" is located upstream the study area, more precisely at the bottom of the Chaleur Bay, in the estuary of Restigouche River between New Brunswick and Quebec.

The site consists of *in situ* remains of two French ships (the "Bienfaisant" and the "Machault") sunk by the British in the Battle of Restigouche, June 22 to July 8, 1760. The official recognition refers to the *in situ* cultural resources of three areas of 200 meters radius each, which respectively comprise the sites of the ballast dump and the two ships (excluding its terrestrial portion).

This site was recognised by the Government of Canada as a National Historic Site in 1924 because it was considered as the last naval battle of the Seven Years' War in the northern American waters. This historic site is located approximatively at 4.5 kilometers west to the study area although the exact location of the remains is not provided.

No information request has been sent to the Archeological Services Unit of New Brunswick's Department of Tourism and Quebec's Ministère de la Culture et des Communications since the Project has no intent in excavating soils or sediments.

4. IMPACT ASSESSMENT METHODOLOGY

As a first step, the method relies on identifying sources of impact and sensitive Valued Environmental Components (hereafter "VECs"). Sources of impact are defined as human interventions that are likely to modify a VEC, directly or indirectly.

An evaluation is then performed for each likely impact identified in an interrelationship grid. This evaluation is done using criteria that determine the importance of each of the anticipated impacts. Mitigation measures to reduce negative impacts or enhance positive impacts are then proposed.

The final evaluation of the project is to define the significance of residual negative impacts, that is to say those who persist despite the implementation of measures to eliminate or reduce its scope.

4.1 INTERRELATION IDENTIFICATION

Impact identification consists in linking the activities of the Project during the construction and operation phases with the VECs. Link between project activities and the VECs likely to be affected are presented in a grid in which each interrelation represents an impact.

Once identified, the interrelations allow the evaluator to take a critical look at impact sources and the relationship between one or more components of the existing environment. In fact, these tables detail one or more apprehended impact(s) for a given component, the significance of these impacts, the associated project phase (construction or operation), their location, the applicable mitigation measure and the significance of the residual impact.

4.2 IMPACT SIGNIFICANCE ASSESSMENT CRITERIA

The definitions of "significant" have been based on scientific determinations, social values, public concerns and economic judgements. As recommended by the Canadian Environmental Assessment Agency, three criteria have been considered to assess the significance of each impact:

- Intensity;
- Geographic extent;
- Duration.

4.2.1. Intensity

The intensity of the impact depends on the magnitude of the changes observed on the VEC affected by a project activity or disruptions. Three levels have been considered:

- Low intensity: impact causing only minor changes to the component, without modifying its use or characteristics. For biological components, it implies that only a portion of plant or animals' populations or their habitat will be affected by the project without altering the abundance or the distribution of the species. For human components, it implies that only a small portion of population or community will be affected by the disturbance or it will only slightly or partially reduces the utilization or the integrity of a component without modifying its use, functionality or security.

- Medium intensity: impact causing tangible disturbances to the use or characteristics of the component, without reducing them completely or irreversibly. For biological components, it implies that a larger portion of plant or animals populations or their habitat will be affected by the project without altering their integrity, although the abundance or the distribution of the species might be altered. For human components, it implies that larger portion of population or community will be affected by the disturbance;

- High intensity: impact causing major changes to the component. For biological components, it implies that a large portion or an entire population of plant or animals or their habitat will be altered or destroyed by the project. It could also implies a major change in the abundance or the geographic location of the species. For human components, an impact is considered of high intensity when the disturbance irreversibly affects or restricts the use of a component by a community or population, or where its functional and safe use is seriously compromised.

4.2.2. Geographic extent

The geographic extent of the impact refers to the radius of its influence. In a way, it is independent of the boundaries of the study area selected in this document. Three levels have been considered:

- Sporadic: disturbance affecting a small area or perceptible by only a small group of individuals;
- Local : disturbance affecting a larger portion of territory such as a municipal entity or a specific ecosystem;
- Regional: disturbance perceptible by a large given population and affecting a large portion of territory such as an ecological district.

4.2.3. Duration

Two levels of duration have been considered:

- Temporary : disturbance can be spread over a few days, weeks or months but associated with the notion of reversibility;
- Permanent: disturbance is observed permanently and it is irreversible.

4.2.4. Impact significance

The resultant of these three criteria allows the qualification of the impact significance. Three classes of significance are used for this purpose: minor, medium or major. The importance is determined by an interpretation that combines the criteria described previously, put in perspective by one or more specialists in the field.

The Table 11 presents the grid for determining the overall importance of an impact which applies to both positive and negative impacts.

Table 11: Impact significance grid

Intensity	Geographic extent	Duration	Impact significance		
			Major	Medium	Minor
High	Regional	Permanent	X		
		Temporary		X	
	Local	Permanent	X		
		Temporary		X	
	Sporadic	Permanent		X	
		Temporary			X
Medium	Regional	Permanent	X		
		Temporary		X	
	Local	Permanent		X	
		Temporary			X
	Sporadic	Permanent		X	
		Temporary			X
Low	Regional	Permanent		X	
		Temporary			X
	Local	Permanent		X	
		Temporary			X
	Sporadic	Permanent			X
		Temporary			X

4.3 MITIGATION OR IMPROVEMENT MEASURES

Mitigation measures are actions or modalities of the project that are defined to prevent or reduce the significance of negative impacts, while improvement measures have been rather defined to increase the effects of a positive impact. For each negative impact, mitigation measures are proposed, if possible, to reduce the geographic extent, the intensity or the duration of an impact.

4.4 RESIDUAL IMPACT

The significance of the residual impact on an environmental component is assessed after the application of mitigation measures using the same impact significance grid.

Although a mitigation measure helps to reduce an impact, the method used for the evaluation of the significance of the impacts does not always make it possible to express this improvement because of the lack of significance classes used. For example, in some cases, the significance class of the residual impact is the same as the unmitigated impact, despite the application of a mitigation measure aimed to reduce that impact. In this case, it means that the specialist who assesses the impacts consider the mitigation measure will not be effective enough to change the significance class.

5. IMPACT ASSESSMENT

5.1 INTERRELATION IDENTIFICATION

The first step consists to establish the interrelation grid that will be used to evaluate the potential impacts of the project. Consequently, this chapter focuses on identifying impact sources through the project description, the Valued Environmental Components (VECs) and to link them through the grid.

5.1.1. Project's impact sources identification

As discussed before, the Project is subdivided in three subproject as listed below:

- Sub-project 1 Minor reparation on the bridge, including in stream reparations;
- Sub-project 2: Lateral bracing reparations;
- Sub-project 3: Paving works;
- Sub-Project 4: Bridge member L34-L35 reparations.

Identifying the sources of impact consists into listing all the components of the project that might have a potential impact on the existing environment during the construction and operation phases. They are based on the technical characteristics of the project and the general working methods chosen to achieve each activity.

5.1.1.1. *Construction phase*

Work site Installation

Contractor will have to make private arrangements for access to a work site installation/laydown area beforehand. This laydown area will serve as headquarters and should include at least one trailer with sanitary facilities. However, the site will have to be assessed and approved by PSPC. Additional mitigation measures could be required.

Land transport and traffic

During the construction, transportation and traffic will include transportation of equipment and materials as well as the movement of personnel assigned to the work site. Heavy vehicles will also take the roads to transport the materials required even though material suppliers haven't been not defined by PSPC yet.

Besides, several sections of the JCVH Bridge will be closed for circulation in order to execute the work, potentially during sub-project 1 and certainly during sub-projects 2 and 3.

Consequently, congestion could be a major logistical constraint as well as nuisances related to noise, vibration, air quality and potential spillages.

Material storage and handling

During the construction phase, material for every subproject must be stored as well as petroleum, products used by the machinery (oils and lubricants, degreasers, etc.) and other potentially harmful products for the environment. This area will also be used to park the heavy machinery when not in use.

Maritime deliveries

Even though these construction works are not supposed to happen in stream, some equipment and materials might be delivered on stream with a barge during sub-project 1 (piers repairing).

Depending on the consistency of this work, the worksite installation might also be equipped with a permanent fixed crane and other facilities necessary for transhipment of the equipment and material from the wharf to the delivery barge.

Construction work

The Project implies several working conditions, during the construction works on all sub-projects that might represent an impact with some VECs:

- roadwork on sub-projects 1 to 4 could represent an impact due to the risk of collision for the workers and/or JCVH Bridge's users (motorists, pedestrians, cyclists);
- work at height on sub-projects 1 and 2 could represent an impact due to the risk of fall and/or drowning for the workers;
- uses of harmful products for health or environment during the construction phase could represent an impact on workers' health or the biophysical environment itself due to accidental spillage. For example, asphalt, used in sub-project 3, contains traces of polycyclic aromatic hydrocarbons (PAHs), some of whom are classified as carcinogenic by the World Health Organization.

Local goods and services supply

The various activities related to the construction work on every sub-projects will require the provision of several technical and professional services as well as the supply of various materials and goods.

Moreover, the project will provide jobs to local workers during several weeks. In addition, the presence of workers during the construction phase will increase the demand for food and hospitality services in the region as well as the purchase of goods and services in the region.

5.1.1.2. *Operation phase*

Bridge's improvement

During the operation phase, since the JCVH Bridge is part of the area's landscape since more than 57 years and the construction work is only limited to repairing of the existing structure, the only source of impact linked to the project is a positive impact related to the bridge improvement in terms of aesthetic and motorist / pedestrian's safety.

5.1.2. Valued Environmental Components identification (VECs)

As previously discussed, based on the Project description and the existing environment description, the following potential Valued Environmental Components (VECs) have been identified in the study area:

- Physical environment : air quality, environmental noise, soil quality, surface water and groundwater quality;
- Biological components : plants, terrestrial fauna, ichtyological fauna, avifauna and migratory birds, species at risk (Barn Swallow, Peregrine Falcon, Little Brown Myotis):
- Human components: land use, quality of life, local economy and jobs, human health and safety, traffic, navigation, aesthetics, historic heritage.

5.1.3. Project's interrelations grid

Linking the sources of impact with the VECs allows to identify the impacts that will likely occur with the Project. The table below presents the interrelations of the project.

Table 12: Project's interrelation grid

VECs	Impact sources						
	Construction phase						Operation phase
	Worksite installation	Land transport and traffic	Material storage and handling	Maritime transport	Construction work	Local goods and service supply	Bridge improvement
Physical components							
Air quality		X		X	X		
Environmental noise		X		X	X		
Soil quality			X		X		
Surface water quality		X	X	X	X		
Groundwater quality		X	X		X		
Biological components							
Aquatic and Terrestrial Plants	X			X	X		
Mammals and Terrestrial fauna	X	X	X	X	X		
Ichtyological fauna					X		
Avifauna and Migratory birds	X	X		X	X		
Species at risk	X	X		X	X		
Human components							
Quality of life		X		X	X		
Local economy and jobs					X	X	X
Human health and safety		X	X	X	X		X
Navigation				X	X		
Traffic		X					X
Aesthetics							X

Concerning the Land Use and Historic Heritage's VECs, no potential impact has been identified since the JCVH Bridge is not a new construction (no modifications on the current structure and location or excavation works are planned) and it's a part of the local landscape since 1961.

5.2 IMPACT ASSESSMENT AND MITIGATION MEASURES RECOMMENDATIONS

The following tables are presenting the VECs, sorted by category of environmental components, associated with potential impacts due to the project during construction phase and/or operation phase, their significance, recommended mitigation measures to avoid or, if not possible, reduce negatives impacts, and, if appropriate, the significance of potential residual impact after the application of mitigation measure. Besides, as an impact can be positive or negative, the polarity of potential and residual impacts is highlighted with a (+) or (-) sign with the impact significance.

5.2.1. Physical environment

Table 13: Project's impact assessment on the physical environment

VECs	Description of potential Project interaction	Impact significance	Mitigation or improvement measures	Residual Impact
Air quality	During the construction phase, Greenhouse Gas and dust emissions because of transportation (land and river) and paving works. There is no identified impact during the operation phase.	Intensity : Low Extent : Sporadic Duration: Temporary **Impact significance : Minor (-)**	• Keep airborne dust and dirt resulting from the work site to an absolute minimum; • Employ dust suppression by the application of water when required; • Equipment with good performance concerning the release of contaminants into the atmosphere must be preferably selected; • Avoid potential release of contents and of any foreign matter onto highways, roads, and access routes used for the work. Immediately clean any spillage.	Given the nature and duration of the work, the residual impact on the air quality is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**
Environmental noise	During the construction phase, heavy vehicles noise (land / river) and construction work noises might impact both the neighborhood residents and the construction workers. There is no identified impact during the operation phase.	Intensity : Low Extent : Sporadic Duration: Temporary **Impact significance : Minor (-)**	• The working amplitudes authorized by each municipality must be respected; • Prior to the work, each municipality must be informed on the nature and duration of works; • The wearing of Personal hearing Protection Equipment must be mandatory on site; • Noisy machinery's condition must be verified on a daily routine basis; • Noises levels specified on the Project's technical specification must be respected.	Given the nature and duration of the work, the residual impact on the environmental noise is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**

VECs	Description of potential Project interaction	Impact significance	Mitigation or improvement measures	Residual Impact
Soil quality	During the construction phase, the presence of work site installation, material storage transportation and handling is likely to impact the quality of the soil due to accidental leak or spillage. There is no identified impact during the operation phase.	Intensity : Medium Extent : Sporadic Duration: Temporary **Impact significance : Minor (-)**	• Workplace Hazardous Materials Information System (WHMIS) certification will be mandatory for all site employees; • Prior to the start of the Project, an information meeting for all construction site employees concerning environmental risks before will be carried out; • A prevention and intervention system in the event of spillage must be set up including: identification of the personnel and authorities in charge and the procedure in case of accident; • Machinery's condition must be verified on a daily routine basis; • Potentially polluting products must be stored on retention areas; • Absorbent materials must be available nearby the storage area and into every vehicles to avoid accidental spillage; • On-site crews must have emergency spill clean-up equipment, adequate for the activity involved, on-site. Spill equipment will include, as a minimum, at least one 250L (55 gallons) spill kit containing items to prevent a spill from spreading (absorbent booms, pillows, and mats; rubber gloves; and plastic disposal bags); • All spills or leaks must be promptly contained, cleaned up, and reported to the 24-Hour Environmental Emergencies Report System (1-800-565-1633); • The installation and dismantling of any temporary fuel tank on the site must comply with the applicable laws and regulations. That will apply to any Project's waste.	Given the nature and duration of the work, the residual impact on the soil quality is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**

VECs	Description of potential Project interaction	Impact significance	Mitigation or improvement measures	Residual Impact
Surface and groundwater quality	During the construction phase, the presence of work site installation, material storage transportation and handling, and the works carried out over the Restigouche River are likely to affect the quality of the water and/or groundwater due to accidental leak or spillage. There is no identified impact during the operation phase.	Intensity : Medium Extent : Sporadic Duration: Temporary **Impact significance : Minor (-)**	• All recommendations concerning the prevention of spillage that can affect soil quality must be applied; • Vessels should be compliant with all Canada Shipping Act, 2001, requirements for inspection, which includes certification of the vessel and adequate training and appropriate certificate of competency for the operators; • Ensure that all vessels will have procedures in place to ensure safeguards against marine pollution: awareness training of all employees, means of retention of waste oil on board and discharge to shore based reception facilities, capacity of responding to and clean-up of accidental spill caused by vessels involved in any particular project; • Barge's condition must be verified on a daily routine basis; • In stream material deliveries must be constantly monitored to prevent accident or spillage; • Storage areas that may affect the quality of the aquatic environment must be located at least 50 meters from the river; • General maintenance and fuel supply of vehicles must be done in designated areas for this purpose, at a distance greater than 50 meters from the river and under constant monitoring;	Given the nature and duration of the work, the residual impact on the surface and groundwater quality is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**

