



Triple Point Resources
Fischells Salt Dome Energy Project
Existing Marine Environment

March 2026

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Fischells Salt Dome Energy Project
Existing Marine Environment

March 2026

2026-03-25

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Prepared for

Dr. Steve Bonnell

Head Impact Assessment and Regulatory

Triple Point Resources

Prepared by

WSP Canada Inc.
36 Pippy Pl, St. John's, NL A1B 3X4
T 709-207-9041

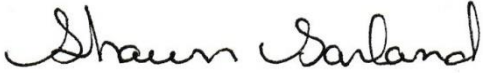

Quality control	Name	Date	Signature
Prepared by:	Shaun Garland	March 25, 2026	
Reviewed by:	James McCarthy	March 25, 2026	
Approved by:	James McCarthy		

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Executive summary

Triple Point Resources is proposing the Fischells Salt Dome Energy Project on Newfoundland's west coast. To support this work, WSP Canada Inc. conducted a literature review to identify marine fish, marine mammals, species at risk, and key marine habitats that may occur within or near the Project Area. To be conservative this review covered the entirety of St. George's Bay.

St. George's Bay, a west-facing bay on the southwest coast of Newfoundland, generally has shallow waters (<100 m), except for the mouth of the bay and a deeper southern channel. The shoreline and seabed of St. George's Bay have largely been shaped by extensive glacial activity and deposition.

The bay contains several important habitat types, including spawning and rearing areas, cold-water coral habitats, and habitats used by Species at Risk. These habitats support a wide range of finfish, shellfish, and marine mammals. Commercially important species utilizing these habitats include American lobster, Atlantic cod, Atlantic mackerel, Atlantic herring, capelin, halibut, and snow crab. Additional recreationally targeted species such as Atlantic salmon and brook trout can also rely on these areas. Atlantic salmon is particularly significant culturally and economically, using marine waters for feeding and estuaries during migration. Estuarine habitats within St. George's Bay also support Species at Risk such as American eel, banded killifish, and mummichog. The mouth of St. George's Bay and adjacent continental shelf is considered important habitat for marine mammals.

Although the bay contains valuable habitat, no Protected Areas or Ecologically and Biologically Significant Areas (EBSAs) have been designated within it. The Western Newfoundland EBSA lies just offshore at the bay's mouth. While there is a Significant Benthic Area which occurs at the mouth of the bay and extends onto the continental shelf.

Several species that may occur in the bay are listed under Schedule 1 of the federal Species at Risk Act, including Atlantic wolffish, banded killifish, blue whale, fin whale, leatherback sea turtle, North Atlantic right whale, northern wolffish, spotted wolffish, and white shark. Blue whale, leatherback sea turtle, North Atlantic right whale, and white shark are Endangered; Atlantic, northern, and spotted wolffish are Threatened; the remaining species are of Special Concern. Under the Newfoundland and Labrador Endangered Species Act, American eel, banded killifish, and mummichog are listed as Vulnerable.

1. Introduction

Triple Point Resources (TPR) is proposing to construct and operate the Fischells Salt Dome Energy Project, an underground energy storage and generation facility located in the St. George's Bay area of Western Newfoundland.






WSP Canada Inc. (WSP) has completed a desktop literature review to describe the existing marine environment within St. George's Bay, in support of the environmental assessment (EA) registration for the proposed Project, the primary components of which include (Figure 1.1):

1. A Main Facility, comprising the proposed salt cavern(s), compressed air energy storage (CAES) unit and associated infrastructure, to be located just north of the Trans-Canada Highway;
2. A Wind Farm and its associated electrical systems, situated immediately to the southeast of the Main Facility on the opposite side of the Trans-Canada Highway;
3. Marine Components and Pipeline(s), located to the west of the Main Facility, which will be used to transport seawater from St. George's Bay for use in the solution mining process, and possibly for the eventual disposal of produced brine; and
4. A 230 kV bidirectional Transmission Line that will connect the facility to the Island electricity system at the Bottom Brook terminal station.

Note that these are overall and somewhat conservative “polygons” that fully encompass the planned elements of the Project as currently defined. The actual on-the-ground “footprints” covered by each component will be determined once final siting and design work is complete – and will therefore be less than these larger overall study areas.



LEGEND

-  TRANS CANADA TRAIL
-  MAIN FACILITY
-  TRANSMISSION LINE
-  WIND FARM
-  MARINE COMPONENTS / PIPELINE



NOTE(S)

1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)

1. CONTAINS DATA PROVIDED BY CLIENT (TRIPLE POINT RESOURCES)
2. BASE MAP: SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
3. COORDINATE SYSTEM: NAD 1983 UTM ZONE 21N

CLIENT

TRIPLE POINT RESOURCES

PROJECT

TRIPLE POINT RESOURCES FISCHELLS SALT DOME ENERGY PROJECT

TITLE

OVERALL PROJECT LAYOUT

CONSULTANT



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PREPARED RRD

REVIEWED SG

APPROVED JM

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2. Study Area and Methods

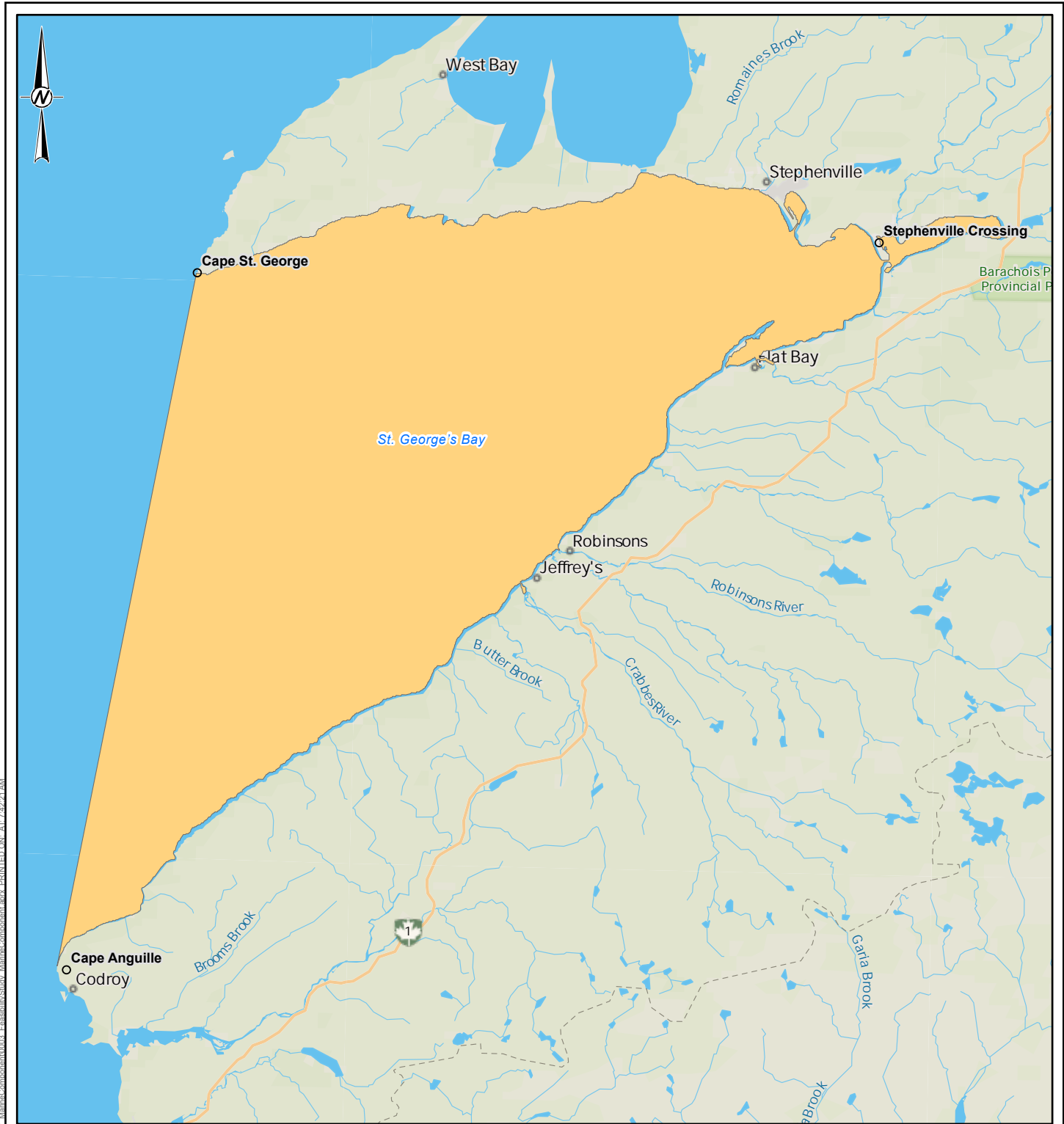
2.1 Study Area

The proposed project site is located in the southwestern portion of the Island of Newfoundland and Labrador, approximately 10 km inland from the coastline along St. George's Bay, but with planned seawater intake and possible brine discharge components within the marine environment.

The Study Area has been defined as encompassing all of St. George's Bay in order to fully and conservatively capture the proposed and potential marine components of the Project, their possible zones of influence, and to provide an appropriate regional context. For the purposes of this analysis, St. George's Bay is defined as the area bounded by a line extending from Cape St. George (to the north) to Cape Anguille (to the south) and includes all marine and estuarine waters east of this line to the head of the Bay (Figure 2.1).

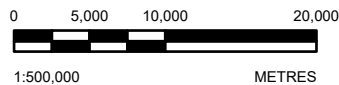
2.2 Methods

The existing marine environment of the Study Area was described through a comprehensive review of existing information sources, including government publications and datasets, environmental assessments, species-at-risk databases, and other relevant information and datasets. Additional information was drawn from academic research, unpublished literature, and input from local conservation organizations. The sections that follow provide an overview of the existing physical and biological environments within the Study Area, with particular attention to ecologically important features and the presence and distribution of species at risk (SAR).