5.2.2. Biological environment

Table 14: Project's impact assessment on the biological environment

VECs	Description of potential Project interaction	Impact significance	Mitigation or improvement measures	Residual Impact
Aquatic and terrestrial plants	During the Construction phase, the presence of work site installation and work carried out over the Restigouche River are likely to impact the quality of soil and/or water and consequently aquatic and terrestrial plants in the vicinity of the Project There is no identified impact during the operation phase.	Intensity : Low Extent : Local Duration: Temporary **Impact significance : Minor (-)**	• All recommendations concerning the prevention of spillage that can affect soil and water quality must be applied; • To minimize the possibility of the spread of aquatic invasive species, all construction equipment which will be immersed into the harbour, or has the possibility of coming into contact with such water during the course of the work, must be cleaned to ensure that they are free of marine growth and invasive species. Equipment may include boats, cranes, excavators, haul trucks, pumps, pipelines and other all miscellaneous tools and equipment previously used in a marine environment; • Provide, upon request, a record of assurance (i.e., dates of cleaning, type of cleaning, location of last mobilization, type of cleaning material used, etc.) indicating that the mitigation measures, as per DFO guidelines for invasive species, has occurred; • The work site installation must be set up in an urban area, preferably asphalt covered.	Given the nature and duration of the work, the residual impact on the aquatic and terrestrial plants is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**
Mammals and Terrestrial fauna	During the Construction phase, the presence of work site installation, noise pollution generated by the construction work and the increase of traffic are likely to affect the terrestrial wildlife in the vicinity of the Project. There is no identified impact during the operation phase.	Intensity : Low Extent : Local Duration: Temporary **Impact significance : Minor (-)**	• All recommendations concerning the prevention of spillage that can affect water quality must be applied; • Noise during work must be minimized; • Roadblocks around construction site facilities to prevent animal's intrusion must be installed.	Given the nature and duration of the work, the residual impact on the terrestrial fauna is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**

VECs	Description of potential Project interaction	Impact significance	Mitigation or improvement measures	Residual Impact
Ichtyological fauna	During the Construction phase, the work carried out over the Restigouche River and in stream material delivery are likely to impact the quality of water and consequently ichtyological fauna's habitat in the vicinity of the Project. There is no identified impact during the operation phase.	Intensity : Low Extent : Sporadic Duration: Temporary **Impact significance : Minor (-)**	• All recommendations concerning the prevention of spillage that can affect water quality must be applied;	Given the nature and duration of the work, the residual impact on the ichtyological fauna is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**
Avifauna and migratory birds	During the Construction phase, the work carried out on the JCVH Bridge and in stream material delivery are likely to impact the avifauna, including migratory birds species, and habitat in the study area. There is no identified impact during the operation phase	Intensity : Low Extent : Sporadic Duration: Temporary **Impact significance : Minor (-)**	• Prior to the work, the potential presence of Migratory birds' nests on the JCVH bridge must be verified via a faunistic survey; • If possible, repairing work on the lower structures of the JCVH Bridge must be plan to begin in September (outside the nesting period); • If nests are confirmed, they must not be removed and work must be adapted to their location; • Noise during work must be minimized.	Given the nature and duration of the work, the residual impact on the avifauna is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**
Species at risk	During the Construction phase, since the JCVH Bridge might be a suitable habitat for Barn Swallow, work carried out on the JCVH Bridge, especially piers repairing, are likely to impact this species which is ranked as "Threatened" under SARA. In addition, a Peregrine Falcon, classified as "Special Concern" under SARA, has been visiting the JCVH Bridge in the last three years. Consequently, constructions work on the bridge might affect this species. There is no identified impact during the operation phase.	Intensity : High Extent : Local Duration: Temporary **Impact significance : Medium (-)**	• Prior to the work, the potential presence of Barn Swallow's nests must be verified on the JCVH bridge via a faunistic survey; • If the presence of Barn swallow is confirmed, the work timeline must be adapted to the nesting periods, especially repairing work on the lower structures and lateral bracing repairs that must be planned to begin in September (outside the nesting period); • A daily faunistic survey must be carried out by a specialist to ensure the absence of Peregrine Falcon and Little Brown Myotis in the work areas; • If the presence of the species is confirmed by the faunistic inventory, the work timeline must be adapted (night work); • Noise during work must be minimized;	After the application of the mitigations measures, the residual impact on the species at risk is considered negligible. **Residual Impact significance: Minor (-)**

5.2.3. Human environment

Table 15: Project's impact evaluation on the human environment

VECs	Description of potential Project interaction	Impact significance	Mitigation or improvement measures	Residual Impact
Quality of life	During the construction phase, the presence of work site installation and work carried out on the Bridge (noise, air quality) are likely to impact the quality of life of the people living near the bridge and the bridge's users. There is no identified impact during the operation phase.	Intensity : Low Extent : Local Duration: Temporary **Impact significance : Minor (-)**	• All recommendations concerning the prevention of noise and air quality must be applied; • A traffic plan and specified areas to confine the circulation of heavy machinery must be set up;	Given the nature and duration of the work, the residual impact on the quality of life is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**
Local economy and jobs	During the Construction phase, the Project will promote local and regional job creation. In addition, it will create favorable conditions for the purchase of goods and services from a regional point of view (purchase of materials, hotels and catering for workers). During the operation phase, the significance of the impact on the regional economy due to the bridge improvement is positive since the JCVH Bridge promotes trade between the provinces of Quebec and New Brunswick.	Intensity : Medium Extent : Regional Duration: Temporary **Impact significance : Medium (+)**	• The hiring of workers in the region, preferably from Listuguj, Pointe-à-la-Croix and Campbellton, for specialized and non-specialized work, must be promoted; • Local supply of goods and services, preferably from Listuguj, Pointe-à-la-Croix and Campbellton, must be promoted.	Since the JCVH Bridge promotes trade between the provinces of Quebec and New Brunswick, the residual impact on the Local and Regional economy is relatively important. **Residual Impact significance: Medium (+)**
Human and health safety	During the construction phase, the work carried out on the Bridge (noise, air quality, road work, works at height) are likely to impact the health and safety of the workers and users of the bridge.	During Construction phase : Intensity : Minor Extent : Sporadic Duration: Temporary **Impact significance : Minor (-)**	• All recommendations concerning the prevention of noise and air quality must be applied; • Each municipality must be informed on the nature and duration of works;	Given the nature and duration of the work, the residual impact on the human health and safety is considered negligible after the application of mitigation measures.

VECs	Description of potential Project interaction	Impact significance	Mitigation or improvement measures	Residual Impact
	During the operation phase, considering the actual poor condition of the bridge, its improvement will enhance the safety of the users (pedestrians, cyclists and motorists).	During Operation phase : Intensity : Medium Extent : Local Duration: Permanent **Impact significance : Medium (+)**	• Site Access must be restricted to authorized workers and site personnel only; • Workers in contact with hazardous materials must be provided with and use appropriate personal protective equipment; • Proper safety procedures must be followed for the duration of the project as per applicable municipal, provincial and federal regulations; • Employees will be trained in health and safety protocols (i.e. safe work practices, emergency response); • Ensure that all trucks are road worthy, and that drivers observe all speed and weight limits on site.	**Residual Impact significance: Minor (-)**
Navigation	Potential for direct effects to navigation.	During Construction phase : Intensity : Minor Extent : Sporadic Duration: Temporary **Impact significance : Minor (-)**	• Environmental effects of the project on navigation are taken into consideration as part of this environmental review only when the effects are indirect, i.e. resulting from a change in the environment affecting navigation. Direct effects on navigation are not considered here, but any measures necessary to mitigate direct effects will be included as terms and conditions associated with work approved or permitted pursuant to the *Navigation Protection Act.*	Given the nature and duration of the work, the residual impact on the land and maritime transportation is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**

VECs	Description of potential Project interaction	Impact significance	Mitigation or improvement measures	Residual Impact
Traffic	During the construction phase, the major impact will be an increase of regional road traffic and local traffic jam on the JCVH Bridge and the surroundings roads considering the heavy daily road flow. In addition, road deviation might happen during certain subproject when the bridge need to be closed. Moreover, in case of in stream material deliveries, the seaway must remain operational.	During Construction phase : Intensity : Medium Extent : Local and Regional Duration: Temporary **Impact significance : Medium (-)**	• The working amplitudes authorized by each municipality must be respected; • Each municipality must be informed on the duration of road's closure when required; • Transportation must be planned to avoid busiest lanes and circulation of heavy vehicles in residential neighborhood; • Prior to the work, maritime transportation authorization must be obtained from Marine Communications and Traffic Services (MCTS); • MCTS must be informed of the duration and location of the in-stream delivery; • Generally, all in-stream deliveries must comply with MCTS guidelines and procedures; • Barges must be equipped with marine VHF radio.	Given the nature and duration of the work, the residual impact on the land and maritime transportation is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**
	During the operation phase, considering the presence of road potholes, paving works will slightly improve the quality of traffic on the bridge.	During Operation phase : Intensity : Medium Extent : Local Duration: Permanent **Impact significance : Medium (+)**		
Aesthetics	During the construction phase, the presence work site installation and heavy machinery will impact general aesthetics of the local landscape.	During Construction phase : Intensity : Medium Extent : Local Duration: Temporary **Impact significance : Minor (-)**	• Promote the environmentally friendly aspect of the Project with information's panels.	Given the nature and duration of the work, the residual impact on the overall aesthetic is considered negligible after the application of mitigation measures. **Residual Impact significance: Minor (-)**
	During the operation phase, considering the actual poor quality of the JCVH Bridge, the Project will improve the overall aesthetic of the Bridge.	During Operation phase : Intensity : Medium Extent : Local Duration: Permanent **Impact significance : Medium (+)**		

5.3 CUMULATIVE EFFECTS EVALUATION

The effect of a project on the environment may not be fully reflected by the individual interactions of project components with VECs. In many cases, individual projects components produce environmental effects that are not significant. However, if they're combined with other project components, these minor effects may become relevant.

No major construction projects have been brought to our attention in the vicinity of the Project. Nevertheless, an evaluation of the most likely cumulative effects to occur was conducted on the three most relevant VECs:

- Traffic: about this VEC, if other projects in this area take place simultaneously, it might represent cumulative effects on the traffic situation during construction phase, such as regional and local increase of traffic, traffic jams, road deviations and potential spillages or accidents. Consequently, it will be very important that the measures to maintain and manage the circulation be constantly evaluated and deployed in order to coordinate the work with the responsible authorities and the contractors involved on site. Moreover, since the nearest bridge that link Quebec and New Brunswick is the Interprovincial Bridge on Bell Island, if maintenance works are planned on this structure during the Project, they must be conducted on a different schedule of the JCVH Bridge closure;

- Environmental noise: about this VEC, if other projects in this area take place simultaneously, it might represent a cumulative effect on the environmental noise. A strategic planning, realized in concertation with concerned contractors and responsible authorities, which would allocate tasks that might induce adverse effects related to noise could be a relevant way of reducing this cumulative effect. This cumulative effect is limited in time to the completion of the work though;

- Air quality: about this VEC, if other projects in this area take place simultaneously, it might represent a cumulative effect on the air quality (dusts and GHG emissions). However, since no other projects is planned directly on the Bridge, the potential distance to other projects makes this cumulative effect very improbable.

5.4 EFFECTS OF THE ENVIRONMENT ON THE PROJECT

Project infrastructures are subject to the nature of the environment in which they are located. Two main concerns identified for this Project are the potential sea-level rise as well as severe weather. A significant effect on the environment of the Project would result in:

- A long term delay in the Project schedule during construction;
- A long term interruption in service during operation phase;
- Damage to the infrastructure that would imply a risk to human health and safety;
- Damage to the infrastructure that would be not economically or technically repairable.

About the severe weather, it is commonplace in this area, with thunderstorms occurring with an average of 10 to 20 days per year. Storms are more frequent and severe in the winter months. Considering the Project is carried out in through spring 2019, the risk of severe weather is very low during the construction phase.

About the sea-level rise, according to the *Updated Sea Level Rise* and *Flooding Estimates* for *New Brunswick Coastal Sections* and based on the IPCC 5th Assessment Report (Daigle, R.J., 2014), the average sea level by 2100 is estimated to be up to 1.99 meters (+error bar) from the current elevation in the Restigouche County.

6. FOLLOW-UP AND MONITORING

6.1 MONITORING PROGRAM

The Project will include the implementation of comprehensive monitoring programs during the construction phase. These monitoring programs will be under PSPC responsibility and will be integrated into contractual arrangements with the contractor. These programs will be fully documented in the Project Technical specifications.

The objectives of the monitoring programs are to:

- Verifying the effects predictions of the environmental effects evaluation;
- Ensuring that the proposed mitigation measures in the environmental effects evaluation are applied and confirming their effectiveness;
- If required, determine the need of new mitigation measures to prevent unanticipated adverse effects or ineffective mitigation measure;
- Ensure compliance with regulatory permits, approvals and requirements.

The first step will be to verify that all the permits applications request required for the Project have been completed and to ensure that they are granted. At the same time, the recommendations to protect the environment will be added to the Project technical specification.

Prior to the work, a kick-off meeting will be organized to inform and sensitize about the provisions to protect the environment and the health of workers. Then, a site supervisor will be designated to coordinate project monitoring activities. Its role and its authority will be detailed in the Project technical specification. During the construction work, the site supervisor will be present on site on a regular basis and will be in charge to:

- Verify if the contractor meets the requirements of standards and specifications;
- Inspect worksite, vehicles maintenance areas and material storage areas and report non-conformities to the site manager;
- Verify the efficiency of the mitigation measures;
- Propose improvement of mitigation measures, if required.

At the end of the Project, the site supervisor will ensure the site restoration and will complete the environmental monitoring report identifying the significant facts that happened during the Project.

6.2 SPECIFIC ENVIRONMENTAL FOLLOW-UP

According to the impact assessment, if the Barn Swallow and and/or the Peregrine Falcon are highlighted by the prior faunistic inventory, a specific environmental daily follow-up program might be established to measure the environmental effects on these species.

This environmental follow-up will imply the presence of a specialized ornithologist during the crucial phases of the Project in order to document the environmental effects on these species, to confirm the efficiency of the recommended precautions and if required propose improvement on the mitigation measures. In addition, a daily verification on each work areas will be carried out to ensure that the work does not disturb these species.

7. SAFETY MANAGEMENT AND EMERGENCY RESPONSE PLAN

7.1 ACCIDENTS AND TECHNICAL FAILURE

Construction sites are always subject to technical failures or potential accidents that are, most often, without much consequences. Accurately predict the nature and severity of accidents or malfunctions is difficult. However, according to the action and emergency operation plans that will be set up in case of accidental events, the probability to have significant adverse environmental effects is very low.

The use of machinery and equipment in good condition, verified on a daily routine basis, will limit the risk of failure. In addition, proper site management, in accordance with the Canada Labour Code and Canada Occupational Safety and Health Regulations will also reduce the risk of accidents.

Moreover, due to the nature and complexity of safety management issues, a Construction Safety Coordinator will be included in the team in the planning stages of the Project.

7.2 EMERGENCY RESPONSE PLAN

The implementation of an emergency measures plan will be aimed at adequately managing any situation presenting health, safety and environmental hazards from accidents, spills, leaks or breakage equipment. In this project, the preliminary risks identified are:

- Collision between vehicles and trucks supplying the construction site;
- Drowning of a worker following a fall of the bridge, scaffold or barge;
- Collision on the seaway with recreational boats;
- Disruption of traffic in the seaway;
- Accidental spillage of petroleum and other harmful products (oils and lubricants, degreasers, etc.) into the river or on the shore.

Several documents concerning the security aspects will be required from the mandated contractor such as:

- an Health and safety plan;
- a Contingency and Emergency response plan

Particularly, the contractor will be in charge to complete the following steps when planning the construction work:

- Designation of a site manager;
- Organization of the emergency measures plan including: identification of risks, training of stakeholders, actions to be taken, responsibility and contact details of responsible personnel and authorities in case of emergency, incident report procedure and location of first aid equipment, fire extinguishers and spill kit.

Prior the work, a quick reference sheet, summarizing the emergency operation plan, will be provided to all workers on site.

8. CONCLUSION AND RECOMMENDATIONS

The Real Property branch of PSPC mandated SEN'TI Environmental and Indigenous Services to carry out an environmental effects evaluation for a proposed project consisting in renovation works on the interprovincial J.C. Van Horne Bridge. This structure links Listuguj First Nation and Pointe-à-la-Croix in Quebec to Campbellton in New Brunswick. SEN'TI outsourced this study to its partner Petrosol Inc.

The purpose of this study was to assess the significance of any environmental effects related to that project beforehand. This evaluation consisted of a description of the Project, description of the existing receiving environment based on available data (on federal, provincial and municipal authority levels) and identification of potential project effects. The Valued Environmental Components (VECs) identified for which potential effects may be a concern included:

- Physical environment: air quality, environmental noise, soil quality, surface water and groundwater quality;
- Biological components: plants, terrestrial fauna, ichtyological fauna, avifauna, species at risk (barn Swallow, Red Breasted Merganser and Bufflehead):
- Human components: land use, quality of life, local economy and jobs, human health and safety, transportation, navigation, aesthetics, historic heritage.

The effects of the Project were assessed for each identified VECs. This study took into account all the Project works on the construction and the operation phases. Based on plausible Project-environment interactions, potential adverse effects and their significance have been identified, and relevant mitigation measures were defined to avoid or reduce these effects. The residual effects, after the application of the mitigation measures, were considered to be non-significant during all the Project phases.

In summary, it was concluded that the Project is not likely to have significant adverse effects on the environment and will have economic effects (increase of employments, local goods and supply) on a local scale and health and safety improvement. Given the proposed mitigation measures and monitoring program, there will be no residual negative effect resulting from the Project.

However, based on these results, Petrosol recommends to perform a faunistic inventory of the protected species that potentially nest or inhabit the JCVH Bridge (Barn Swallow, Peregrine Falcon, Little brown Myotis and Migratory birds) beforehand in order to optimize the Project's timeline. In addition, if these species are confirmed living on the bridge, the work timeline must be adapted and a daily follow-up must be carried out on work areas to ensure that the work does not disturb these species.

APPENDIX 1 – JCVH BRIDGE PHOTOGRAPHIC REPORT

Photograph 1: Pier – bearing grout.

Photograph 2: Pier – example of concrete surface repairs.

Photograph 3: Pier – example of concrete surface repairs.

Photograph 4: Ice shield on pier 7.

Photography 5: Lifting crane.

Photography 6: Lifting jib.

Photography 7: Abutment railing.

Photography 8: Bridge rail.

Photography 9: Guide rail.

Photography 10: South side catwalks.

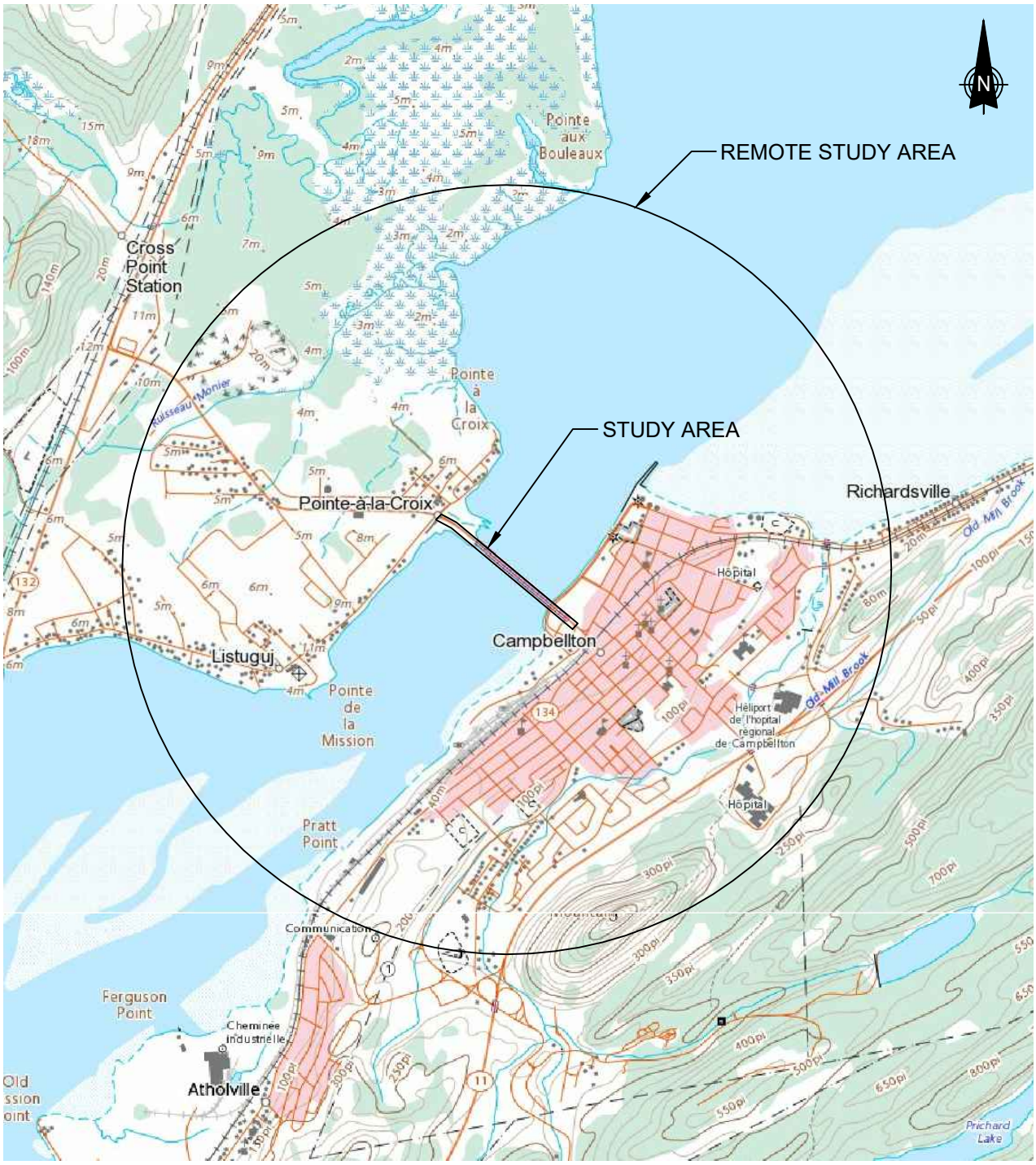
Photography 11: North side catwalks.

Photography 12: Lateral brace rail to be replaced.

Photography 13: Concrete expansion joint.

Photography 14: Asphalt condition.

APPENDIX 2 – FIGURES



SOURCE : © GOVERNMENT OF CANADA, 2008

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PROJECT 1341	DATE February 6th, 2019
PROJECT MANAGER SYLVAIN GONZALEZ	FIGURE N° 01
DELIVERABLE N° 1341-00-01-1F	

CLIENT

PUBLIC SERVICES AND PROCUREMENT CANADA - REAL PROPERTY BRANCH

PROJECT

ENVIRONMENTAL ASSESSMENT

J.C. VAN HORNE BRIDGE, NEW BRUNSWICK TO QUEBEC

TITLE

SITUATION MAP

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Source : Google Earth, Satellite imagery of 2017.

LEGEND

Study area

CLIENT

PUBLIC SERVICES AND PROCUREMENT CANADA - REAL PROPERTY BRANCH

PROJECT

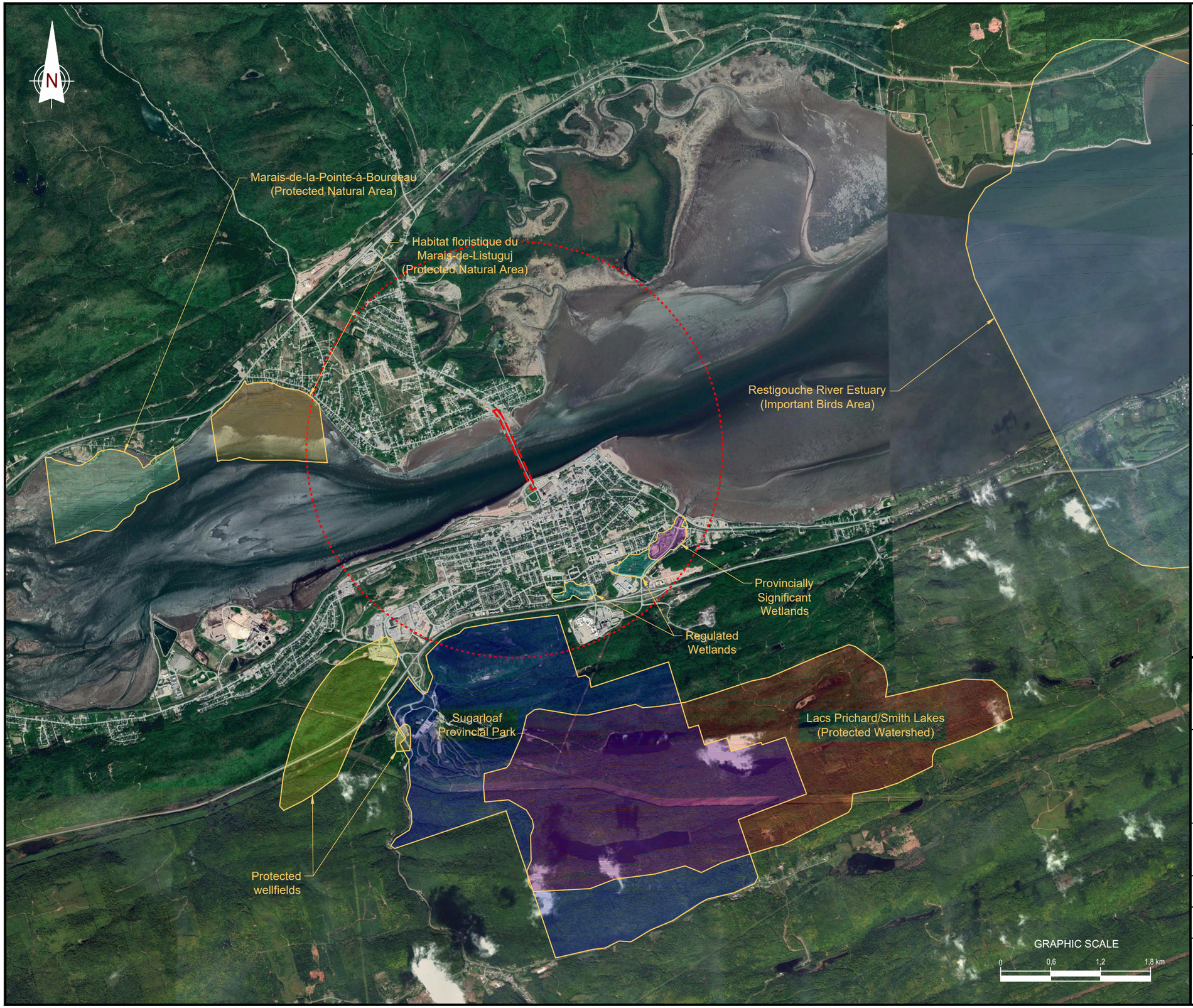
ENVIRONMENTAL ASSESSMENT

J.C. VAN HORNE BRIDGE,
NEW BRUNSWICK TO QUEBEC

TITLE

LOCAL MAP

PROJECT NUMBER	DATE
1341	FEBRUARY 6TH, 2019
PROJECT MANAGER	DRAWING BY
SYLVAIN GONZALEZ	NICOLAS TREMBLAY
DELIVERABLE NUMBER	FIGURE NUMBER
1341-00-01-1F	02



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Source : Google Earth, Satellite imagery of 2017.

LEGEND

- Study area
- Remote study area
- Protected or important zone

CLIENT

PUBLIC SERVICES AND PROCUREMENT CANADA - REAL PROPERTY BRANCH

PROJECT

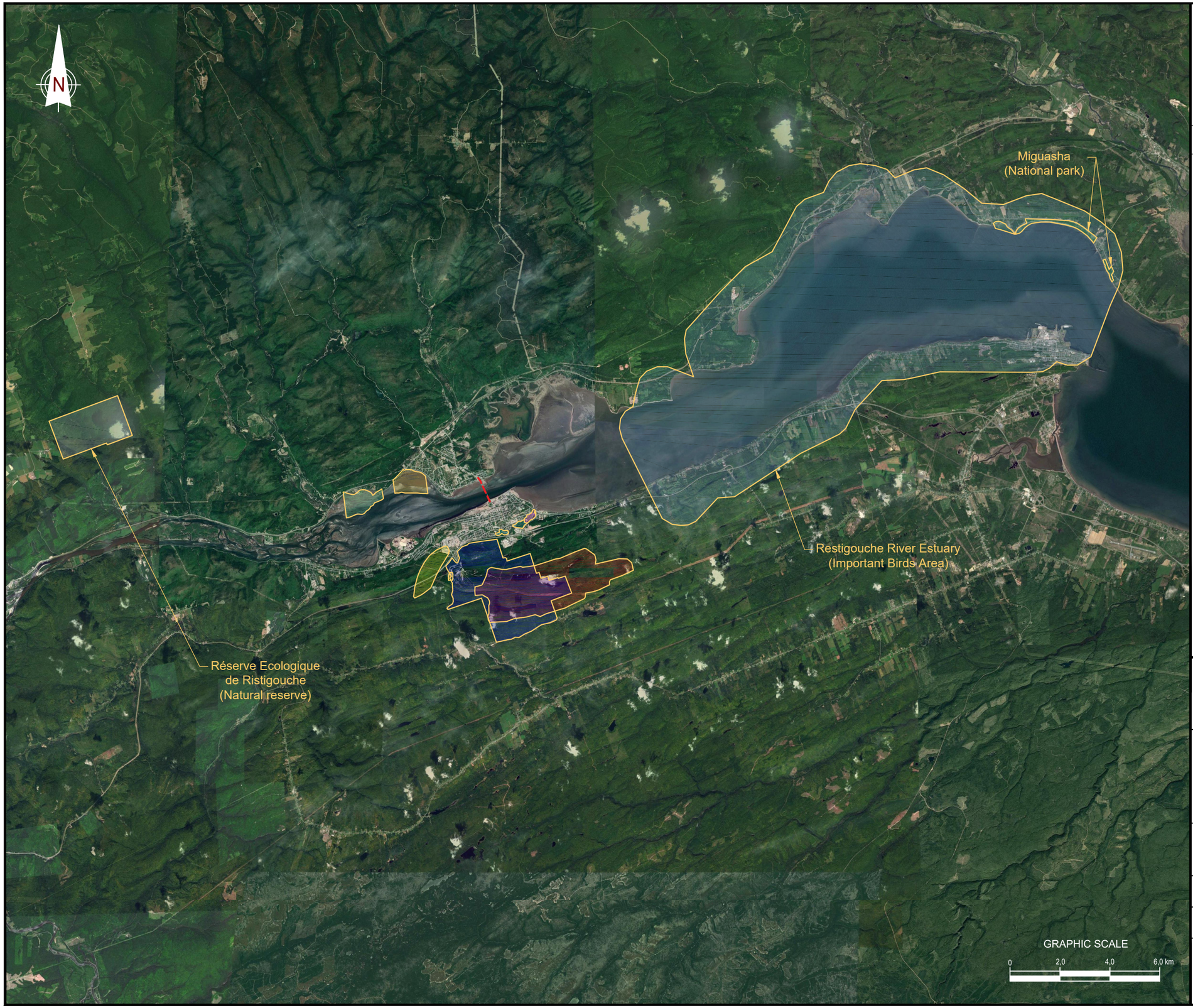
ENVIRONMENTAL ASSESSMENT

J.C. VAN HORNE BRIDGE,
NEW BRUNSWICK TO QUEBEC

TITLE

PROTECTED AND SIGNIFICANT AREAS IN THE VICINITY OF THE PROJECT (LOCAL SCALE)

PROJECT NUMBER	DATE
1341	FEBRUARY 6TH, 2019
PROJECT MANAGER	DRAWING BY
SYLVAIN GONZALEZ	NICOLAS TREMBLAY
DELIVERABLE NUMBER	FIGURE NUMBER
1341-00-01-1F	03A



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Source : Google Earth, Satellite imagery of 2017.