LEGEND

- COMMUNITIES
- MARINE STUDY AREA



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CLIENT

TRIPLE POINT RESOURCES

PROJECT

TRIPLE POINT RESOURCES FISCHHELLS SALT DOME ENERGY PROJECT

TITLE

MARINE STUDY AREA

CONSULTANT



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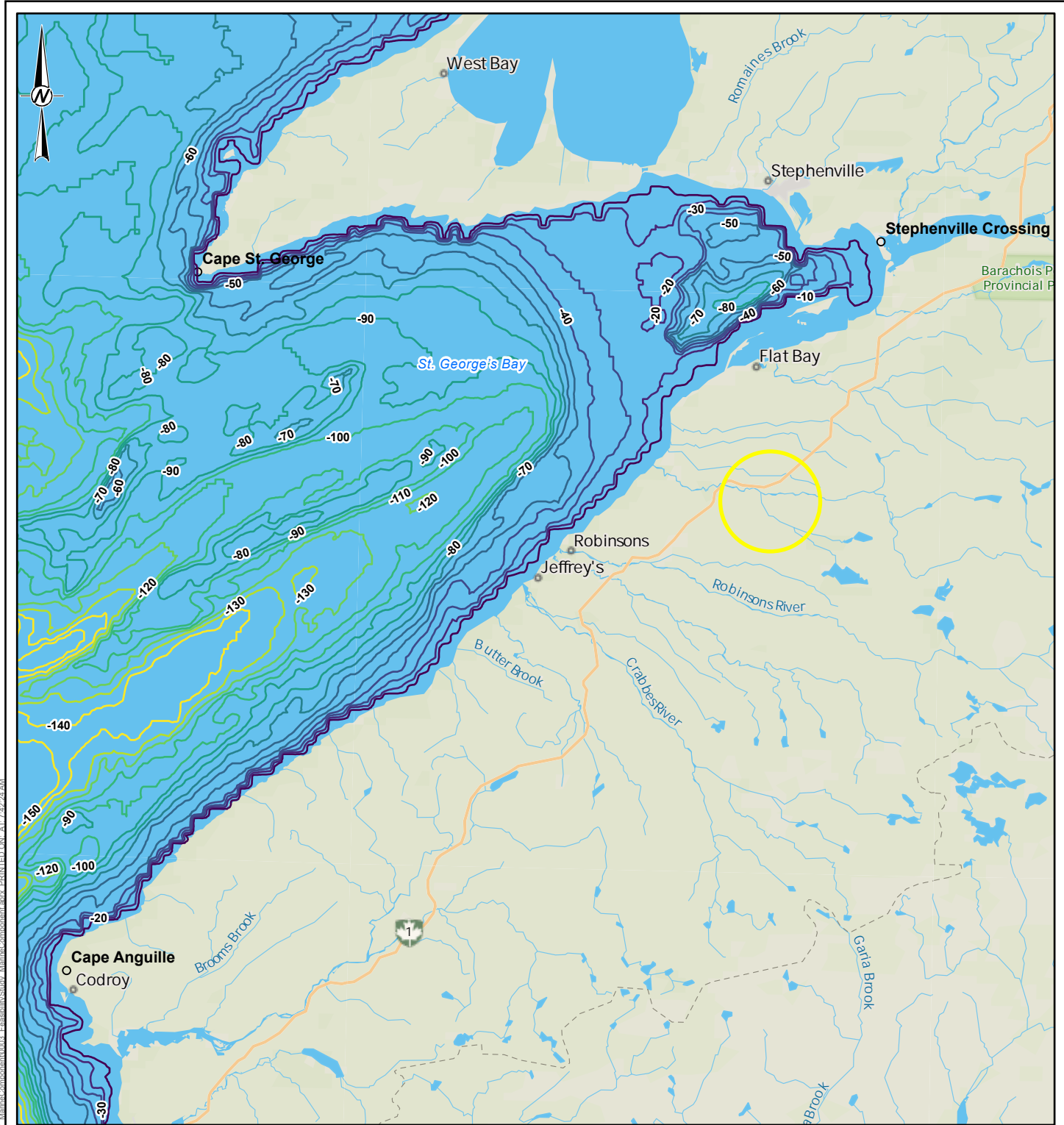
3. Physical Environment

St. George's Bay has a generally triangular shape, extending from Cape Anguille to the south, northeast to Stephenville Crossing then west to the Cape St. George area. The Bay is approximately 61 km wide, and the distance from the head of the bay to its mouth is approximately 72 km.

3.1 Bathymetry

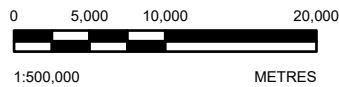
Water depths within St. George's Bay are generally less than 100 m, although deeper waters are found in a channel on the southern portion of the bay (Figure 3.1).

Water depths generally decrease from the mouth of the bay toward the head of the bay, with a shallow sill area encountered between the Port au Port isthmus (to the north) and Bank Head (to the south) where water depths generally range from 17 m to 25 m. On the seaward side of the shallow sill the change in water depth is gradual, while on the landward side the water depth drops more abruptly creating a steep slope ranging from 25 – 55 m in depth. On the landward side of the sill there are two deeper basins, the north basin (maximum water depth 57 m) and south basin (maximum water depth 97 m) (Shaw and Forbes 1990), (Figure 3.1).



LEGEND

 PROJECT LOCATION



NOTE(S)

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CLIENT

TRIPLE POINT RESOURCES

PROJECT

TRIPLE POINT RESOURCES FISHELLS SALT DOME ENERGY PROJECT

TITLE

ST. GEORGE'S BAY BATHYMETRY

CONSULTANT

YYYY-MM-DD 2026-04-06

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PREPARED RRD

REVIEWED SG

APPROVED JM



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3.2 Bedrock Geology

The bedrock geology of the shoreline and adjacent upland areas surrounding St. George's Bay is predominantly composed of Carboniferous sedimentary rock. Localized occurrences of basement rock are present near Stephenville Crossing, while areas of transported slope/rise material are identified in the Gravels area of the Port au Port Peninsula. The remainder of the Port au Port Peninsula is characterized as shelf, passive margin. The seabed within St. George's Bay is underlain entirely by Carboniferous sedimentary rock (C-NLOPB 2014).

3.3 Surficial Geology

A series of bedrock valleys have been identified within St. George's Bay which are infilled with sediments of varying thickness, primarily associated with glacial depositional processes. In general, sediment thickness decreases from the head of the Bay toward its mouth. Within the inner deepwater basins, maximum sediment thicknesses reach approximately 180 m in the south basin and 125 m in the north basin. The sill area also represents a major depositional zone, with sediment depths of up to 90 m recorded. Sediment composition in inner St. George's Bay ranges from mud to mud-sand mixtures within the basins, transitioning to sand and localized gravel nearer the shoreline, and becoming predominantly gravel within the sill area (Shaw and Forbes 1990).

3.4 Coastal Geomorphology

The surficial geology along the coastline of St. George's Bay consists of a mixture of glacial and marine deposits (e.g., glacial diamicton, glaciomarine, and marine sediments), which commonly form elevated coastal bluffs (C-NLOPB 2014). The coastline between Port au Port and the Anguille Mountains is dominated by gravel, sand, silt, and clay deposited during and following the Late Wisconsinan glaciation. In particular, sediments between Port au Port and Romaines Brook were deposited at the terminal margin of the glacier, while the stretch between Flat Bay and St. David's is characterized by coastal cliffs up to approximately 80 m high, composed of basal till overlain by silt, clay, and glaciomarine sand, and capped by glaciofluvial outwash. At the head of the Bay, depositional beaches are present, consisting of gravel and sand near Stephenville and predominantly sand near Stephenville Crossing (Irvine 2019).

3.5 Climate

The climate of the St. George's Bay region is typical of coastal western Newfoundland, characterized by a cool, temperate maritime climate with moderate seasonal variation, relatively high precipitation, and frequent exposure to coastal winds and weather systems moving in from the Gulf of St. Lawrence.

Prevailing wind direction in the region varies seasonally, with southwest and southerly winds dominant during the warmer months (May to September), and west to northwest winds prevailing during the cooler months (November to March). Mean hourly wind speeds range from approximately 19.1 km/h in July to 36.4 km/h in December. Strong winds exceeding 90 km/h occur most frequently in December (typically



from the southwest), January (from the north), and August during the passage of tropical storms, while winds greater than 72 km/h are relatively uncommon, occurring only about 0.3% of the time (C-NLOPB 2014).

Portions of St. George's Bay fall within three subregions of the broader Western Newfoundland Forest Ecoregion. Climatic conditions across these subregions are generally similar, with total annual precipitation consisting of up to approximately 1,200 mm of rainfall and 200–400 cm of snowfall. Mean daily temperatures typically range from approximately -5°C to -8°C in mid-winter (February) and from 14°C to 16°C in mid-summer (July), (PAANL 2008a,b,c).

4. Biological Environment

The marine biological environment of St. George's Bay includes marine flora and fauna—such as fish, marine mammals, and sea turtles—and the habitats that support them. Habitat composition and species use are often complex, influenced by a combination of biotic and abiotic factors. These habitats contribute to the maintenance of local fish populations and fisheries, may hold cultural significance, and include features such as spawning grounds, nursery areas, staging areas for anadromous species, habitats used by Species at Risk, and areas supporting cold-water coral and sponge species.

The following sections describe the key habitat types identified within St. George's Bay and outline the fish (including commercial species), marine mammal, and sea turtle species that may be present based on available literature. Species summaries are also provided where specific habitat associations have been identified (e.g., capelin spawning beaches) or where species support commercial, recreational, or Indigenous fisheries (e.g., Atlantic cod). Species at risk are addressed separately in Section 5.0.