LEGEND

- Study area
- Protected or important zone

CLIENT

PUBLIC SERVICES AND PROCUREMENT CANADA - REAL PROPERTY BRANCH

PROJECT

ENVIRONMENTAL ASSESSMENT

J.C. VAN HORNE BRIDGE,
NEW BRUNSWICK TO QUEBEC

TITLE

PROTECTED AND SIGNIFICANT AREAS IN THE VICINITY OF THE PROJECT (REMOTE SCALE)

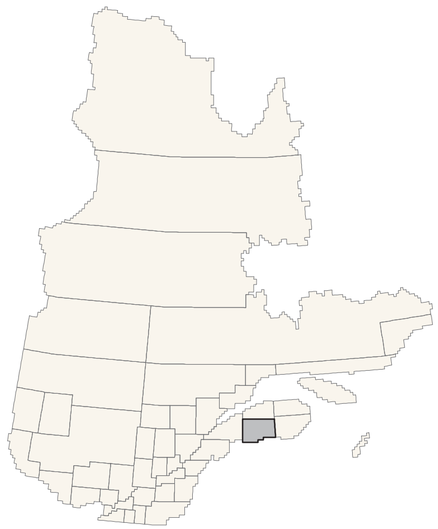
PROJECT NUMBER	DATE
1341	FEBRUARY 7TH, 2019
PROJECT MANAGER	DRAWING BY
SYLVAIN GONZALEZ	NICOLAS TREMBLAY
DELIVERABLE NUMBER	FIGURE NUMBER
1341-00-01-1F	03B

APPENDIX 3 – RELEVANT DOCUMENTS

ATLAS DES
OISEAUX NICHEURS
DU QUÉBEC

Région 35

Matapédia



Légende

- Autoroute ou route nationale (asphaltée)
- Route régionale ou locale (asphaltée ou non)
- Rivière
- Lac ou autre plan d'eau
- 18UR97 Parcelle
- 18UR97 Parcelle prioritaire
- Zone urbaine
- Aire protégée
- Pourvoirie avec droits exclusifs
- Réserve faunique
- Zone d'exploitation contrôlée

0 10 km

QUÉBEC BREEDING BIRD ATLAS

Square Summary (19FP72)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
22	25	44	91	27	21	64	112	40	226.7	0	0

Region summary (#35: Matapédia)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
112	41	91	144	154	486	420

Target number of point counts in this square: 11 road side, 4 off road (Mature broadleaf forest: 1; Mature mixed forest: 2; Wetland: 1). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.
Approximate time allocation for general atlassing:: Mature broadleaf forest: 21%, Mature mixed forest: 48%, Mature coniferous forest: 2%, Young broadleaf forest: 3%, Young mixed forest: 1%, Recently disturbed forest: 1%, Early successional: 4%, Agriculture: 1%, Wetland: 7%, Urban: 6%. Refer to the atlas PDF maps and online resources to locate habitats.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose		H	0	7
Wood Duck		P	0	10
Gadwall ‡		P	0	1
American Wigeon ‡		JE	2	5
American Black Duck	JE	JE	34	24
Mallard	H	JE	9	29
Blue-winged Teal		P	7	4
Northern Shoveler ‡		JE	2	4
Northern Pintail ‡			2	0
Green-winged Teal		JE	9	14
Ring-necked Duck		JE	7	15
Common Eider ‡			4	3
Harlequin Duck †			2	3
Common Goldeneye		H	17	20
Hooded Merganser ‡		H	0	7
Common Merganser		H	12	23
Red-breasted Merganser ‡	JE		12	1
Ruffed Grouse	JE	JE	56	60
Spruce Grouse ‡			0	7
Common Loon	P	T	21	21
Pied-billed Grebe			0	6
Double-cr. Cormorant §	P		21	7
American Bittern		H	4	6
Great Blue Heron §	H	H	26	10
Black-crown. N.-Heron ‡§		H	7	4
Turkey Vulture ‡		C	0	6
Osprey	H	AT	24	18
Bald Eagle ‡¤		P	0	18
Northern Harrier		H	19	23
Sharp-shinned Hawk			26	17
Northern Goshawk			7	6
Broad-winged Hawk	P	S	34	32
Red-tailed Hawk			24	36
Golden Eagle ‡¤			2	4
American Kestrel	H	NJ	48	43
Merlin		AT	46	29
Yellow Rail †		S	0	1
Sora ‡		JE	2	6
American Coot ‡			0	1
Killdeer	DD	JE	41	25
Spotted Sandpiper	P	CN	58	36
Solitary Sandpiper ‡			4	0
Wilson's Snipe	C	H	34	17
American Woodcock			24	20
Black-legged Kittiwake ‡			2	0
Ring-billed Gull §	P	H	12	14
Herring Gull §	P	H	24	6
Great Black-backed Gull	P	H	12	7
Common Tern §			9	4
Black Guillemot §			9	0
Rock Pigeon	P	T	26	19
Mourning Dove	H	T	17	36
Great Horned Owl			0	13
Northern Hawk Owl ‡			2	0
Barred Owl ‡			4	15
Long-eared Owl ‡			2	1
Northern Saw-whet Owl ‡			2	8
Common Nighthawk †			17	9
Chimney Swift ‡¤	H		19	3
Ruby-throated Hummingbird	P	A	46	47
Belted Kingfisher	P	AT	58	49
Yellow-bellied Sapsucker		NJ	51	52
Downy Woodpecker	P	NJ	46	52
Hairy Woodpecker	JE	P	58	48
Am. Three-toed Woodp.			9	2
Black-backed Woodpecker			24	12
Northern Flicker	JE	NJ	68	65
Pileated Woodpecker		AT	7	29
Olive-sided Flycatcher †	H	S	48	27
Eastern Wood-Pewee	H	S	43	19
Yellow-bellied Flycatcher	H		34	47
Alder Flycatcher	H	AT	65	72
Least Flycatcher	AT	S	73	64
Eastern Phoebe		AT	0	15
Great Crested Flycatcher ‡		A	2	4
Eastern Kingbird	AT	AT	43	13
Blue-headed Vireo	H	AT	60	70
Warbling Vireo ‡			7	2
Philadelphia Vireo	H	T	70	62
Red-eyed Vireo	H	NJ	58	72
Gray Jay			34	38
Blue Jay	P	JE	51	65
American Crow	JE	JE	70	60
Common Raven	H	JE	58	58
Horned Lark		S	12	1
Tree Swallow	NO	NJ	68	60
Bank Swallow §	NO	NJ	46	15

Québec Breeding Bird Atlas - Summary Sheet for Square 19FP72 (page 2 of 2)

SPECIES	Code		%	
	1st	2nd	1st	2nd
Cliff Swallow §	NO	AT	17	28
Barn Swallow	NO	H	58	31
Black-capped Chickadee	JE	AT	65	80
Boreal Chickadee	H	A	48	70
Red-breasted Nuthatch		AT	36	75
White-breasted Nuthatch ‡			4	1
Brown Creeper			2	17
Winter Wren	H	A	63	73
Golden-crowned Kinglet		AT	7	69
Ruby-crowned Kinglet		AT	73	75
Eastern Bluebird		AT	4	13
Veery	AT	AT	65	47
Bicknell's Thrush †			7	1
Swainson's Thrush	AT	A	80	89
Hermit Thrush	H	JE	48	74
Wood Thrush			14	0
American Robin	AT	AT	82	90
Gray Catbird	AT	AT	26	21
Northern Mockingbird ‡			4	2
Brown Thrasher ‡		S	0	1
European Starling	AT	NJ	53	46
Cedar Waxwing	P	CN	70	59
Tennessee Warbler	A	S	75	58
Nashville Warbler	AT	JE	65	76
Northern Parula		AT	48	65
Yellow Warbler	AT	AT	36	38
Chestnut-sided Warbler	AT	T	31	36
Magnolia Warbler	A	AT	75	84
Cape May Warbler	P		58	37

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black-throated Blue Warbler	AT	AT	34	59
Yellow-rumped Warbler	A	S	70	74
Black-thr. Green Warbler	H	S	63	65
Blackburnian Warbler	A	AT	46	61
Palm Warbler ‡		H	0	1
Bay-breasted Warbler	H	S	73	68
Blackpoll Warbler	JE		75	39
Black-and-white Warbler	AT	AT	48	31
American Redstart	AT	AT	78	84
Ovenbird	A	DD	58	61
Northern Waterthrush	A	AT	68	45
Mourning Warbler	AT		39	27
Common Yellowthroat	AT	AT	70	67
Wilson's Warbler	AT		60	24
Canada Warbler †	AT	A	63	26
Chipping Sparrow	AT	AT	68	51
Vesper Sparrow ‡	AT		19	1
Savannah Sparrow	AT	AT	46	38
Nelson's Sparrow †	H	A	7	2
Fox Sparrow	H		82	45
Song Sparrow	AT	AT	63	51
Lincoln's Sparrow	AT	AT	60	35
Swamp Sparrow	AT	AT	34	19
White-throated Sparrow	AT	AT	82	87
Dark-eyed Junco	AT	A	78	72
Scarlet Tanager ‡			4	1
Northern Cardinal ‡			0	1
Rose-breasted Grosbeak	AT	JE	58	21
Bobolink	AT	AT	46	21

SPECIES	Code		%	
	1st	2nd	1st	2nd
Red-winged Blackbird	AT	NJ	60	38
Rusty Blackbird †			21	4
Common Grackle	JE	AT	70	58
Brown-headed Cowbird	P		46	10
Baltimore Oriole ‡			2	1
Pine Grosbeak	H		56	23
Purple Finch	P	AT	78	63
Red Crossbill †		T	2	4
White-winged Crossbill		S	51	27
Pine Siskin	P	S	78	48
American Goldfinch	AT	CN	58	60
Evening Grosbeak	P	P	82	47
House Sparrow	NO	CN	43	27

This list includes all species found during the Québec Breeding Bird Atlas (1st atlas: 1984-1989, 2nd atlas: 2010-2014) in the region #35 (Matapédia). Underlined species are those that you should try to add to this square (19FP72). They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. "Code" is the code for the highest breeding evidence for that species in square 19FP72 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #35). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), † (rare or at risk in Québec) or ¤ (rare in Québec, documentation only required for confirmed records). Current as of 17/01/2019. An up-to-date version of this sheet is available from http://www.atlas-oiseaux.qc.ca/donneesqc/summaryform.jsp?squareID=19FP72?lang=en

[single pages]

ATLAS DES OISEAUX NICHEURS DES MARITIMES
BREEDING BIRD ATLAS

Square Summary (19FP71)

#species (1st atlas)				#species (2nd atlas)				#hours		#pc done	
poss	prob	conf	total	poss	prob	conf	total	1st	2nd	road	offrd
37	24	17	78	18	16	40	74	40	85.6	0	0

Region summary (#2: Restigouche)

#squares	#sq with data		#species		#pc done	target #pc
	1st	2nd	1st	2nd		
61	50	58	139	159	436	228

Target number of point counts in this square: 14 road side, 1 off road (1 in Mature deciduous). Please try to ensure that each off-road station is located such that the entire 100m radius circle is within the prescribed habitat.

SPECIES	Code		%	
	1st	2nd	1st	2nd
Canada Goose			4	1
Wood Duck ‡		H	2	5
American Wigeon		T	8	8
American Black Duck	P	FY	50	32
Mallard		AE	8	17
Mallard x Am. Black Duck			6	1
Blue-winged Teal		P	8	6
Northern Shoveler ‡			4	5
Northern Pintail ‡			2	0
Green-winged Teal	P		16	3
Ring-necked Duck	P	FY	34	22
Common Eider §			6	5
Harlequin Duck †			2	0
Common Goldeneye	H	H	30	25
Hooded Merganser			16	6
Common Merganser			28	20
Red-breast Merganser			8	12
Ruffed Grouse	FL		56	60
Spruce Grouse ‡			2	8
Common Loon			16	24
Pied-billed Grebe ‡			4	3
Double-crest Cormorant §			6	8
American Bittern		S	8	15
Great Blue Heron §			12	29
Black-crown N.-Heron † §			12	5
Turkey Vulture ‡¤		H	0	1
Osprey			22	17
Bald Eagle ‡¤		CF	0	1
Northern Harrier	H		20	3

SPECIES	Code		%	
	1st	2nd	1st	2nd
Sharp-shinned Hawk	H	P	30	17
Broad-winged Hawk	H		28	25
Red-tailed Hawk			28	31
Virginia Rail †		AE	2	3
Sora ‡		AE	4	6
Killdeer	FL	FY	26	12
Spotted Sandpiper	A	H	46	44
Wilson's Snipe			18	29
American Woodcock		H	32	48
Ring-billed Gull ‡§			2	8
Herring Gull ‡§			4	10
Great Black-backed Gull ‡§			4	8
Common Tern ‡§			4	3
Black Guillemot ‡§			6	3
Rock Pigeon	ON	NB	16	22
Mourning Dove		NB	10	25
Black-billed Cuckoo			12	0
Great Horned Owl			8	18
Barred Owl	H	S	14	43
Long-eared Owl †			2	3
North Saw-whet Owl			6	36
Common Nighthawk †	H		28	31
Chimney Swift †	H	T	32	10
Ruby-thr Hummingbird	H	AE	32	62
Belted Kingfisher	T	FY	44	44
Yellow-bellied Sapsucker	T	T	50	75
Downy Woodpecker	T	CF	42	55
Hairy Woodpecker		H	32	67
Am Three-toed Woodpecker †			4	1

SPECIES	Code		%	
	1st	2nd	1st	2nd
Black-back Woodpecker			24	15
Northern Flicker	H	NE	62	84
Pileated Woodpecker	A		26	39
American Kestrel	A	T	46	53
Merlin	H		16	29
Olive-sided Flycatcher †			36	31
Eastern Wood-Pewee	H	P	34	39
Yellow-bellied Flycatcher			58	48
Alder Flycatcher	H		56	70
Least Flycatcher	A		62	63
Eastern Phoebe			6	12
Gr Crested Flycatcher			6	3
Eastern Kingbird	A		44	18
Blue-headed Vireo	H		54	72
Warbling Vireo †			4	6
Philadelphia Vireo	A	T	34	63
Red-eyed Vireo	H	P	72	87
Gray Jay			28	27
Blue Jay	T	FY	56	77
American Crow	FL	NB	48	53
Common Raven	T	NB	70	79
Tree Swallow	H	NY	60	46
Bank Swallow §	H	NB	28	12
Cliff Swallow §	H		26	8
Barn Swallow	NB	NB	66	24
Black-capp Chickadee	T	NB	66	79
Boreal Chickadee			40	41
Red-breast Nuthatch	H	S	48	79
White-breast Nuthatch ‡		P	2	8