4.1 Protected Areas

Within Canada, environments identified as sensitive or unique can be designated as protected under federal, provincial or territorial legislation, while some areas may also be protected by Indigenous or municipal governments. Designation of these areas may be to protect sensitive species and their habitats, to protect natural areas with unique ecological features, to preserve areas of cultural or historical significance or for the general use of natural areas by the public. These protected areas can include national parks, national historic sites, national marine conservation areas, provincial parks, provincial wilderness reserves, provincial ecological reserves and marine protected areas (MPAs).

National parks, historical sites and national marine conservation areas are administered by Parks Canada. A review of the Parks Canada interactive mapping application did not identify any national parks, national historic sites or national marine conservation areas within the study area (Parks Canada 2026).

Provincial ecological and wilderness reserves are administered by the Department of Environment and Climate Change, while provincial parks are administered by the Department of Tourism, Culture, Arts and Recreation of the Government of Newfoundland and Labrador. A review of the Parks and Protected Areas map produced by the Department of Environment and Climate Change indicates that the only provincial protected areas within the vicinity of the project are Barachois Pond Provincial Park and the Trailway Linear Park both of which are located inland from the coast (Government of Newfoundland and Labrador 2026a,b).

The Department of Fisheries and Oceans Canada (DFO), in conjunction with Parks Canada and Environment and Climate Change Canada, oversees the development and management of MPAs under the *Oceans Act* (Government of Canada 2011). A review of the Government of Canada Open Map application found that no MPAs occur within the study area (Government of Canada 2026a).

4.2 Ecologically and Biologically Significant Areas (EBSA)

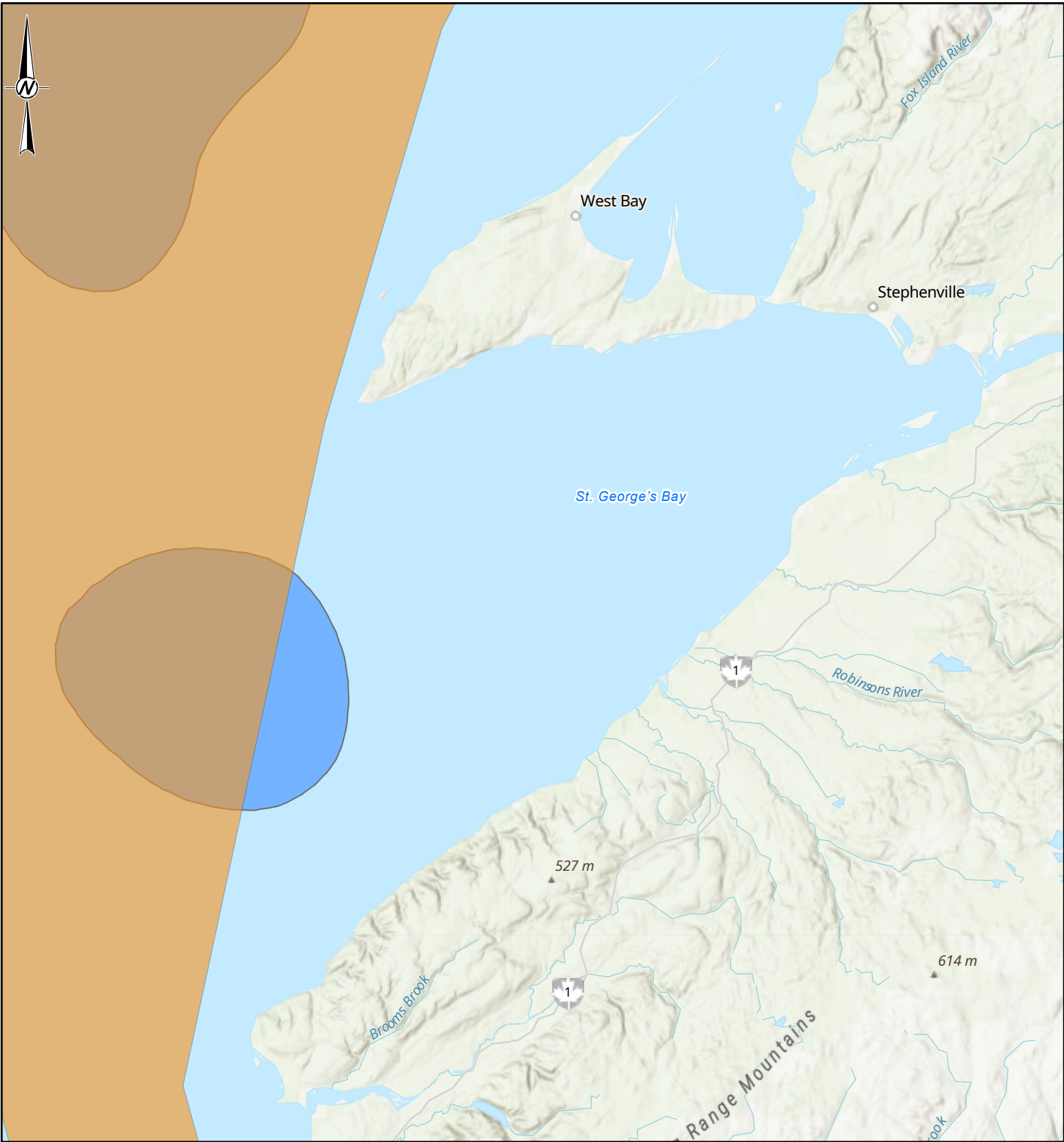
Fisheries and Oceans Canada is also responsible for the identification of EBSAs within Canadian waters. The designation of an area as an EBSA involves a science-based approach to identify areas which have a special biological or ecological significance when compared to the surrounding marine ecosystem. Designation of an area as an EBSA and the documentation specific ecological conditions within the EBSA can be used to help guide resource planning and development activities (DFO 2011a).

A review of the EBSAs in the Gulf of St. Lawrence identified in DFO (2007) indicated that no EBSAs occur in the study area. However, immediately west of St. George's Bay is the southern portion of the West Coast of Newfoundland EBSA (Figure 4.1). This EBSA covers a large area (over 18,000 km²) running south to north from the Cabot Strait to the Esquiman Channel. The area serves as an important foraging, migration and refuge area for a variety of fish and mammal species. While St. George's Bay itself is not included in the EBSA there are indications that the area offshore from the bay serves as a principal early spawning area for Atlantic Cod and that St. George's Bay may serve as an important feeding area for species which consume krill (e.g., blue whale), (DFO 2007).

4.3 Significant Benthic Areas (SBA)

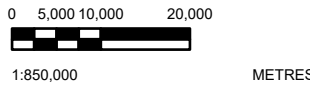
In addition to the establishment of EBSA's DFO establishes Significant Benthic Areas (SBAs) under the Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas, which defines a SBA as an area that is vulnerable to a proposed or ongoing fishing activity. DFO scientifically assesses areas using the Ecological Risk Analysis Framework to determine the potential effects of fishing activities on the long-term health of the ecosystem. The outcome of the assessment is used as a tool for the designation of an area as a SBA. While designation as a SBA does not necessarily preclude fishing in the area, there may be mitigations (e.g., gear type restrictions, reductions in fishing effort) put in place to limit impacts upon the area (DFO 2026a). DFO has established a SBA at the mouth of St. George's Bay for sponges (Government of Canada 2026b), (Figure 4.1).

The SBA encompasses an area of 19,130 km² (Government of Canada 2026b) and is located at the outer mouth of the bay generally halfway between Cape St. George and Cape Anguille. It appears that the SBA borders the deepest part of the bay, where water depths are generally more than 140 m, extending onto the continental shelf where it is likely there are significant currents and water temperatures to allow the proliferation of sponges.



LEGEND

- ECOLOGICALLY AND BIOLOGICALLY SIGNIFICANT AREAS
- SIGNIFICANT BENTHIC AREA (SPONGES)



NOTE(S)
 1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
 1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - CANADA
 2. BASE MAP: ESRI, CGIAR, USGS, SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
 3. COORDINATE SYSTEM: WGS 1984 WEB MERCATOR AUXILIARY SPHERE

CLIENT
TRIPLE POINT RESOURCES

PROJECT
TRIPLE POINT RESOURCES FISCHHELLS SALT DOME ENERGY PROJECT

TITLE
ECOLOGICALLY AND BIOLOGICALLY SIGNIFICANT AREAS AND SIGNIFICANT BENTHIC AREA (SPONGES)

CONSULTANT	YYYY-MM-DD	2026-04-06
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PREPARED	RRD	
REVIEWED	SG	
APPROVED	JM	



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4.4 Other Habitats of Ecological Significance

A variety of habitats within St. George's Bay are or may be of ecological significance to species occurring in the area. These habitats can be complex and highly productive, shaped by physical factors such as wave action, water depth, light availability, temperature, salinity, and substrate composition, as well as biological influences including predation, shelter, and food availability. Key habitat types include spawning grounds, nursery areas, staging areas for anadromous species, habitats used by species at risk, and areas that support cold-water corals.

4.4.1 Special Marine Areas

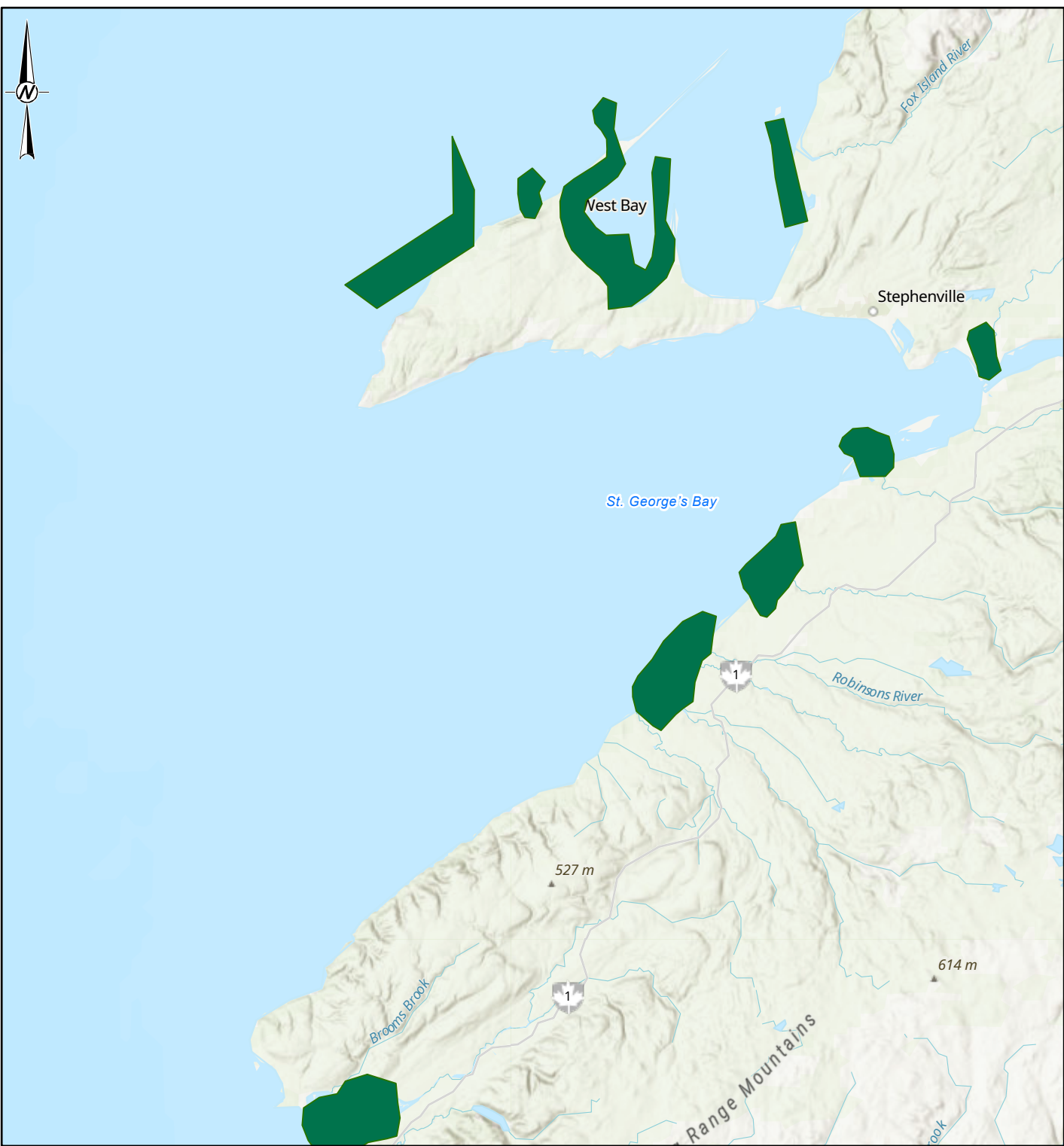
The Canadian Parks and Wilderness Society (CPAWS-NL), a not-for-profit environmental interest group, has identified St. George's Bay and an area north of the Port au Port peninsula as a Special Marine Area. The area is noted to contain numerous eelgrass beds and salt marshes which are utilized by a variety of bird species for nesting and migration. Marine species identified to occur in this area include gorgonian corals, sea pens, scallops, American eel, Atlantic herring, banded killifish, Atlantic salmon (nine scheduled salmon rivers located in St. George's Bay), blue whale and harbour seal (CPAWS-NL, 2018).

4.4.2 Eelgrass (*Zostera marina*) Beds

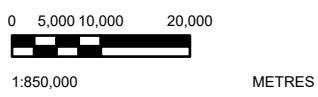
Eelgrass is a species of marine plant (seagrass) which plays an important role in coastal and estuarine ecosystems in Canada by providing a number of ecosystem services including primary production, nutrient cycling, and sediment stabilization. Eelgrass grows in subtidal and intertidal beds in coastal and estuarine areas with a modest amount of sediment deposition from terrestrial runoff. It may be found growing as small patches of a few individuals up to large meadows several hectares in size (Rao et al. 2014).

Eelgrass habitats also serve as nursery areas for juveniles of some commercially harvested species, help with carbon sequestration and provide a food source (Rao et al. 2014; ECCC 2020). As a result of its importance as an ecosystem building species, it has been designated as an ecologically significant species in Canada (ECCC 2020).

Eelgrass beds have been identified to occur within St. George's Bay by multiple authors (C-NLOPB 2014; Rao et al. 2014; ECCC 2020; LRREDB 2026), primarily at the head of the bay and at specific locations along the south shore between Stephenville Crossing and Highlands (Figure 4-2; re-created from Rao et al. 2014).



LEGEND
 EEL GRASS DISTRIBUTION



NOTE(S)
 1. ALL LOCATIONS ARE APPROXIMATE

REFERENCE(S)
 1. CONTAINS INFORMATION LICENSED UNDER THE OPEN GOVERNMENT LICENCE - CANADA
 2. BASE MAP: ESRI, CGIAR, USGS, SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY
 3. COORDINATE SYSTEM: WGS 1984 WEB MERCATOR AUXILIARY SPHERE

CLIENT
 TRIPLE POINT RESOURCES

PROJECT
 TRIPLE POINT RESOURCES FISHELLS SALT DOME ENERGY PROJECT

TITLE
EELGRASS BEDS WITHIN THE ST. GEORGE'S BAY

CONSULTANT	YYYY-MM-DD	2026-04-06
	DESIGNED	----
	PREPARED	RRD
	REVIEWED	SG
	APPROVED	JM



PROJECT NO.	CONTROL	REV.	FIGURE
CA0058602.1877	0003	0	4.2

PATH: S:\Client\Triple Point\Triple Point\GIS\MapComponent\0003 - Feasibility Study - Marine Component.mxd, PRINTED ON: AT 7:49:27 AM

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI/A

4.4.3 Cold Water Coral Habitat

Deep sea corals in Atlantic Canada are typically along shelf edges and continental slopes where currents are significant enough to provide a source of fine particulate organic matter for suspension feeding (Wareham and Edinger 2007). Rakka et al. (2025) indicates that the assembly of deep-water coral communities can be driven by ocean circulation, with specific water masses along with temperature and water chemistry influencing species composition and distribution.

Deep sea corals have been identified to occur within St. George's Bay (C-NLOPB 2014). Specifically, two groups of deep sea corals the pennatulacea (sea pens) and alcyonacea (soft corals) were identified by C-NLOPB (2014) to occur with St. George's Bay generally in areas where water depths exceed 100 m near the mouth of the bay and along the deep channel on the south side of the bay. There was also an occurrence of alcyonacea coral near the north side of St. George's Bay in a shallower area in water depths near 70 m. Colpron et al. (2010) also identified the presence of sea pens and soft corals in St. George's Bay after they undertook an analysis of DFO trawl survey data and conducted interviews with fishermen. Particularly, trawl surveys and interviews identified the presence of soft corals, sea pens (trawl surveys only) and cup corals (interview observations only) within the deep water channel along the southern extent of the bay. Colpron (2010) also indicated that large gorgonian corals were present at the mouth of St. George's Bay suggesting that substrates, temperatures and currents in the area are suitable for deep sea corals to persist. An aggregate coral area was identified by C-NLOPB (2014) which generally aligns with the deep channel along the south side of St. George's Bay (Figure 4-3).

Sea pens have a global distribution encompassing equatorial to polar regions from intertidal environments to depths more than 6,100 m (Williams 2011). Specific habitats include intertidal sand/mud flats, sandy areas, shallow water areas of mud or rubble, continental shelves/slopes, rocky outcrops, abyssal plains, and trenches (Williams 2011). Within the region sea pens are known to inhabit soft sediments on the continental shelf with most species found at depths ranging between 96-1,433 m (Wareham and Edinger 2007).

Soft corals are common in the Northwest Atlantic Ocean found at depths ranging from less than 10 m to 1,287 m (Wareham and Edinger 2007; Neves et al. 2020). Soft coral colonies can occur at high densities and are commonly found as bycatch in bottom trawls (Wareham and Edinger, 2007). Soft corals utilize a wide range of hard and soft substrates, occurring as small colonies (<30 cm in diameter) but can occur at high densities (>500 colonies per 100m²), (Buhl-Mortensen and Buhl-Mortensen 2018).

Cup or stony corals are globally distributed and locally are found on the continental shelf edge and slope (Wareham and Edinger 2007). These corals have an external exoskeleton comprised of calcium carbonate with representative species found inhabiting soft sediments (Buhl-Mortensen et al. 2007) and hard substrates (Försterra et al. 2005) with the specific substrate affinity varying by species.

4.4.4 Significant Coastal and Marine Areas

Significant coastal and marine areas have been identified throughout St. George’s Bay which support a variety of species, including those that support local fisheries and Species at Risk. Recognizing the value of these habitats, the Bay St. George and Port au Port Peninsula Marine and Coastal Resources Steering committee was formed to increase stakeholder involvement in the sustainable management of marine resources and the habitats that support them (DFO 2011b). This steering committee is comprised of volunteers and advisory members from the provincial Department of Fisheries, Farming and Natural Resources and Fisheries and Oceans Canada and is a sub-committee of the Long Range Regional Economic Development Board (LRREDB), an economic development agency for the St. George’s Bay/Port au Port area (LRREDB 2026). The steering committee has collected traditional ecological knowledge (TEK) from local resource users to identify and delineate the significant coastal and marine areas within the Port au Port, St. George’s Bay and Cape Ray areas (LRREDB 2026). The collected TEK was then used to develop a map series outlining the location and extent of the identified habitats. Identified habitats within the map series and their general distribution are outlined in Table 4.1, while the maps produced by LRREDB are illustrated in Appendix A.