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Maritimes Breeding Bird Atlas - Summary Sheet for Square 19FP71 (page 2 of 2)

SPECIES	Code		%	
	1st	2nd	1st	2nd
Brown Creeper			18	31
Winter Wren		S	58	68
Golden-crown Kinglet		S	40	58
Ruby-crown Kinglet	H	S	64	72
Veery	H	P	70	70
Bicknell's Thrush †	H		8	0
Swainson's Thrush	H		80	79
Hermit Thrush	FL		60	79
Wood Thrush †			14	1
American Robin	FL	NY	80	98
Gray Catbird	H	P	26	25
Northern Mockingbird †	FL		2	1
European Starling	AY	CF	42	34
Cedar Waxwing	ON	NB	68	81
Ovenbird		S	60	72
North Waterthrush	H	A	70	65
Black-white Warbler	H		32	58
Tennessee Warbler	H		68	41
Nashville Warbler		S	50	72
Mourning Warbler			36	46
Common Yellowthroat	H	CF	66	82
American Redstart	AY	P	78	75
Cape May Warbler	H		54	22
Northern Parula			46	72
Magnolia Warbler	H	S	70	84
Bay-breasted Warbler	A		56	50
Blackburnian Warbler	AY		48	50
Yellow Warbler	H	CF	30	44
Chestn-sided Warbler	A		34	62
Blackpoll Warbler		CF	22	17
Black-thr Blue Warbler			22	63
Palm Warbler			0	13
Yellow-rumped Warbler	H	CF	56	65
Black-thr Green Warbler	H	S	56	56
Canada Warbler †		CF	50	39
Wilson's Warbler			30	20
Chipping Sparrow	FL	CF	74	41
Vesper Sparrow †			4	0
Savannah Sparrow	AY	CF	30	29
Nelson's Sh.-tail Sparrow ‡			4	0
Fox Sparrow	H	NB	44	12
Song Sparrow	T	CF	64	74
Lincoln's Sparrow		CF	46	39
Swamp Sparrow		NB	32	37
White-throat Sparrow	FL	NB	76	94
Dark-eyed Junco	H	T	64	72
Scarlet Tanager †			8	5
Rose-breast Grosbeak	T		68	36
Bobolink	T		26	17
Red-wing Blackbird	C	NB	62	25
Rusty Blackbird †			14	12
Common Grackle	ON	CF	62	67
Brown-head Cowbird	H	H	30	5
Baltimore Oriole	H	NB	12	6
Pine Grosbeak			26	1
Purple Finch	T	P	72	68
Red Crossbill †			2	6
White-winged Crossbill		H	26	36
Pine Siskin	H	FY	58	36
American Goldfinch	V	FY	46	75
Evening Grosbeak	T		74	46
House Sparrow	AY		26	5

This list includes all species found during the Maritimes Breeding Bird Atlas (1st atlas: 1986-1990, 2nd atlas: 2006-2010) in the region #2 (Restigouche). Underlined species are those that you should try to add to this square (19FP71). They have not yet been reported during the 2nd atlas, but were found during the 1st atlas in this square or have been reported in more than 50% of the squares in this region during the 2nd atlas so far. "Code" is the code for the highest breeding evidence for that species in square 19FP71 during the 2nd and 1st atlas respectively. The % columns give the percentage of squares in that region where that species was reported during the 2nd and 1st atlas (this gives an idea of the expected chance of finding that species in region #2). Rare/Colonial Species Report Forms should be completed for species marked: § (Colonial), ‡ (regionally rare), † (rare in the Maritimes) or ¤ (rare in the Maritimes, documentation only required for confirmed records). Current as of 18/02/2019. An up-to-date version of this sheet is available from http://www.mba-aom.ca/jsp/summaryform.jsp?squareID=19FP71?lang=en

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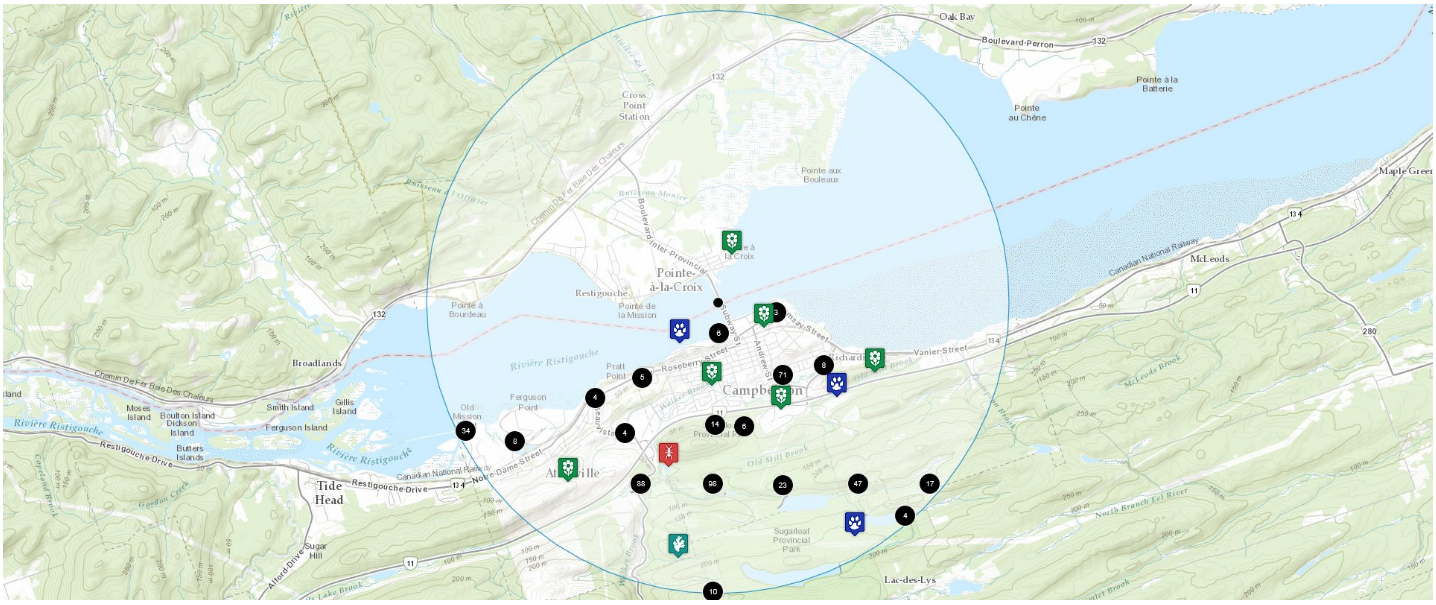

Oak Bay
Boulevard-Perron
132
Pointe à la Batterie
Pointe au Chêne
Maple Green
Cross Point Station
Pointe aux Bouleaux
Pointe-à-la-Croix
Restigouche
Pointe de la Mission
Pointe à Bourdeau
Broadlands
Rivière Ristigouche
Pratt Point
Roseberry Street
Campbellton
Vanier Street
Canadian National Railway
McLeods
Ferguson Point
Old Mission
Moses Island
Boulton Island
Dickson Island
Smith Island
Gillis Island
Ferguson Island
Butters Islands
Restigouche Drive
Tide Head
Notre-Dame-Street
Sugar Hill
Alford Drive
Sugarloaf Provencial Park
Old Mill Brook
North Branch Eel River
Lac-des-Lys
11
134
280

Species Buffer Summary Report

9/6/2018

Latitude 48.0113

Longitude -66.6815

Search Radius 5 km

Animals 22 Records

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Northern Mockingbird	*Mimus polyglottos*	1			S2B,S2M	3 Sensitive
Canadian Lynx	*Lynx canadensis*	1	NAR		S3	1 At Risk
Wood Turtle	*Glyptemys insculpta*	1	T	T	S2S3	1 At Risk
Woodland Caribou (Atlantic-GaspÃ©sie pop.)	*Rangifer tarandus pop. 2*	1	E	E	SX	0.1 Extirpated
Woodchuck	*Marmota monax*	1			S5	4 Secure
Northern Ringneck Snake	*Diadophis punctatus edwardsii*	2			S4	4 Secure
Eastern Coyote	*Canis latrans*	1			S5	4 Secure
Chimney Swift	*Chaetura pelagica*	2	T	T	S2S3B,S2M	1 At Risk
Turkey Vulture	*Cathartes aura*	1			S3B,S3M	4 Secure
Common Nighthawk	*Chordeiles minor*	2	T	T	S3B,S4M	1 At Risk
Ring-billed Gull	*Larus delawarensis*	2			S3S4B,S5M	4 Secure
Baltimore Oriole	*Icterus galbula*	1			S3B,S3M	4 Secure
American Wigeon	*Anas americana*	1			S4B,S4S5M	4 Secure
Wilson's Snipe	*Gallinago delicata*	1			S3S4B,S5M	4 Secure
Killdeer	*Charadrius vociferus*	1			S3B,S3M	3 Sensitive
Red-breasted Merganser	*Mergus serrator*	1			S3B,S5M,S4S5N	4 Secure

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Barn Swallow	*Hirundo rustica*	1	T	T	S2B,S2M	3 Sensitive
Bufflehead	*Bucephala albeola*	1			S3M,S2N	3 Sensitive

Plants 407 Records

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Maryland Sanicle	*Sanicula marilandica*	2			S4S5	4 Secure
Manitoba Maple	*Acer negundo*	2			SNA	7 Exotic
Tall Hawkweed	*Hieracium piloselloides*	1			SNA	7 Exotic
Rough Hawkweed	*Hieracium scabrum*	2			S5	4 Secure
Hairy Sweet Cicely	*Osmorhiza claytonii*	1			S4S5	4 Secure
American Spikenard	*Aralia racemosa*	2			S4S5	4 Secure
Bishop's Goutweed	*Aegopodium podagraria*	1			SNA	7 Exotic
White Snakeroot	*Ageratina altissima*	1			S4S5	4 Secure
Woodland Cudweed	*Omalotheca sylvatica*	1			S4S5	4 Secure
Common Wormwood	*Artemisia vulgaris*	1			SNA	7 Exotic
Canada Hawkweed	*Hieracium canadense var. canadense*	2			S5	4 Secure
Sneezeweed	*Achillea ptarmica*	1			SNA	7 Exotic
Purple-stemmed Beggarticks	*Bidens connata*	1			S4	4 Secure
Devil's Beggarticks	*Bidens frondosa*	1			S5	4 Secure
Estuary Beggarticks	*Bidens hyperborea var. hyperborea*	4			S3	4 Secure
Mountain Holly	*Nemopanthus mucronatus*	1			S5	4 Secure
Bristly Sarsaparilla	*Aralia hispida*	1			S5	4 Secure

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Canada Horseweed	*Conyza canadensis*	1			S5	4 Secure
Lance-leaved Aster	*Symphyotrichum lanceolatum*	2			S5	4 Secure
Common Sunflower	*Helianthus annuus*	1			SNA	7 Exotic
Tall Blue Lettuce	*Lactuca biennis*	1			S5	4 Secure
Yellow Chamomile	*Anthemis tinctoria*	2			SNA	7 Exotic
Common Tansy	*Tanacetum vulgare*	1			SNA	7 Exotic
Annual Fleabane	*Erigeron annuus*	1			S4S5	4 Secure
Philadelphia Fleabane	*Erigeron philadelphicus*	1			S4	4 Secure
Purple-stemmed Aster	*Symphyotrichum puniceum*	3			S5	4 Secure
Heart-leaved Aster	*Symphyotrichum cordifolium*	1			S5	4 Secure
Field Sow Thistle	*Sonchus arvensis*	1			SNA	7 Exotic
European Gromwell	*Lithospermum officinale*	2			SNA	7 Exotic
Black Knapweed	*Centaurea nigra*	2			SNA	7 Exotic
Zigzag Goldenrod	*Solidago flexicaulis*	1			S5	4 Secure
Large-leaved Goldenrod	*Solidago macrophylla*	1			S4	4 Secure
Limestone Rockcress	*Arabis x divaricarpa*	5			S1	2 May Be At Risk
Sea Lungwort	*Mertensia maritima*	1			S3S4	4 Secure
American Yellow Rocket	*Barbarea orthoceras*	2			S2S3	3 Sensitive
Chinese Mustard	*Brassica juncea*	1			SNA	7 Exotic
Sticky Ragwort	*Senecio viscosus*	1			SNA	7 Exotic
Common Ragwort	*Senecio vulgaris*	1			SNA	7 Exotic
Field Hawkweed	*Hieracium caespitosum*	2			SNA	7 Exotic

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
European Black Currant	*Ribes nigrum*	1			SNA	7 Exotic
Swamp Red Currant	*Ribes triste*	1			S5	4 Secure
Pale Corydalis	*Corydalis sempervirens*	1			S4S5	4 Secure
Tall Goldenrod	*Solidago altissima*	1			S2S3	4 Secure
Canada Goldenrod	*Solidago canadensis var. canadensis*	3			S5	4 Secure
Large Water-Starwort	*Callitriche heterophylla*	3			S4S5	4 Secure
Tall Hedge Mustard	*Sisymbrium altissimum*	1			SNA	7 Exotic
Common Starwort	*Stellaria media*	1			SNA	7 Exotic
Round-leaved Dogwood	*Cornus rugosa*	2			S4	4 Secure
Northern Gentian	*Gentianella amarella ssp. acuta*	4			S3	4 Secure
Pennsylvania Bittercress	*Cardamine pensylvanica*	2			S5	4 Secure
Gray Tansy Mustard	*Descurainia incana ssp. incana*	4			S1	2 May Be At Risk
Common Dog Mustard	*Erucastrum gallicum*	1			SNA	7 Exotic
Worm-seeded Wallflower	*Erysimum cheiranthoides*	2			S5	4 Secure
Seashore Chamomile	*Tripleurospermum maritima*	1			SNA	7 Exotic
Spreading Orache	*Atriplex patula*	1			SNA	7 Exotic
Common Lamb's Quarters	*Chenopodium album*	1			SNA	7 Exotic
Highbush Cranberry	*Viburnum opulus var. americanum*	2			S4	4 Secure
Alfalfa	*Medicago sativa*	1			SNA	7 Exotic
Zigzag Clover	*Trifolium medium*	1			SNA	7 Exotic

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Spurred Gentian	*Halenia deflexa*	1			S4S5	4 Secure
Tartarian Honeysuckle	*Lonicera tatarica*	1			SNA	7 Exotic
a Hybrid Honeysuckle	*Lonicera x bella*	1			SNA	7 Exotic
Thin-leaved Snowberry	*Symphoricarpos albus var. laevigatus*	1			SNA	7 Exotic
Musk Mallow	*Malva moschata*	1			SNA	7 Exotic
Spearmint	*Mentha spicata*	1			SNA	7 Exotic
Marsh Water-starwort	*Callitriche palustris*	1			S5	4 Secure
Northern St John's-Wort	*Hypericum boreale*	1			S5	4 Secure
Round-leaved Sundew	*Drosera rotundifolia var. rotundifolia*	1			S5	4 Secure
Soapberry	*Shepherdia canadensis*	1			S2	3 Sensitive
Crawford's Sedge	*Carex crawfordii*	3			S5	4 Secure
European Wallflower	*Erysimum hieraciifolium*	2			SNA	7 Exotic
Bog Yellowcress	*Rorippa palustris*	1			S5	4 Secure
Sweet Gale	*Myrica gale*	1			S5	4 Secure
Common Yellow Flax	*Linum usitatissimum*	1			SNA	7 Exotic
Small-flowered Evening Primrose	*Oenothera parviflora*	1			S5	4 Secure
Marshpepper Smartweed	*Polygonum hydropiper*	1			SNA	7 Exotic
Pale Smartweed	*Polygonum lapathifolium*	7			S5	4 Secure
Oval-Leaf Knotweed	*Polygonum arenastrum*	3			SNA	7 Exotic
Perennial Evening Primrose	*Oenothera perennis*	1			S5	4 Secure
Spotted Lady's-thumb	*Polygonum persicaria*	4			SNA	7 Exotic
Bebb's Sedge	*Carex bebbii*	5			S4	4 Secure