Table 4.1 Significant coastal and marine areas identified by the Long Range Regional Economic Development Board

Habitat Type	Distribution in St. George’s Bay
American Eel Habitat	Flat Bay Brook Estuary and Flat Bay West
American Lobster Habitat	At the head of St. George’s Bay between Shallop Cove and Indian Head
Atlantic Cod Spawning Habitat	Northern portion of outer mouth of St. George’s Bay
Atlantic Herring Spawning Habitat	Various locations throughout north and south shores of St. George’s Bay
Atlantic Mackerel Habitat	Coastline adjacent to Cape St. George
Atlantic Salmon Staging Habitat	Estuary areas of numerous (nine) scheduled Atlantic Salmon rivers in the area.
Banded Killifish Habitat	Estuary of Flat Bay Brook, Loch Leven
Capelin Spawning Habitat	Various locations throughout north and south shores of St. George’s Bay

Habitat Type	Distribution in St. George's Bay
Eelgrass Habitat	Near the community of St. Georges, head of St. George's Bay
Halibut Spawning Habitat	Deep portion of inner St. George's Bay
Smelt Habitat	At the head of St. George's Bay near Stephenville Crossing and Flat Bay
Snow Crab Habitat	Deep portion of inner St. George's Bay
Soft Shell Clam Habitat	Seal Cove at the Head of St. George's Bay

4.5 Fish Species Occurrence in St. George's Bay

A review of available literature identified numerous marine fish species (shellfish and finfish) that occur within St. George's Bay. Species presence was determined using sources such as trawl survey summaries, COSEWIC status reports, the Western Newfoundland Strategic Environmental Assessment (SEA) update, studies associated with Project Registrations and Environmental Impact Statements covering St. George's Bay, scientific literature, Fisheries and Oceans Canada fishway count data, and the Anglers Guide for Newfoundland and Labrador.

Table 4.2 provides an overview of the species recorded in St. George's Bay, including their common and scientific names, frequency of occurrence (where available), locations, and data sources. Frequency information is primarily derived from multispecies trawl surveys conducted by Fisheries and Oceans Canada between 1990 and 2009, as documented by Bourdages and Ouellet (2011). It is important to note that trawl surveys were only conducted in waters deeper than 37 m; therefore, the inner portions of St. George's Bay were not included in the survey coverage. As a result, species whose distributions extend to the mid-bay may also occur farther into the head of the bay than the available trawl data indicates.

Frequency is based upon the maximum number of fish captured per trawl and is classified as follows:

- Very Infrequent: Less than one representative of the species per tow.
- Infrequent: One to five representatives of the species per tow.
- Frequent: Greater than five representatives but less than twenty-five of the species per tow.
- Very Frequent: Greater than twenty-five representatives of the species per tow.
- No Data: No data available to determine frequency.



Location is based upon the most shoreward position the species was found within St. George’s Bay and is classified as follows:

- Outer Mouth: Species occur at the extreme outer portion of the bay (generally hovers around an imaginary line between Cape St. George and Cape Anguille).
- Mouth: Species distribution is obviously east of the line noted above but does not include areas deeper into St. George’s Bay.
- Mid: Species distribution extends to approximately the half-way point of St. George’s Bay.
- Head: Species distribution extends east beyond the middle of St. George’s Bay.

If the species distribution was documented from a specific location rather than position in the bay, the specific location was included in Table 4.2.

Table 4.2 Fish species occurrence in St. George’s Bay

Common Name	Scientific Name	Frequency	Location (Farthest into Bay or Specific Location if Available)	Data Source
Acadian Redfish	<i>Sebastes fasciatus</i>	Very Frequent	Mid	Bourdages and Oulette 2011; C-NLOPB 2014
Alewife	<i>Alosa pseudoharengus</i>	Undetermined	Barachois Pond	GEMTEC 2023
Alligator Fish	<i>Aspidophorides monopterygius</i>	Infrequent ¹ Frequent ²	Mid	Bourdages and Oulette 2011 ¹ C-NLOPB 2014 ²
American Eel	<i>Anguilla rostrata</i>	Undetermined	Barachois Pond ¹ Flat Bay River ²	GEMTEC 2023 ¹ ; LRRECB 2026 ¹
American Lobster	<i>Homarus americanus</i>	Undetermined	Head	LRRECB 2026

Common Name	Scientific Name	Frequency	Location (Farthest into Bay or Specific Location if Available)	Data Source
American Plaice	<i>Hippoglossoides platessoides</i>	Very Frequent	Mid (but likely to head of bay)	Bourdages and Oulette 2011; C-NLOPB 2014
Arctic Cod	<i>Boreogadus saida</i>	Infrequent	Mid	Bourdages and Oulette 2011
Arctic Hookear Sculpin	<i>Artediellus uncinatus</i>	Infrequent	Mid	Bourdages and Oulette 2011
Arctic Staghorn Sculpin	<i>Gymnocanthus tricuspis</i>	Very Infrequent	Mid	Bourdages and Oulette 2011
Atlantic Argentine	<i>Argentina silus</i>	Infrequent	Mid	Bourdages and Oulette 2011
Atlantic Cod	<i>Gadus morhua</i>	Very Frequent	Mid but likely to Head of bay.	Bourdages and Oulette 2011; C-NLOPB 2014
Atlantic Hagfish	<i>Myxine glutisona</i>	Very Frequent	Mid	Bourdages and Oulette 2011
Atlantic Halibut	<i>Hippoglossus hippoglossus</i>	Infrequent ¹ Very Infrequent ²	Mid	Bourdages and Oulette 2011 ¹ C-NLOPB 2014 ²
Atlantic Herring	<i>Clupea harengus</i>	Frequent Undetermined	Mid (likely extends into head of bay); Barachois Pond	Bourdages and Oulette 2011; C-NLOPB 2014; GEMTEC 2023
Atlantic Hookear Sculpin	<i>Artediellus atlanticus</i>	Infrequent	Mid (likely extends into head of bay)	Bourdages and Oulette 2011

Common Name	Scientific Name	Frequency	Location (Farthest into Bay or Specific Location if Available)	Data Source
Atlantic Mackerel	<i>Scomber scombrus</i>	Infrequent	Mid	Bourdages and Oulette 2011
Atlantic Poacher	<i>Leptagonus decagonus</i>	Infrequent	Mid	Bourdages and Oulette 2011
Atlantic Pollock	<i>Pollachius virens</i>	Infrequent	Outer Mouth	Bourdages and Oulette 2011
Atlantic Salmon	<i>Salmo salar</i>	Undetermined	Head	Anglers Guide/Fishway Counts
Atlantic Silverside	<i>Menidia menidia</i>	Undetermined	Barachois Pond	GEMTEC 2023
Atlantic Soft Pout	<i>Melanostigma atlanticum</i>	Very Infrequent	Mid	Bourdages and Oulette 2011
Atlantic Spiny Lumpsucker	<i>Eumicrotremus spinosus</i>	Infrequent	Mid	Bourdages and Oulette 2011
Atlantic Wolffish (Species at Risk)	<i>Anarhichas lupus</i>	Frequent	Mid	Bourdages and Oulette 2011; C-NLOPB 2014
Banded Killifish (Species at Risk)	<i>Fundulus diaphanus</i>	Undetermined	Head	COSEWIC 2014, Sargent 2020
Bigeye Sculpin	<i>Triglops nybelini</i>	Very Infrequent	Mouth	Bourdages and Oulette 2011
Black Dogfish	<i>Centroscyllium fabricii</i>	Very Infrequent	Mouth	Bourdages and Oulette 2011
Blackspotted Stickleback	<i>Gasterosteus wheatlandi</i>	Undetermined	Barachois Pond	GEMTEC 2023

Common Name	Scientific Name	Frequency	Location (Farthest into Bay or Specific Location if Available)	Data Source
Brook Trout	<i>Salvelinus fontinalis</i>	Undetermined	Barachois Pond	GEMTEC 2023
Capelin	<i>Mallotus villosus</i>	Frequent	Head	Bourdages and Oulette 2011; C-NLOPB 2014
Cunner	<i>Tautoglabrus adspersus</i>	Undetermined	Barachois Pond	GEMTEC 2023
Daubed Shanny	<i>Leptoclinus maculatus</i>	Frequent	Mid	Bourdages and Oulette 2011
Deepwater Rockfish	<i>Sebastes mentella</i>	Very Frequent	Mid	Bourdages and Oulette 2011
Fourbeard Rockling	<i>Enchelyopus cimbrius</i>	Infrequent	Mouth	Bourdages and Oulette 2011
Fourline Snakeblenny	<i>Eumesogrammus praecisus</i>	Frequent	Mid	Bourdages and Oulette 2011
Fourspine Stickleback	<i>Apeltes quadracus</i>	Undetermined	Barachois Pond	GEMTEC 2023
Greenland Cod	<i>Gadus ogac</i>	Very Infrequent	Outer Mouth	Bourdages and Oulette 2011
Greenland Halibut	<i>Reinhardtius hippoglossoides</i>	Frequent ¹ Very Infrequent ²	Mid	Bourdages and Oulette 2011 ¹ C-NLOPB 2014 ²
Haddock	<i>Melanogrammus aeglefinus</i>	Infrequent	Mouth	Bourdages and Oulette 2011

Common Name	Scientific Name	Frequency	Location (Farthest into Bay or Specific Location if Available)	Data Source
Little Sculpin	<i>Myoxocephalus aeneus</i>	Undetermined	Barachois Pond	GEMTEC 2023
Longfin Hake	<i>Urophycis chesteri</i>	Infrequent ¹ Very Infrequent ²	Outer Mouth ¹ Mid ²	Bourdages and Oulette 2011 ¹ C-NLOPB 2014 ²
Longhorn Sculpin	<i>Myoxocephalus octodecemspinus</i>	Very Infrequent	Mid	Bourdages and Oulette 2011
Lumpfish	<i>Cyclopterus lumpus</i>	Very Infrequent	Mid	Bourdages and Oulette 2011
Marlin Spike	<i>Nezumia bairdii</i>	Frequent	Mid	Bourdages and Oulette 2011
Moustache Sculpin	<i>Triglops murrayi</i>	Infrequent	Mid	Bourdages and Oulette 2011; C-NLOPB 2014
Mummichog (Species at Risk)	<i>Fundulus heteroclitus</i>	Undetermined	Barachois Pond	GEMTEC 2023, Sargent 2020
Newfoundland Eelpout	<i>Lycodes lavalaei</i>	Infrequent	Mid	Bourdages and Oulette 2011
Northern Pipefish	<i>Syngnathus fuscus</i>	Undetermined	Barachois Pond	GEMTEC 2023
Northern Shrimp	<i>Pandalus borealis</i>	Very Frequent	Outer Mouth	C-NLOPB 2014
Sand Lance	<i>Ammodytes spp.</i>	Infrequent	Mid	Bourdages and Oulette 2011
Sea Raven	<i>Hemitripterus americanus</i>	Very Infrequent	Mouth	Bourdages and Oulette 2011



Common Name	Scientific Name	Frequency	Location (Farthest into Bay or Specific Location if Available)	Data Source
Sea Scallop	<i>Placopectan magellanicus</i>	Infrequent	Head	Squires 1953
Sea Urchin	<i>Strongylocentrotus droebachiensis</i>	Frequent	Mid	C-NLOPB 2014
Shorthorn Sculpin	<i>Myoxocephalus scorpius</i>	Infrequent	Mid	Bourdages and Oulette 2011
Silver Hake	<i>Merluccius bilinearis</i>	Infrequent	Mid	Bourdages and Oulette 2011; C-NLOPB 2014
Smooth Skate	<i>Malacoraja santa</i>	Frequent	Mouth	Bourdages and Oulette 2011
Snakeblenny	<i>Lumpenus lampraeformis</i>	Frequent	Mid	Bourdages and Oulette 2011
Snow Crab	<i>Chionoecetes opilio</i>	Undetermined	Head	LRRECB 2026
Soft Shell Clam	<i>Mya arenaria</i>	Undetermined	Head	LRRECB 2026
Spatulate Sculpin	<i>Icelus spatula</i>	Infrequent	Mouth	Bourdages and Oulette 2011
Spiny Dogfish	<i>Squalus acanthias</i>	Infrequent	Mid	Bourdages and Oulette 2011
Spotted Wolffish (Species at Risk)	<i>Anarhichas minor</i>	Infrequent	Mid	Bourdages and Oulette 2011; C-NLOPB 2014
Striped Pink Shrimp	<i>Pandalus montagui</i>	Very Frequent	Mid	C-NLOPB 2014

Common Name	Scientific Name	Frequency	Location (Farthest into Bay or Specific Location if Available)	Data Source
Thorny Skate	<i>Amblyraja radiata</i>	Frequent	Mid	Bourdages and Oulette 2011
Twohorn Sculpin	<i>Icelus bicornis</i>	Infrequent	Mid	Bourdages and Oulette 2011
Vahl's Eelpout	<i>Lycodes vahlii</i>	Infrequent	Mid	Bourdages and Oulette 2011
White Barracudina	<i>Arctozenus risso</i>	Infrequent	Mouth	Bourdages and Oulette 2011
White Hake	<i>Urophycis tenuis</i>	Very Infrequent	Mouth	Bourdages and Oulette 2011
Winter Flounder	<i>Pseudopleuronectes americanus</i>	Undetermined	Barachois Pond	GEMTEC 2023
Witch Flounder	<i>Glyptocephalus cynoglossus</i>	Very Frequent	Mid (but likely into head of bay)	Bourdages and Oulette 2011
Yellowtail Flounder	<i>Limanda ferruginea</i>	Frequent	Mid	Bourdages and Oulette 2011

4.6 Marine Fish Species of Commercial Importance

Commercial fisheries in Newfoundland and Labrador waters include a variety of finfish (groundfish and pelagic fish) and shellfish (molluscs and crustaceans). In general, commercial fisheries utilize a series of divisions as designated by the Northwest Atlantic Fisheries Organization (NAFO) for the management of fishing activities and fish stocks within each management area. The study area (St. George's Bay) is included in NAFO Division 4Rd, which generally extends from Cape St. George to Cape Ray encompassing all of the waters of St. George's Bay and some offshore waters. Commercial fishing catches in Division 4Rd provides a good indication of species presence within St. George's Bay and potentially within the vicinity of the proposed project. Information on fish catches within St. George's Bay is available through the Open Government Portal maintained by the Government of Canada. The Open

Maps application within the portal provides access to geo-spatial data which, once analyzed, can allow a determination of fish catches by species from specific locations. Analysis of the Open Maps Eastern Canada Commercial Fishing geo-spatial data has identified a number of finfish and shellfish species that have been harvested from NAFO Division 4Rd between 2012 and 2021 (Table 4.3).

Table 4.3 Commercial fish species catches for NAFO Division 4Rd (2012-2021)

Common Name	Scientific Name	Presence in St. George's Bay
American Lobster	<i>Homarus americanus</i>	Yes
Atlantic Cod	<i>Gadus morhua</i>	Yes
Atlantic Halibut	<i>Hippoglossus hippoglossus</i>	Yes
Atlantic Herring	<i>Clupea harengus</i>	Yes
Atlantic Mackerel	<i>Scomber scombrus</i>	Yes
Atlantic Pollock	<i>Pollachius virens</i>	Yes
Capelin	<i>Mallotus villosus</i>	Yes
Greenland Halibut	<i>Reinhardtius hippoglossoides</i>	Yes
Northern Shrimp	<i>Pandalus borealis</i>	Yes
Red Fish	<i>Sebastes fasciatus</i>	Yes
Sea Scallop	<i>Placopecten magellanicus</i>	Yes
Snow Crab	<i>Chionoecetes opilio</i>	Yes
Witch Flounder	<i>Glyptocephalus cynoglossus</i>	Yes

4.7 Fish Species Summaries (Non-Species at Risk)

The review of the available data sources has resulted in the identification of seventy one species of finfish, shellfish and invertebrates which occur in St. George's Bay. While this is not likely an exhaustive list of the species present in the bay, it includes species which support local fisheries (commercial, recreational and Aboriginal), Species at Risk and species for which specific habitats have been identified within St. George's Bay (e.g., capelin spawning beaches). To support a better understanding of these species and to highlight their habitat needs, brief summaries are provided outlining each species'

general characteristics, distribution, habitat requirements, reproductive biology (including spawning), diet, and predators. Species summaries for Species at Risk are presented separately in Section 5.0.

4.7.1 Acadian Redfish (*Sebastes fasciatus*)

Acadian redfish are a benthic species, typically found over rocky or a clay to silty bottom with a body coloration ranging from orange to red. The species is distributed from northern latitudes (Baffin Island) including the Gulf of St. Lawrence, Gulf of Maine, Laurentian Channel and Grand Banks (COSEWIC 2010), to Virginia (Scott and Scott 1988). The Acadian redfish occurs at from a few meters deep to over 500 m and are presumed to remain benthic during the day but ascend to varying degrees during nighttime to feed (Scott and Scott 1988). Redfish are a long lived species which give birth to live young (Scott and Scott 1988; COSEWIC 2010). Redfish feeding can be pelagic or bathypelagic with amphipods, copepods and euphausiids as the primary prey, but rely more heavily on fish species as they grow (Scott and Scott 1988). Redfish are regular prey items for Atlantic cod, Atlantic halibut, swordfish (*Xiphias gladius*) and occasionally for harbour seal (*Phoca vitulina*), (Scott and Scott 1988).

4.7.2 American Lobster (*Homarus americanus*)

The American lobster ranges from Newfoundland and Labrador to North Carolina (DFO 2026b). The species is typically found in waters less than 50 m deep but has been observed at depths in excess of 500 m (DFO 2026b). The species is typically found in rocky areas where is adequate shelter available, but may also be found on sand and muddy bottoms (Coughlin et al. 2025). The species has an elongated body with two large anterior claws designed for cutting/crushing, eight walking legs and a powerful posterior tail which can be used for swimming. The body is variable color ranging from green/blue/black on top to pale orange/red on its sides, with a variable pattern of dark spots. Mating occurs from July to September with females carrying egg clutches under the tail for up to one year before spawning occurs (Coughlin et al. 2025). Diet consists of rock crab, polychaetes, gastropods, molluscs, echinoderms, and a variety of fish species. American lobster has few natural predators (Coughlin et al. 2025).

The LRRECB information indicates that American Lobster utilize the coastal areas between Flat Bay and Indian Head at the head of St. George's Bay.

4.7.3 Atlantic Cod (*Gadus morhua*)

Atlantic cod is a groundfish species which is commonly found near the bottom but may occur anywhere from surface waters to depths of 457 m (Scott and Scott 1988). In the western North Atlantic cod (Atlantic) occur from western Greenland to south of Baffin Island, south along the continental slope off Labrador to as far as Cape Hatteras (Scott and Scott 1988). The dorsal coloration varies from gray, green, brown to red fading down the lateral sides to become a pale color while the body has numerous round brown to red spots, and belly white (Scott and Scott 1988). Atlantic cod do not appear to have specific habitat requirements for spawning, while it appears that physical oceanographic features are important for the entrainment of buoyant eggs so that they are not transported to unsuitable habitats for the development of offspring (COSEWIC 2010). Nursery areas include coastal areas typically comprised

of complex heterogenous habitats containing vertical structures (e.g., Eelgrass), (COSEWIC 2010); while macroalgae beds, boulders and sandy habitats (Cote et al. 2003) are also utilized. Diet is wide and varied with primary prey including capelin, sand lance, redfish, Atlantic herring; while many other fish species may be consumed along with molluscs, echinoderms, marine worms, comb jellies, offal and even sea birds (Scott and Scott 1988). Predators include larger cod, squid, pollock (*Pollachius pollachius*), harbour seal, grey seal (*Halichoerus grypus*) and harp seal (*Pagophilus groenlandicus*) and pilot whale (*Globicephala spp.*), (Scott and Scott 1988).

LRREDB indicate that Atlantic cod spawning grounds are located just offshore of the northern portion of the outer mouth of St. George's Bay, while C-NLOPB (2014) identifies nursery grounds within inner St. George's Bay within proximity of the sill area, Stephenville Crossing and south of the Lower Cove area.