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
White Clover	*Trifolium repens*	1			SNA	7 Exotic
Wild Mint	*Mentha arvensis*	2			S5	4 Secure
Leathery Knotweed	*Polygonum achoreum*	1			S4	4 Secure
Bog Willowherb	*Epilobium leptophyllum*	1			S5	4 Secure
Bitter Dock	*Rumex obtusifolius*	1			SNA	7 Exotic
Triangular-valve Dock	*Rumex salicifolius*	3			S4	4 Secure
Fibrous-Root Sedge	*Carex communis*	1			S5	4 Secure
Lesser Spearwort	*Ranunculus flammula var. filiformis*	1			S5	4 Secure
Eastern White Water-Crowfoot	*Ranunculus longirostris*	1			S2	5 Undetermined
Pennsylvania Buttercup	*Ranunculus pensylvanicus*	1			S4	4 Secure
Common Pipsissewa	*Chimaphila umbellata ssp. cisatlantica*	1			S5	4 Secure
Woodland Agrimony	*Agrimonia striata*	1			S5	4 Secure
Thin-stemmed Lady's-mantle	*Alchemilla filicaulis*	1			SNA	7 Exotic
Beechdrops	*Epifagus virginiana*	1			S4	4 Secure
Green-flowered Pyrola	*Pyrola chlorantha*	1			S4	4 Secure
Brownish Sedge	*Carex brunnescens ssp. brunnescens*	1			SNR	5 Undetermined
Rock Polypody	*Polypodium virginianum*	1			S5	4 Secure
Garden Sorrel	*Rumex acetosa*	1			SNA	7 Exotic
Cabbage Rose	*Rosa centifolia*	1			SNA	7 Exotic
Bartram's Serviceberry	*Amelanchier bartramiana*	1			S5	4 Secure
Red Baneberry	*Actaea rubra*	2			S5	4 Secure
Cottony Willow	*Salix eriocephala*	1			S5	4 Secure

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Upland Willow	*Salix humilis*	3			S5	4 Secure
Running Serviceberry	*Amelanchier stolonifera*	3			S5	4 Secure
American Speedwell	*Veronica americana*	1			S5	4 Secure
Marsh Speedwell	*Veronica scutellata*	1			S5	4 Secure
Downy Yellow Violet	*Viola pubescens*	1			S4S5	4 Secure
Greater Bladderwort	*Utricularia macrorhiza*	1			S5	4 Secure
Narrow-Leaved Collomia	*Collomia linearis*	1			SNA	5 Undetermined
Wild Strawberry	*Fragaria virginiana*	1			S5	4 Secure
Bebb's Willow	*Salix bebbiana*	1			S5	4 Secure
Fringed Sedge	*Carex crinita*	1			S5	4 Secure
Northern Sedge	*Carex deflexa*	1			S5	4 Secure
Yellow Marsh Marigold	*Caltha palustris*	1			S4S5	4 Secure
Virginia Clematis	*Clematis virginiana*	1			S5	4 Secure
Three-Toothed Cinquefoil	*Sibbaldiopsis tridentata*	1			S5	4 Secure
Thyme-Leaved Speedwell	*Veronica serpyllifolia ssp. serpyllifolia*	2			SNA	7 Exotic
Thicket Creeper	*Parthenocissus vitacea*	1			SNA	5 Undetermined
Broad-leaved Arrowhead	*Sagittaria latifolia*	2			S5	4 Secure
Shining Willow	*Salix lucida*	2			S5	4 Secure
Stiff Eyebright	*Euphrasia stricta*	1			SNA	7 Exotic
Pale Sedge	*Carex pallescens*	1			S5	4 Secure
Necklace Sedge	*Carex projecta*	2			S5	4 Secure
Northern Arrowhead	*Sagittaria cuneata*	1			S5	4 Secure
Yellow Sedge	*Carex flava*	2			S5	4 Secure

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Fernald's Hay Sedge	*Carex foenea*	1			S4S5	4 Secure
Nodding Sedge	*Carex gynandra*	1			S5	4 Secure
Inland Sedge	*Carex interior*	1			S5	4 Secure
Common Eyebright	*Euphrasia nemorosa*	1			SNA	7 Exotic
Northern Water Plantain	*Alisma triviale*	2			S5	4 Secure
Greenish Sedge	*Carex viridula var. elatior*	1			S1	2 May Be At Risk
Fox Sedge	*Carex vulpinoidea*	2			S4S5	4 Secure
Woolly Sedge	*Carex pellita*	1			S4	4 Secure
Lenticular Sedge	*Carex lenticularis var. lenticularis*	2			S5	4 Secure
Bristly-stalked Sedge	*Carex leptalea*	1			S5	4 Secure
Black-girdled Bulrush	*Scirpus atrocinctus*	4			S5	4 Secure
Cyperuslike Sedge	*Carex pseudocyperus*	1			S5	4 Secure
Rough Sedge	*Carex scabrata*	3			S5	4 Secure
Matted Spikerush	*Eleocharis intermedia*	1			S3	4 Secure
Common Spikerush	*Eleocharis palustris*	3			S5	4 Secure
Boreal Bog Sedge	*Carex magellanica ssp. irrigua*	2			S5	4 Secure
Yellow Foxtail	*Setaria glauca*	1			SNA	7 Exotic
Green Foxtail	*Setaria viridis*	2			SNA	7 Exotic
Braun's Holly Fern	*Polystichum braunii*	2			S4	4 Secure
Rusty Cliff Fern	*Woodsia ilvensis*	7			S4	4 Secure
Dewey's Sedge	*Carex deweyana*	1			S5	4 Secure
Star Sedge	*Carex echinata*	1			S5	4 Secure
Smooth Sweet Cicely	*Osmorhiza longistylis*	1			S2	3 Sensitive

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
a hybrid Clubmoss	*Huperzia x josephbeitelii*	1			SNA	6 Not Assessed
Mosquito Bulrush	*Scirpus hattorianus*	1			S5	4 Secure
Nuttall's Waterweed	*Elodea nuttallii*	1			S2	3 Sensitive
Colonial Bent Grass	*Agrostis capillaris*	1			SNA	7 Exotic
Redtop	*Agrostis gigantea*	3			SNA	7 Exotic
Upland Bent Grass	*Agrostis perennans*	1			S5	4 Secure
Rough Bent Grass	*Agrostis scabra*	3			S5	4 Secure
Soft Rush	*Juncus effusus*	4			S5	4 Secure
Jointed Rush	*Juncus articulatus*	7			S5	4 Secure
Narrow-Panicled Rush	*Juncus brevicaudatus*	5			S5	4 Secure
Toad Rush	*Juncus bufonius*	2			S5	4 Secure
Thread Rush	*Juncus filiformis*	2			S5	4 Secure
Knotted Rush	*Juncus nodosus*	2			S4S5	4 Secure
Slender Rush	*Juncus tenuis*	1			S5	4 Secure
A Rush	*Juncus alpinoarticulatus*	1			S4	4 Secure
Small-flowered Woodrush	*Luzula parviflora*	1			S4	4 Secure
Checkered Rattlesnake-Plantain	*Goodyera tesselata*	1			S4	4 Secure
Fragrant Green Orchid	*Platanthera huronensis*	1			S2?	5 Undetermined
Tall Northern Green Orchid	*Platanthera aquilonis*	1			S4	4 Secure
Blunt-leaved Orchid	*Platanthera obtusata*	1			S4	4 Secure
Small Round-leaved Orchid	*Platanthera orbiculata*	1			S4	4 Secure
Creeping Bent Grass	*Agrostis stolonifera*	3			S5	4 Secure
Short-awned Foxtail	*Alopecurus aequalis*	1			S4S5	4 Secure

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Large Sweet Vernal Grass	*Anthoxanthum odoratum*	1			SNA	7 Exotic
Fringed Brome	*Bromus ciliatus*	4			S5	4 Secure
Bluejoint Reed Grass	*Calamagrostis canadensis var. canadensis*	2			S5	4 Secure
Turion Duckweed	*Lemna turionifera*	1			S5	4 Secure
Fowl Blue Grass	*Poa palustris*	3			S5	4 Secure
Kentucky Blue Grass	*Poa pratensis*	2			S5	4 Secure
Pink Lady's-Slipper	*Cypripedium acaule*	1			S5	4 Secure
Showy Lady's-Slipper	*Cypripedium reginae*	1			S3	3 Sensitive
Lesser Rattlesnake-plantain	*Goodyera repens*	3			S4	4 Secure
Poverty Oat Grass	*Danthonia spicata*	1			S5	4 Secure
White-grained Mountain Rice	*Oryzopsis asperifolia*	1			S5	4 Secure
Slender Naiad	*Najas flexilis*	1			S5	4 Secure
Perennial Rye Grass	*Lolium perenne ssp. perenne*	1			SNA	7 Exotic
Dwarf Scouring-Rush	*Equisetum scirpoides*	1			S4	4 Secure
Spiny-Spored Quillwort	*Isoetes echinospora*	4			S5	4 Secure
Weak Blue Grass	*Poa saltuensis*	2			S4S5	4 Secure
Pale False Manna Grass	*Torreyochloa pallida var. fernaldii*	1			S5	4 Secure
Alpine Pondweed	*Potamogeton alpinus*	5			S5	4 Secure
Fragile Fern	*Cystopteris fragilis*	3			S4	4 Secure
A Bladderfern	*Cystopteris tenuis*	3			S4	4 Secure
Common Witch Grass	*Panicum capillare*	1			S5	4 Secure

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Grove Blue Grass	*Poa alsodes*	1			S4	4 Secure
Annual Blue Grass	*Poa annua*	1			SNA	7 Exotic
Canada Blue Grass	*Poa compressa*	2			SNA	7 Exotic
Thread-leaved Pondweed	*Stuckenia filiformis ssp. alpina*	1			S2S3	3 Sensitive
Leafy Pondweed	*Potamogeton foliosus*	1			S4	4 Secure
Variable-leaved Pondweed	*Potamogeton gramineus*	4			S5	4 Secure
Blunt-leaved Pondweed	*Potamogeton obtusifolius*	1			S3	4 Secure
Narrow-leaved Burreed	*Sparganium angustifolium*	1			S5	4 Secure
Spreading Fescue	*Festuca heteromalla*	2			SNA	7 Exotic
Meadow Fescue	*Lolium pratense*	2			SNA	7 Exotic
Common Tall Manna Grass	*Glyceria grandis*	3			S5	4 Secure
Fowl Manna Grass	*Glyceria striata*	2			S5	4 Secure
Foxtail Barley	*Hordeum jubatum*	1			S5	4 Secure
Lance-Leaf Grape-Fern	*Botrychium lanceolatum var. angustisegmentum*	1			S3	3 Sensitive
Green-fruited Burreed	*Sparganium emersum*	2			S5	4 Secure
Floating Burreed	*Sparganium fluctuans*	1			S4	4 Secure
Steller's Rockbrake	*Cryptogramma stelleri*	1			S3	4 Secure
Maidenhair Spleenwort	*Asplenium trichomanes*	1			S2	3 Sensitive
Eastern Marsh Fern	*Thelypteris palustris var. pubescens*	1			S5	4 Secure
Small Burreed	*Sparganium natans*	1			S4	4 Secure
Northeastern Paintbrush	*Castilleja septentrionalis*	2			S2	3 Sensitive

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Water Mudwort	*Limosella aquatica*	2			S1	2 May Be At Risk
Orchard Grass	*Dactylis glomerata*	2			SNA	7 Exotic
Long-bracted Frog Orchid	*Coeloglossum viride var. virescens*	1			S2	2 May Be At Risk
Round-branched Tree-clubmoss	*Lycopodium dendroideum*	1			S5	4 Secure
Fragrant Wood Fern	*Dryopteris fragrans var. remotiuscula*	2			S3	4 Secure
Daisy-leaved Moonwort	*Botrychium matricariifolium*	3			S4	4 Secure
Sago Pondweed	*Stuckenia pectinata*	4			S4	4 Secure
Pearly Everlasting	*Anaphalis margaritacea*	1			S5	4 Secure
Common Hawkweed	*Hieracium lachenalii*	1			SNA	7 Exotic
Spotted Jewelweed	*Impatiens capensis*	1			S5	4 Secure
Southern Mudwort	*Limosella australis*	3			S3	4 Secure
Tall Rattlesnakeroot	*Prenanthes altissima*	1			S5	4 Secure
Golden Groundsel	*Packera aurea*	1			S4S5	4 Secure
Satiny Willow	*Salix pellita*	1			S4S5	4 Secure
Dwarf Snapdragon	*Chaenorhinum minus*	1			SNA	7 Exotic
White Turtlehead	*Chelone glabra*	1			S5	4 Secure
Butter-and-Eggs	*Linaria vulgaris*	1			SNA	7 Exotic
Richardson's Rush	*Juncus alpinoarticulatus ssp. nodulosus*	1			S4	4 Secure
True Forget-Me-Not	*Myosotis scorpioides*	1			SNA	7 Exotic
Mad-dog Skullcap	*Scutellaria lateriflora*	1			S5	4 Secure
Common Marsh Bedstraw	*Galium palustre*	1			S5	4 Secure

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Narrow False Oats	*Trisetum spicatum*	1			S4	4 Secure
Green Adder's-Mouth	*Malaxis unifolia*	1			S4	4 Secure
White Bog Orchid	*Platanthera dilatata*	1			S4	4 Secure
Small-fruited Bulrush	*Scirpus microcarpus*	1			S5	4 Secure
Reed Canary Grass	*Phalaris arundinacea*	1			S5	4 Secure
Dudley's Rush	*Juncus dudleyi*	1			S4	4 Secure
Curled Dock	*Rumex crispus*	1			SNA	7 Exotic
Greater Water Dock	*Rumex orbiculatus*	1			S5	4 Secure
White Water Buttercup	*Ranunculus trichophyllus var. trichophyllus*	1			S4S5	4 Secure
Smooth Serviceberry	*Amelanchier laevis*	1			S5	4 Secure
American Cow Wheat	*Melampyrum lineare*	1			S5	4 Secure
Clasping-leaved Pondweed	*Potamogeton perfoliatus*	1			S4S5	4 Secure
Bracken Fern	*Pteridium aquilinum var. latiusculum*	2			S5	4 Secure
Woodland Horsetail	*Equisetum sylvaticum*	1			S5	4 Secure
Bulblet Bladder Fern	*Cystopteris bulbifera*	1			S4	4 Secure
Interrupted Fern	*Osmunda claytoniana*	1			S5	4 Secure
Clasping-leaved Twisted-stalk	*Streptopus amplexifolius*	1			S5	4 Secure
Northern Clubmoss	*Lycopodium complanatum*	1			S4S5	4 Secure
Rattlesnake Fern	*Botrychium virginianum*	1			S4	4 Secure
Sensitive Fern	*Onoclea sensibilis*	1			S5	4 Secure
Royal Fern	*Osmunda regalis var. spectabilis*	2			S5	4 Secure
Dwarf Spikerush	*Eleocharis parvula*	1			S4	4 Secure