4.7.4 Atlantic Halibut (*Hippoglossus hippoglossus*)

The Atlantic halibut range extends from northern Greenland, down the Labrador shelf as far south as the coast of Virginia (Scott and Scott 1988; DFO 2023). Atlantic halibut are most abundant at depths of 200-500 m in the deep water channels running between the banks and along the edge of the Continental Shelf, with larger individuals moving into deeper water in winter (DFO 2023). Young halibut tend to be more common in shallow water (occurring at depths as shallow as 37 m) while adults tend to remain in deeper water (Scott and Scott 1988). Spawning usually in late winter or early spring at depths ranging from 183-1,000 m (Scott and Scott 1988). The Atlantic halibut is variable and depends upon their size with smaller fish (< 30 cm) relying on annelid worms, crabs, decapod shrimp and euphausiids; while fish 30-80 cm prey on invertebrates and fish; with the diet switching almost exclusively to fish for Atlantic halibut over 80 cm. Predators of Atlantic halibut include Greenland shark and seals (Scott and Scott 1988).

4.7.5 Atlantic Herring (*Clupea harengus*)

Atlantic herring are species of pelagic schooling fish which utilize nearshore habitats for spawning (Scott and Scott 1988). The species is distributed from western Greenland to Labrador to as far south as the waters off Cape Hatteras (Scott and Scott 1988). Color is greenish blue to blue on back and sides with the belly a silver color (Scott and Scott 1988). The species are known to have populations which may spawn in spring or fall. Atlantic herring are demersal spawners which typically utilize shallow nearshore areas (< 20 m deep) where tidal currents provide well mixed, well aerated water free of silt for egg development (Reid et al. 1999). Eggs are deposited and adhere to stable spawning substrates which include boulders, rocks, gravel, sand, shell fragments, and macrophytes (Reid et al. 1999). It is not clear if Atlantic herring select areas with an abundance of macroalgae for spawning or if both utilize similar substrates and Atlantic herring eggs inadvertently adhere to macroalgae (Cooper et al. 1975). They are visual feeders feeding on phytoplankton as juveniles progressing to larger planktonic organisms such as copepods, euphausiid crustaceans, pteropods as well as a variety of planktonic larvae and fish eggs (Scott and Scott 1988). Predators which prey on Atlantic herring are numerous with the species being consumed by most pelagic predatory fish species, marine birds and marine mammals (Scott and Scott 1988).

4.7.6 Atlantic Mackerel (*Scomber scombrus*)

Atlantic mackerel is a pelagic schooling fish with a range from Labrador to North Carolina in the Northwest Atlantic Ocean (DFO 2026b). The species does not appear to have a specific habitat affinity but are regularly found in dense schools in coastal areas as they migrate in search of food (DFO 2026c). The dorsal side of the fish is a green-blue with a series extending from the dorsal side laterally to the mid line. The rest of the body is a silver grey-white color. They feed both planktonically (straining planktonic organisms from the water column) and by pursuit (actively chasing prey). Prey items include a wide variety of planktonic organisms including amphipods, krill, shrimp, squid, fish eggs, larvae, and small fish. Predators include porbeagle sharks (*Lamna nasus*), dogfish, bluefin tuna (*Thunnus thynnus*), swordfish and porpoises (Scott and Scott 1988).

An area near Cape St. George was identified by LRRECB as an area utilized by Atlantic mackerel (Appendix A).

4.7.7 Atlantic Pollock (*Pollachius virens*)

Atlantic pollack is a semi-pelagic deep-water species ranging from North Carolina to the Hudson Strait to southwestern Greenland in the Northwest Atlantic. The dorsal coloration is green-brown fading to olive-green on the sides becoming silver-grey on the underbelly. Spawning occurs offshore in late fall/early winter in water temperatures of 5-10°C, with larvae subsisting in the water column until they reach a suitable size to be recruited to coastal waters. Diet is largely comprised of shrimp and squid but may feed on other finfish species. Predators include larger individuals of the same species, Atlantic cod, dogfish, monkfish, redfish, silver hake and seals (DFO 2026d).

4.7.8 Atlantic Salmon (*Salmo salar*)

Atlantic salmon are common throughout eastern Canada, with 407 known Atlantic salmon rivers located throughout the province of Newfoundland and Labrador (DFO, 2025). The species habitat use changes throughout its life span with spawning and initial juvenile life stages occurring in freshwater, before transitioning to the smolt life stage (at 2-3 years old), (Scott and Scott 1988). Once juvenile salmon become smolt, they migrate to the marine environment where they will inhabit estuarine and coastal areas and feed before migrating to open ocean for feeding (Scott and Scott 1988). They spend one to two years at sea before returning to their natal stream to spawn (Scott and Scott 1988). Coloration is generally dark on the dorsal side ranging from brown, to green to blue while the body and belly is lighter in color (typically a silver color). Young salmon (parr) have distinct dark bands extending from the dorsal side toward the ventral side, while smolt and adults have silver sides and belly. Adults with numerous dark spots on the upper half of the body. The species range in the Western North Atlantic includes coastal rivers from Ungava Bay to the Connecticut River. Their diet is tied to life stage with young fish feeding primarily on invertebrates, while sea run fish consume invertebrates they heavily rely on a variety of fish species. Predators include a variety of piscivorous bird species, American eel, while at sea Atlantic salmon may be preyed upon by seals, sharks, pollack and bluefin tuna (Scott and Scott 1988).



Within St. George's Bay there are nine Atlantic salmon rivers designated as scheduled under the federal *Fisheries Act* (DFO 2026e), all of which occur in Salmon Fishing Area 13 (Figure 4.1; Table 4.4).

Fischells Brook is a scheduled salmon river (River 142) located in close proximity to the proposed project which flows into St. George's Bay near the community of Fischells. The river is estimated to have watershed area of 370.8km² with a mainstem length of 48.3 km. The mean basin width is 5.8 km with a maximum basin relief of 594 m (Porter et al. 1974). Porter et al. (1974) identified an impassible obstruction approximately 34 km upstream of the rivers mouth. Assessment of the habitat downstream of the obstruction through air photo interpretation identified a mixture of steadies/flats, riffles/runs, rapids and falls of which steadies/flats were dominant habitat type. While steadies/flats were dominant most of the habitat contained coarse substrates (cobble, rubble and boulder), suggesting that the availability of spawning habitat may be limited. A pro-rated hydrology assessment of Fischells Brook suggests that mean daily discharges range from highs of approximately 54 m³/s (spring freshet) to a mid summer low flow of less than 5m³/s, with a smaller peak observed in late fall.

Table 4.4 Scheduled Salmon Rivers

Salmon River Name	River Class	Nearest Community
Harry's River	2	Stephenville
Southwest Brook/Bottom Brook	2	Stephenville Crossing
Little Barachois Brook	2	Barachois Brook
Flat Bay Brook	2	Flat Bay
Fischells Brook	2	Fischell's
Robinsons River	2	Robinsons
(Middle) Barachois River	2	Mckay's
Crabbe's River	2	St. Davids
Highlands River	2	St. Fintan's

4.7.9 Brook Trout (*Salvelinus fontinalis*)

Brook trout are found throughout Newfoundland and Labrador occupying many freshwater ecosystems (Scott and Crossman 1964; Scott and Scott 1988). While considered as a freshwater species some populations move from freshwater streams into the marine environment and spend up to two months feeding at sea in shallow coastal waters before returning to their natal stream (Scott and Scott 1988; Grant and Lee 2004). Brook trout coloration is dark on the dorsal side transitioning to a white belly. Vermiculation is typically present on the back and head, with distinct red spots surrounded by a blueish halo located on the sides (Scott and Scott 1988). Sea-run fish take on a silver coloration, with a purple hue while maintaining the characteristic red spots (Scott and Scott 1988). The species distribution ranges from Ungava Bay to Georgia with spawning typically occurring in headwater streams over gravel substrate in late fall (Scott and Scott 1988). Diet is variable and includes a variety of insect species (adult and larval stages), snails, crustaceans, leaches, fish and even small mammals, while predators include other fish species and piscivorous bird species (Scott and Scott 1988).

4.7.10 Capelin (*Mallotus villosus*)

Capelin are a pelagic species which migrate from offshore areas to spawn on beaches along the coast of Newfoundland during spring and summer. In St. George's Bay there are numerous locations identified as capelin spawning beaches (Appendix A). Typical characteristics of capelin spawning beaches include facing the open ocean, where wave action sorts the substrates and makes them suitable for spawning

(the wave action likely provides an oxygen rich environment for larval development), (Nakashima and Taggart 2002). Beach spawning occurs in the intertidal zone of gravel beaches where grain sizes range from 2.1-25 mm (Nakashima and Wheeler 2002) with eggs developing in beach substrates up to 20 cm in depth (Nakashima and Taggart 2002).

Capelin has a circumpolar distribution found in the northern regions of the Atlantic and Pacific Oceans. In the western north Atlantic their range spans from Hudson Bay to waters off Nova Scotia, but infrequently as far south as Cape Cod. Capelin are an olive to green color on the dorsal side, transitioning to a silvery color on the sides with a white belly. Capelin are planktonic feeders with a heavy reliance on krill and copepods, while amphipods and other plankton species may be consumed. The predators that rely on capelin are varied and include whales, seabirds, seals and fish species, but Atlantic cod is known as the primary fish species which preys on Capelin (Scott and Scott 1988).

4.7.11 Greenland Halibut (*Reinhardtius hippoglossoides*)

The Greenland halibut is considered a deepwater species occurring in deep channels between shallow fishing grounds and along the continental slope to depths of over 2,000 m (Morgan et al. 2013). Spawning occurs at great depths (600 to in excess of 1,200 m) (Jorgenson 1997). While Greenland halibut is considered a deep water species it has been captured in pelagic tows at depths near 50 m during nighttime pelagic trawls (Jorgenson 1997). The species is considered a bathy-pelagic feeder which feeds on capelin, Atlantic cod, Arctic cod, northern shrimp, redfish, squid, sand lance, juvenile Greenland halibut and benthic invertebrates (Scott and Scott 1988).