Species Buffer Summary Report

9/6/2018

Invertebrates 19 Records

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Least Skipper	*Ancyloxypha numitor*	1			S5	4 Secure
Cabbage White	*Pieris rapae*	2			SNA	7 Exotic
Clouded Sulphur	*Colias philodice*	5			S5	4 Secure
Northern Crescent	*Phyciodes cocyta*	1			S5	4 Secure
Mourning Cloak	*Nymphalis antiopa*	3			S4	4 Secure
Red-Waisted Whiteface	*Leucorrhinia proxima*	1			S5	4 Secure
Eastern Forktail	*Ischnura verticalis*	1			S5	4 Secure
Harvester	*Feniseca tarquinius*	1			S4S5	4 Secure
A Potter Wasp	*Eumenes crucifera*	1			S5	
Swamp Lymnaea	*Lymnaea stagnalis*	1			SU	
Boreal Bluet	*Enallagma boreale*	1			S5	4 Secure
Marsh Bluet	*Enallagma ebrium*	1			S5	4 Secure

Fungus 0 Records

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK

Nonvascular Plants 13 Records

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Flexuous Peatmoss	*Sphagnum flexuosum*	1			S2	3 Sensitive
Long-stalked Fine Wet Moss	*Campylium radicale*	1			S1S2	5 Undetermined
Narrow-Leafed Chain-Teeth Moss	*Tortula cernua*	1			S1?	2 May Be At Risk

Species Buffer Summary Report

9/6/2018

Common Name	Scientific Name	# of Records	COSEWIC Status	SARA Rank	Provincial Rarity Rank	SGSRANK
Long-Stalked Beardless Moss	*Hennediella heimii*	1			SH	2 May Be At Risk
Schreber's Forklet Moss	*Dicranella schreberiana*	2			S4S5	4 Secure
Greater Pawwort	*Barbilophozia lycopodioides*	1			S2?	6 Not Assessed
Curled Notchwort	*Anastrophyllum saxicola*	1			S1?	6 Not Assessed
Rooftop Leskea Moss	*Pseudoleskeella tectorum*	1			S1	2 May Be At Risk
Mucronate Earwort	*Scapania mucronata*	1			S4S5	6 Not Assessed
Knight's Plume Moss	*Ptilium crista-castrensis*	1			S5	4 Secure
Magellan's Peat Moss	*Sphagnum magellanicum*	1			S5	4 Secure
Wiry Fern Moss	*Abietinella abietina*	1			S3S4	4 Secure

Espèces à risque

1 – Nombre total d'occurrences pour cette requête : 5

Nom latin - (no d'occurrence)

Nom français

Localisation / Caractérisation

Latitude / Longitude	Qualité - Précision	Indice de biodiversité	Dernière observation

FLORE

Lycopus laurentianus - (18680)

lycope du Saint-Laurent

Baie des Chaleurs, occurrence divisée en 2 petites populations. (1) MRC Avignon, canton de Ristigouche-Partie-Sud-Est et (2) MRC Avignon, municipalité de Pointe-à-la-Croix. / Rivage estuarien.

48,005 / -66,763	E (Existante, à déterminer) - S (Seconde, 150 m)	B5.04	2005-08-24

Meilleure source : Coursol, F. 2009. Communication personnelle, nouvelles mentions de Lamiacées. 1 p.

Plantago eriopoda - (22964)

plantain à base velue

Matapédia, bas de la baie C.N.R. / Aucune caractérisation. 1934 : Aucune indication démographique.

48,03 / -66,674	H (Historique) - G (Général, > 8000 m)	B0.00	1934

Meilleure source : HERBIERS 2001 -. Banque de données sur les spécimens d'herbier, active depuis 2001; continuellement mise à jour. Centre de données sur le patrimoine naturel du Québec (CDPNQ). Gouvernement du Québec, ministère de l'Environnement et des Parcs, Direction de la protection des espèces et des milieux naturels. Québec, Québec.

Sagittaria montevidensis subsp. spongiosa - (6526)

sagittaire spongieuse

Estuaire de la rivière Ristigouche entre les municipalités de Pointe-à-la-Croix et de Listuguj (Ristigouche); deux sites rapprochés, l'un situé à l'ouest de la pointe à Bourdeau et l'autre près de l'embouchure du ruisseau à l'Officier. / Hydrolittoral supérieur et moyen couvert d'alluvions limoneuses et colonisé par un groupement à Schoenoplectus tabarnaemontani (scirpe vigoureux); avec Bidens hyperborea, Callitriche hermaphroditica, Eleocharis palustris, Elodea canadensis, Limosella australis, Sagittaria cuneata, S. latifolia et Sium suave; le Sagittaria montevidensis colonise principalement les ouvertures au sein du groupement à Schoenoplectus; 1996: la population de la pointe à Bourdeau a été estimée (à l'aide de transects) à environ 150 000 individus et celle de Listuguj à environ 15 000 individus; 2003: décompte partiel pour pointe à Bourdeau: 3000 individus, décompte partiel pour Listuguj: 600 individus, les estimations de 1996 sont probablement encore valide; pleine fructification la première semaine de septembre; 2010: la population semble stable.

48,01 / -66,745	A (Excellente) - S (Seconde, 150 m)	B3.05	2010-08-17

Meilleure source : Blondeau, M. 1997. La situation de la sagittaire à sépales dressés sous-espèce des estuaires (Sagittaria montevidensis subsp. spongiosa) au Québec. Gouvernement du Québec, ministère de l'Environnement et de la Faune, Direction de la conservation et du patrimoine écologique, Québec. 36 p.

Nom latin - (no d'occurrence)

Nom français

Localisation / Caractérisation

Latitude / Longitude	Qualité - Précision	Indice de biodiversité	Dernière observation

Sagittaria montevidensis subsp. spongiosa - (10806)

sagittaire spongieuse

Pointe-à-la-Croix, baie au Chêne, le long de la rivière-du-Loup. / Chenal d'écoulement de la rivière; vasière dénudée sur pentes moyenne (dépasse 20 degrés) à marée basse; environ 800-1000 individus.

48,039 / -66,679	C (Passable) - S (Seconde, 150 m)	B5.01	2000-09-14

Meilleure source : Tremblay, B. 2000. Caractérisation de la population de Sagittaria montevidensis subsp. Spongiosa de l'estuaire de la Petite rivière du Loup, marais Oak Bay, Pointe-à-la-Croix. Comité ZIP Baie des Chaleurs, Génivar inc. 11 p.

Sagittaria montevidensis subsp. spongiosa - (14750)

sagittaire spongieuse

Pointe-à-la-Croix, environ 250 m à l'ouest du pont menant à Campbellton. / Marge de la plage avec Bolboschoenus maritimus et Spartina alterniflora; une vingtaine d'individus dont 10 en fleurs; 2010: aucun individu observé. Le site est perturbé par l'éboulis de matériaux de remblais en lien avec la construction domiciliaire en haut du talus. La population est peut-être disparue.

48,015 / -66,687	F (Non retrouvée) - S (Seconde, 150 m)	B5.04	2003-08-14

Meilleure source : Jolicoeur, G. 2003. Compte-rendu d'une visite sur le terrain à Pointe à Bourdeau et Bonaventure.

2 – Nombre total d'espèces pour cette requête : 3

Nom latin / Nom commun / Statut canadien Cosepac / Lep	Rangs de priorité G	N	S	Statut	Total Requête	Nombre d'occurrences dans votre sélection A	B	C	D	X	H	F	E	I	Autres*	Nombre au Québec**
FLORE																
Lycopus laurentianus lycope du Saint-Laurent X (Aucun) / X (Aucun)	G4Q	N3	S4	Susceptible	1	0	0	0	0	0	0	0	1	0	0	41
Plantago eriopoda plantain à base velue X (Aucun) / X (Aucun)	G5	N5	S3	Susceptible	1	0	0	0	0	0	1	0	0	0	0	6
Sagittaria montevidensis subsp. spongiosa sagittaire spongieuse X (Aucun) / X (Aucun)	G5T4	N2	S2	Menacée	3	1	0	1	0	0	0	1	0	0	0	2
				Totaux:	5	1	0	1	0	0	1	1	1	0	0	

* Cette colonne compile les occurrences introduites, réintroduites et/ou restaurées pour chaque espèce suivie au CDPNQ.

** Les occurrences de qualités F, H, X ou compilées dans la colonne «Autres» ne sont pas comptabilisées dans ce nombre.

Signification des termes et symboles utilisés

Rang de priorité : Rang décroissant de priorité pour la conservation (de 1 à 5), déterminé selon trois échelles : G (GRANKe; l'aire de répartition totale) N (NRANKe; le pays) et S (SRANKe; la province ou l'État) en tenant compte principalement de la fréquence et de l'abondance de l'élément. Seuls les rangs 1 à 3 traduisent un certain degré de précarité. Dans certains cas, les rangs numériques sont remplacés ou nuancés par les cotes suivantes : B : population animale reproductrice (breeding); H : historique, non observé au cours des 20 dernières années (sud du Québec) ou des 40 dernières années (nord du Québec); M : population animale migratrice; N : population animale non reproductrice; NA : présence accidentelle / exotique / hybride / présence potentielle / présence rapportée mais non caractérisée / présence rapportée mais douteuse / présence signalée par erreur / synonymie de la nomenclature / existant, sans occurrence répertoriée; NR : rang non attribué; Q : statut taxinomique douteux; T : taxon infra-spécifique ou population isolée; U : rang impossible à déterminer; X : éteint ou extirpé; ? : indique une incertitude

Qualité des occurrences : A : excellente; B : bonne; C : passable; D : faible; E : à caractériser; F : non retrouvée; H : historique; X : disparue; I : introduite

Précision des occurrences : S : 150 m de rayon; M : 1,5 km de rayon; G : 8 km de rayon; U : > 8 km de rayon

Indice de biodiversité : 1: Exceptionnel; 2: Très élevé; 3: Élevé; 4: Modéré; 5: Marginal; 6: Indéterminé (pour plus de détails, voir à la page suivante)

Acronymes des herbiers : BL : MARCEL BLONDEAU; BM : Natural history museum; CAN : Musées nationaux; CCO : Université de Carleton; DAO : Agriculture Canada; DS : California academy of sciences; F : Field museum of natural history; GH : Gray; GR : Christian Grenier; ILL : University of Illinois; JEPS : Jepson herbarium; K : kew; LG : Université de Liège; MI : Université du Michigan; MO : Missouri; MT : MLCP (fusionné à MT); MT : Marie-Victorin; MTMG : Université McGill; NB : University of New Brunswick; NY : New York; OSC : Oregon state university; PM : Pierre Morisset; QFA : Louis-Marie; QFB-E : Forêts Canada; QFS : Université Laval; QK : Fowler; QSF : SCF; QUE : Québec; SFS : Rolland-Germain; TRTE : Toronto; UC : University of California; UQTA : Université du Québec; US : Smithsonian; V : Royal British Columbia museum; WAT : Waterloo university; WS : Washington state

CRITÈRES POUR L'ATTRIBUTION D'UN INDICE DE BIODIVERSITÉ À UNE OCCURRENCE

(adapté de The Nature Conservancy 1994 et 1996)

Indice	Sous-indice	Critères
B1	.01	Unique occurrence au monde d'un élément G1
	.02	Unique occurrence au Québec d'un élément G1
	.03	Unique occurrence au Québec d'un élément G2
	.04	Unique occurrence au Québec d'un élément G3
	.05	Occurrence d'excellente qualité d'un élément G1
	.07	Unique occurrence viable au Québec d'un élément S1
B2	.01	Occurrence autre que d'excellente qualité d'un élément G1
	.02	Occurrence d'excellente à bonne qualité d'un élément G2
	.03	Occurrence d'excellente qualité d'un élément G3
	.04	Occurrence d'excellente qualité d'un élément S1
B3	.01	Occurrence de qualité passable d'un élément G2
	.02	Occurrence de bonne qualité d'un élément G3
	.03	Occurrence de bonne qualité d'un élément S1
	.05	Occurrence d'excellente qualité d'une espèce S2 ou d'excellente qualité de toute communauté naturelle
	.11	Occurrence de bonne qualité d'un élément S2
B4	.01	Occurrence de qualité passable d'un élément G3
	.02	Occurrence de qualité passable d'un élément S1
	.03	Occurrence d'excellente qualité d'un élément S3
	.05	Occurrence de bonne qualité de toute communauté naturelle S3, S4 ou S5
	.07	Occurrence de bonne qualité d'un élément S3
B5	.01	Occurrence de qualité passable d'un élément S2
	.03	Occurrence de qualité passable d'un élément S3
	.04	Occurrence parmi les cas suivants : qualité faible, historique, présence contrôlée (existant)

Indice de biodiversité

L'indice de biodiversité est évalué pour les éléments les plus importants de la diversité biologique selon les critères indiqués dans le tableau. Pour fins de calcul, les rangs de priorité des sous-espèces et variétés (rangs T associés au rangs G) ainsi que ceux des populations (rangs T associés au rangs S) sont assimilés aux rangs de base (G ou S). L'indice met l'emphase sur le ou les éléments les plus rares. De même, une plus grande importance est accordée aux rangs de priorité à l'échelle globale. Seules les occurrences relativement précises (niveau de précision supérieur à 1,5 km) sont considérées.
Les occurrences de valeur indéterminée (E) ou historique (F et H) ont un poids très faible sur le plan de la conservation du territoire visé. Cependant, elles sont prioritaires sur le plan de l'acquisition de connaissances.

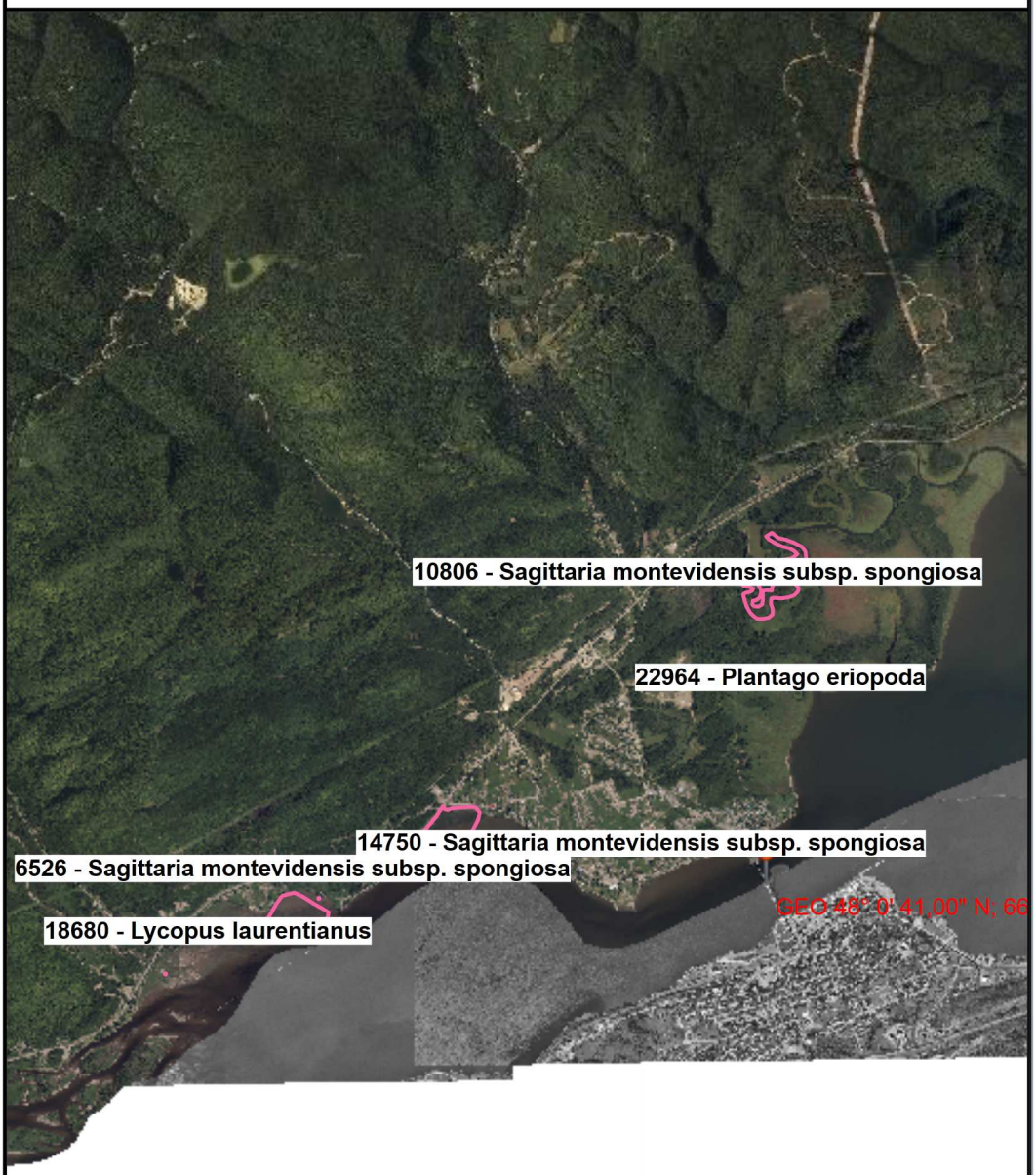
Intérêt pour la conservation

Les occurrences avec un indice de biodiversité de B1 à B3 sont considérées comme d'intérêt le plus significatif pour la conservation.

Références

The Nature Conservancy. 1994. The Nature Conservancy, Conservation Science Division, in association with the Network of Natural Heritage Programs and Conservation Data Centers. 1992. Biological and Conservation Data System (Supplement 2+, released March, 1994). Arlington, Virginia.

The Nature Conservancy. 1996. The Nature Conservancy Conservation Systems Department. Element Rank Rounding and Sequencing. Arlington, Virginia.



Sélection - Espèces végétales désignées et susceptibles

Échelle : 1 / 74 623

2km
1mi

N

Source(s) des données :

Environnement et Lutte contre les changements climatiques
Québec

Préparé par:
Jacinthe Girard
Contrôle Gaspésie-Îles-de-la-Madeleine
(C)
2019-01-18

Occurences CDPNQ, Pont JC Van Horne

1 – Nombre total d'occurrences pour cette requête : 2

Nom latin - (no d'occurrence)

Nom français

Localisation / Caractérisation

Latitude / Longitude	Qualité - Précision	Indice de biodiversité	Dernière observation

FAUNE

Ammodramus nelsoni - (2103)

bruant de Nelson

Région de la Gaspésie□Îles-de-la-Madeleine. Cette occurrence est composée du site SOS-POP BN-031 (Pte à la Croix à Pte au Chêne). / Présence de l'espèce à ce site en 1985, 2000, 2003, 2005, 2006, 2011 et 2012. Jusqu'à 112 individus ont été observés au cours d'une même visite. Habitat : Haut-marais à Carex paléacé et juncus sp. Tapis de végétation morte.

48,027 / -66,683	E (Existante, à déterminer) - S (Seconde, 150 m)	B5.04	2012-06-10

Meilleure source : SOS-POP. 1994. Banque de données sur le suivi de l'occupation des stations de nidification des populations d'oiseaux en péril du Québec, active depuis 1994. Regroupement QuébecOiseaux et Service canadien de la faune d'Environnement Canada, région du Québec.

Haliaeetus leucocephalus - (18852)

pygargue à tête blanche

Dans la région de la Gaspésie, à la rivière Ristigouche.. L'occurrence comte un emplacement de nid au site SOS-POP: Pt-277 (rivière Ristigouche no 1). / Le nid a été découvert en 2007, alors qu'il était actif. En 2008, 2009, 2010 et 2012 il était toujours occupé. En 2013 (dernier suivi), deux jeunes ont été vus au nid, mais le nid est tombé à la fin de l'été. Habitat: nid dans un chicot de feuillu, sur une île.

47,998 / -66,772	E (Existante, à déterminer) - S (Seconde, 150 m)	B5.04	2013

Meilleure source : SOS-POP. 1994. Banque de données sur le suivi de l'occupation des stations de nidification des populations d'oiseaux en péril du Québec, active depuis 1994. Regroupement QuébecOiseaux et Service canadien de la faune d'Environnement Canada, région du Québec.

2 – Nombre total d'espèces pour cette requête : 2

Nom latin Nom commun / Statut canadien Cosepac / Lep	Rangs de priorité G	N	S	Statut	Total Requête	Nombre d'occurrences dans votre sélection A	B	C	D	X	H	F	E	I	Autres*	Nombre au Québec**
FAUNE																
Ammodramus nelsoni	G5	N5B	S3	Susceptible	1	0	0	0	0	0	0	0	1	0	0	45
bruant de Nelson																
NEP (Non en péril) / X (Aucun)																
Haliaeetus leucocephalus	G5	N5B,N5N	S3S4	Vulnérable	1	0	0	0	0	0	0	0	1	0	0	316
pygargue à tête blanche																
NEP (Non en péril) / X (Aucun)																
				Totaux:	2	0	0	0	0	0	0	0	2	0	0	

* Cette colonne compile les occurrences introduites, réintroduites et/ou restaurées pour chaque espèce suivie au CDPNQ.

** Les occurrences de qualités F, H, X ou compilées dans la colonne «Autres» ne sont pas comptabilisées dans ce nombre.

Signification des termes et symboles utilisés

Rang de priorité : Rang décroissant de priorité pour la conservation (de 1 à 5), déterminé selon trois échelles : G (GRANKe; l'aire de répartition totale) N (NRANKe; le pays) et S (SRANKe; la province ou l'État) en tenant compte principalement de la fréquence et de l'abondance de l'élément. Seuls les rangs 1 à 3 traduisent un certain degré de précarité. Dans certains cas, les rangs numériques sont remplacés ou nuancés par les cotes suivantes : B : population animale reproductrice (breeding); H : historique, non observé au cours des 20 dernières années (sud du Québec) ou des 40 dernières années (nord du Québec); M : population animale migratrice; N : population animale non reproductrice; NA : présence accidentelle / exotique / hybride / présence potentielle / présence rapportée mais non caractérisée / présence rapportée mais douteuse / présence signalée par erreur / synonymie de la nomenclature / existant, sans occurrence répertoriée; NR : rang non attribué; Q : statut taxinomique douteux; T : taxon infra-spécifique ou population isolée; U : rang impossible à déterminer; X : éteint ou extirpé; ? : indique une incertitude

Qualité des occurrences : A : excellente; B : bonne; C : passable; D : faible; E : à caractériser; F : non retrouvée; H : historique; X : disparue; I : introduite

Précision des occurrences : S : 150 m de rayon; M : 1,5 km de rayon; G : 8 km de rayon; U : > 8 km de rayon

Indice de biodiversité : 1: Exceptionnel; 2: Très élevé; 3: Élevé; 4: Modéré; 5: Marginal; 6: Indéterminé (pour plus de détails, voir à la page suivante)

Acronymes des herbiers : BL : MARCEL BLONDEAU; BM : Natural history museum; CAN : Musées nationaux; CCO : Université de Carleton; DAO : Agriculture Canada; DS : California academy of sciences; F : Field museum of natural history; GH : Gray; GR : Christian Grenier; ILL : University of Illinois; JEPS : Jepson herbarium; K : kew; LG : Université de Liège; MI : Université du Michigan; MO : Missouri; MT : MLCP (fusionné à MT); MT : Marie-Victorin; MTMG : Université McGill; NB : University of New Brunswick; NY : New York; OSC : Oregon state university; PM : Pierre Morisset; QFA : Louis-Marie; QFB-E : Forêts Canada; QFS : Université Laval; QK : Fowler; QSF : SCF; QUE : Québec; SFS : Rolland-Germain; TRTE : Toronto; UC : University of California; UQTA : Université du Québec; US : Smithsonian; V : Royal British Columbia museum; WAT : Waterloo university; WS : Washington state

CRITÈRES POUR L'ATTRIBUTION D'UN INDICE DE BIODIVERSITÉ À UNE OCCURRENCE

(adapté de The Nature Conservancy 1994 et 1996)

Indice	Sous-indice	Critères
B1	.01	Unique occurrence au monde d'un élément G1
	.02	Unique occurrence au Québec d'un élément G1
	.03	Unique occurrence au Québec d'un élément G2
	.04	Unique occurrence au Québec d'un élément G3
	.05	Occurrence d'excellente qualité d'un élément G1
	.07	Unique occurrence viable au Québec d'un élément S1
B2	.01	Occurrence autre que d'excellente qualité d'un élément G1
	.02	Occurrence d'excellente à bonne qualité d'un élément G2
	.03	Occurrence d'excellente qualité d'un élément G3
	.04	Occurrence d'excellente qualité d'un élément S1
B3	.01	Occurrence de qualité passable d'un élément G2
	.02	Occurrence de bonne qualité d'un élément G3
	.03	Occurrence de bonne qualité d'un élément S1
	.05	Occurrence d'excellente qualité d'une espèce S2 ou d'excellente qualité de toute communauté naturelle
	.11	Occurrence de bonne qualité d'un élément S2
B4	.01	Occurrence de qualité passable d'un élément G3
	.02	Occurrence de qualité passable d'un élément S1
	.03	Occurrence d'excellente qualité d'un élément S3
	.05	Occurrence de bonne qualité de toute communauté naturelle S3, S4 ou S5
	.07	Occurrence de bonne qualité d'un élément S3
B5	.01	Occurrence de qualité passable d'un élément S2
	.03	Occurrence de qualité passable d'un élément S3
	.04	Occurrence parmi les cas suivants : qualité faible, historique, présence contrôlée (existant)

Indice de biodiversité

L'indice de biodiversité est évalué pour les éléments les plus importants de la diversité biologique selon les critères indiqués dans le tableau. Pour fins de calcul, les rangs de priorité des sous-espèces et variétés (rangs T associés au rangs G) ainsi que ceux des populations (rangs T associés au rangs S) sont assimilés aux rangs de base (G ou S). L'indice met l'emphase sur le ou les éléments les plus rares. De même, une plus grande importance est accordée aux rangs de priorité à l'échelle globale. Seules les occurrences relativement précises (niveau de précision supérieur à 1,5 km) sont considérées.
Les occurrences de valeur indéterminée (E) ou historique (F et H) ont un poids très faible sur le plan de la conservation du territoire visé. Cependant, elles sont prioritaires sur le plan de l'acquisition de connaissances.

Intérêt pour la conservation

Les occurrences avec un indice de biodiversité de B1 à B3 sont considérées comme d'intérêt le plus significatif pour la conservation.

Références

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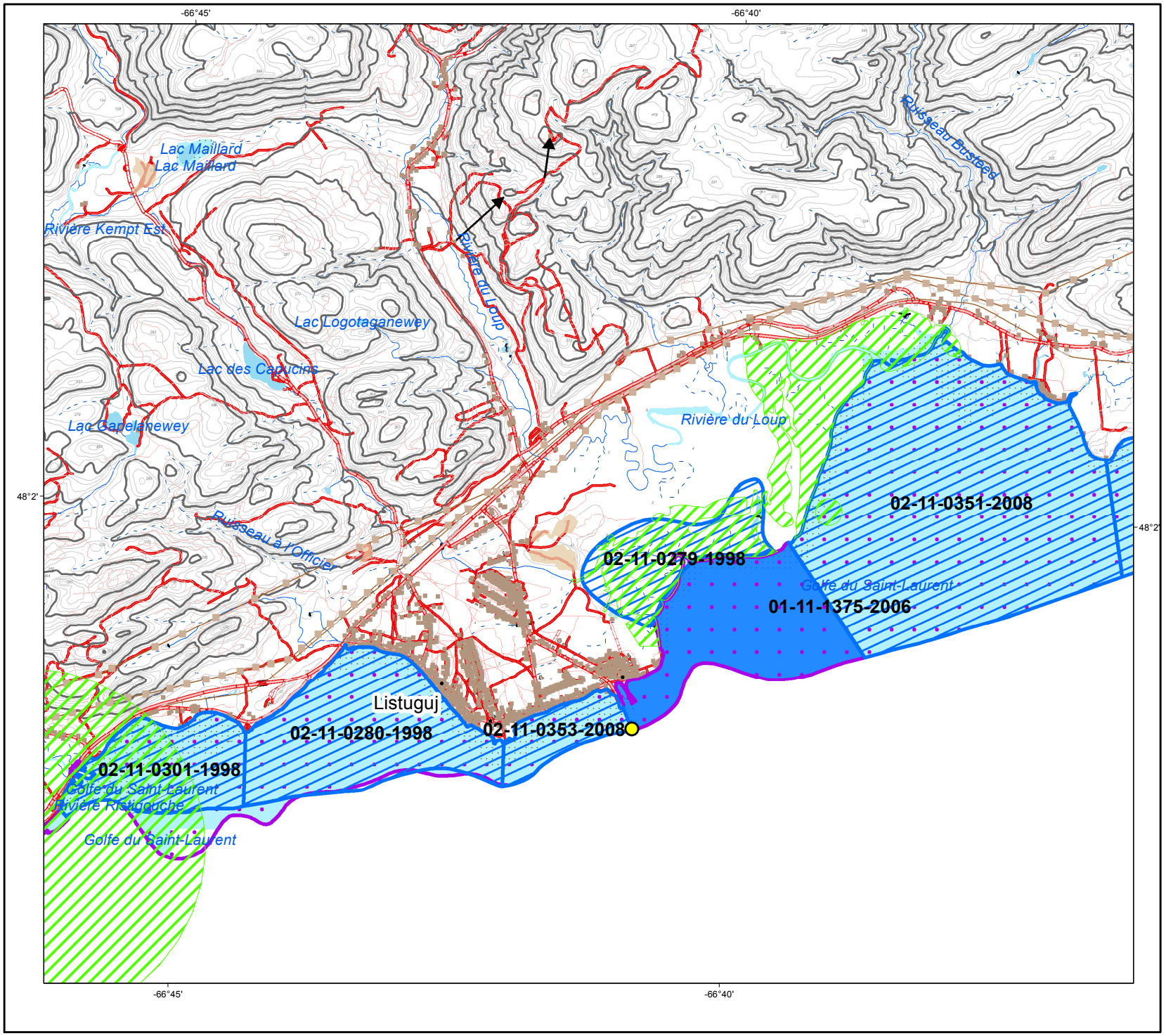
Demande d'information CDPNQ et habitats fauniques

Demandeur : Petrosol



Légende

CDPNQ

Espèces en situation précaire

Habitats fauniques légaux

ACOA

Habitat poisson

Habitats fauniques non légaux

ACOA

Réalisation

Ministère des Forêts, de la Faune et des Parcs
Direction de la gestion de la faune
de la Gaspésie–Îles-de-la-Madeleine
Gabriel Chabot, technicien de la faune
Ste-Anne-des-Monts, 2019-01-16
Note : Le présent document n'a aucune portée légale

Projection cartographique

Mercator transverse modifiée (MTM), zone 5

Source

Base de données géographiques, MERN, 2015

0 0,5 1 2 km

1:60 000

Forêts, Faune et Parcs
Québec

APPENDIX 4 – LIMITATIONS AND BIBLIOGRAPHIC REFERENCES

LIMITATIONS OF THE STUDY

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