LRRECB has identified the deep inner bay portion of St. George's Bay as a halibut spawning area (Appendix A).

4.7.12 Northern Shrimp (*Pandalus borealis*)

The northern shrimp is a crustacean with a hard exoskeleton ranging from light orange to reddish-pink in color which can grow to a length of 15 cm (DFO 2026g). The northern shrimp ranges from the Davis Strait to the gulf of Maine in the Northwest Atlantic Ocean (DFO 2024). They are typically found on soft muddy bottoms in waters ranging from 1 to 6°C in water depths of 150 – 600 m (DFO 2024). Northern shrimp remain on or near the sea floor feeding during daylight, while at night they vertically migrate through the water column preying upon zooplankton. Species which prey upon northern shrimp include American plaice (*Hippoglossoides platessoides*), Atlantic cod, Greenland halibut, redfish (*Sebastes* spp.), roughhead grenadier (*Macrourus berglax*), skates (*Raja radiata*, *R. spinicauda*), wolffish (*Anarhichas* spp.), and Harp Seal (*Phoca groenlandica*), (DFO 2024).

4.7.13 Rainbow Smelt (*Osmerus mordax*)

Rainbow smelt are a primarily anadromous species which occurs in bays and estuaries across its distribution in Labrador (Hamilton Inlet) to New Jersey (Grant and Lee 2002). The species is anadromous with spawning generally occurring at river mouths and lower river reaches above the tidal influence zone, however more extensive upstream migrations have been documented (Grant and Lee

2002). Spawning occurs over a variety of substrates including gravel, sand, mud, cobble, submerged logs and vegetation; while spawning upon gravel shoals in a marine environment has also been observed (Grant and Lee 2002).

The LRRECB data indicate that Rainbow Smelt utilize habitats in the Stephenville Crossing and Flat Bay areas (Appendix A).

4.7.14 Sea Scallop (*Placopecten magellanicus*)

Sea scallop is a marine bivalve with a range from the north shore of the Gulf of St. Lawrence to Cape Hatteras. The species can be found in water depths in excess of 54 m in its southern range, but are typically found in waters less than 18 m in its northern range. The sea scallop has two shells (valves) with the upper one reddish-white and rounded while the lower one is flatter and white. Scallop prefer firm gravel, shell or rock habitat but may utilize various other substrates where there is good water exchange to facilitate feeding. Spawning occurs in late summer into fall with eggs released and fertilized externally. Sea Scallops are filter feeders which feed upon phytoplankton and zooplankton. Sea Scallop predators include starfish, snails, crustaceans, Atlantic cod, wolffish (*Anarhichas spp.*), American plaice, boring worms and sponges (DFO 1981).

Squires (1953) completed a series of exploratory scallop dredge sets to identify potential scallop beds in western and southern Newfoundland. A series of sets were completed between Cape St. George and Cape Ray which resulted in limited catches of scallop with scallops only caught in 5 of 33 sets. The only set to have an appreciable amount of scallops was a single set near St. George's Harbour, suggesting that while the species is present it has a very limited distribution in St. Geroges Bay.

4.7.15 Snow Crab (*Chionoecetes opilio*)

Snow crab are found in the Northwest Atlantic Ocean from Greenland to Maine. The species can be found across a broad ranges of depths (20-700 m), typically occurring on soft bottoms (DFO 1985a). The Snow Crab near circular carapace is pale brown above and yellowish below, with walking legs that are 2-3 times as long as the carapace reaching a maximum weight of 2 kg (DFO 1985a). Females carry 20,000 to 150,000 fertilized eggs under their abdomen which hatch in late spring or early summer. The diet of snow crab is varied and includes bivalves, molluscs, crustaceans, brittle stars, marine worms, sea anemones, small fish, debris, other snow crab (DFO 2026h). Predators include halibut, skates (Rajidae), Atlantic cod, wolffish, seals, American plaice, squid and other crabs (DFO 2026h).

The LRRECB information indicates that Snow Crab utilize the deep area of inner St. George's Bay (Appendix A).

4.7.16 Soft Shell Clam (*Mya arenaria*)

The softshell clam is distributed in North American waters from Labrador to South Carolina (DFO 1980). Adults are normally limited to intertidal and shallow subtidal zones in soft bottom areas comprised of fine sedimeny (sand, clay or mud) in water depths up to nine meters (DFO 1985b). The species tolerates low salinities (five parts per thousand) by thrives in salinites of 25 – 35 parts per thousand (DFO 1985b).

The LRRECB data indicate that there are soft shell clam beds near the Stephenville Crossing area in St. George's Bay (Appendix A).

4.7.17 Winter Flounder (*Pseudopleuronectes americanus*)

Winter flounder is an inshore shallow water benthic flatfish species which inhabits soft (mud) bottom to moderately hard bottom from depths of less than two to 36.6 m, but has been found as deep as 143 m; with younger fish inhabiting shallower areas than older fish. The species range extends from Battle Harbour (Labrador) to Georgia. Coloration is red-brown to almost black on the upper (eyed) side with a white under side. Spawning occurs in shallow water over sand or mud bottom in late winter/early spring. As for other flatfish a copious amount of eggs are produced (435,000 to 3.3 million). Diet consists of a variety of invertebrates, but may also prey upon fish eggs (Capelin). Predators include monkfish (*Lophius americanus*), dogfish, sea raven (*Hemitripterus americanus*); harbour, harp and grey seals; as well as osprey (*Pandion haliaetus*), herons (Ardeidae) and cormorants (Phalacrocoracidae), (Scott and Scott 1988).

4.8 Marine Mammals and Sea Turtles

The aggregation of marine mammals within areas of the St. Lawrence Estuary and the Gulf of St. Lawrence has long been recognized, suggesting these areas serve as important feeding areas. The western shelf and the entrance of St. George's Bay is one such area, identified by Lasage et al. (2007) as an important area for marine mammals in the Gulf of St. Lawrence.

At least nineteen species of marine mammals from three sub-orders, the Mysticetes (baleen whales), Odontocetes (toothed whales, dolphins and porpoises) and Pinnipeds (seals) are represented within the Estuary or Gulf of St. Lawrence (Lasage et al. 2007). In addition, three species of sea turtle, all belonging to the Chelonioidae subfamily, may be found in the region (C-NLOPB 2014). Several of these marine mammal and turtle species have been identified as species of conservation concern and are legally protected under Schedule 1 of the *Species at Risk Act* (Addressed in Section 5.0).

Each of these groups and their representative species are considered below.

4.8.1 Mysticetes

The Mysticetes are large whales characterized using their baleen plates to strain prey from the water column, occurring as solitary individuals or in small groups called pods (C-NLOPB 2014). There are six species of baleen whales which occur within temperate areas of the western North Atlantic Ocean including the blue whale (*Balaenoptera musculus*), fin whale (*Balaenoptera physalus*), humpback whale (*Megaptera novaeangliae*), minke whale (*Balaenoptera acutorostrata*), North Atlantic right whale (*Eubalaena glacialis*) and sei whale (*Balaenoptera borealis*), (Davis et al. 2020). Of the six baleen whales which occur in the waters off Western Newfoundland the blue whale, fin whale, humpback whale, minke whale and North Atlantic right whale have been sighted within St. George's Bay (C-NLOPB 2014), of which the blue whale, fin whale and North Atlantic right whale are listed under Schedule 1 of the

Species at Risk Act. A brief description of each species sighted in St. George's Bay which are not listed under Schedule 1 of SARA is provided below (Schedule 1 listed species are addressed in Section 5.0).

4.8.1.1 Humpback Whale

The humpback whale is a large whale ranging from 14 -19 m in length weighing between 34,000 and 45,000 kg with characteristic long and jagged appearing fins measuring up a third of its body length. Its dorsal side is black with a small dorsal fin, its belly is white and its head/neck area is covered with small bumps. The species occurs from the West Indies to Greenland, commonly occurring off the south and east coasts of Newfoundland, the edges of the Grand Banks, the Gulf of St. Lawrence and southeastern Labrador in summer. The humpback undergoes seasonal migrations between tropical wintering/breeding grounds (fall migration) and northern feeding grounds (spring migration). During migration humpbacks typically follow the coastline utilizing seasonal currents, while summer movements are tied to prey availability (Government of Canada 2026c). The primary prey species of the humpback whale is capelin (COSEWIC 2003).

4.8.1.2 Minke Whale

The minke whale is the smallest of the baleen whales with an average length of 8 m for males and 8.2 m for females, each weighing up to 10,000kg. The smaller size and the presence of a white band on each flipper may be used as a diagnostic characteristic for species identification. The dorsal side is black-dark grey with a tall curved dorsal fin and white underbelly. The species distribution is cosmopolitan spanning ice-free latitudes, preferring colder waters. Observed as solitary, as pairs or in small groups of four to six individuals but may be comprised of larger groups when feeding is concentrated. Prey items include small schooling fish such as capelin, Atlantic cod, Atlantic herring, pollock but minke whales also consume krill (ACS 2026).

4.8.2 Odontocetes

The Odontocetes or toothed whales possess teeth which they use to capture prey. Unlike the toothless whales odontocetes capture prey items using their teeth, rather than filter feeding like baleen whales. Toothed whales identified to occur in St. George's Bay include Atlantic long-finned pilot whale (*Globicephala melas*), Atlantic white-beaked dolphin (*Lagenorhynchus albirostris*), Atlantic white-sided dolphin (*Leucopleurus acutus*), harbour porpoise (*Phocoena phocoena*), and sperm whale (*Physeter macrocephalus*) (C-NLOPB 2014).

4.8.2.1 Atlantic Long-finned Pilot Whale (*Globicephala melas*)

The Atlantic long-finned pilot whale is a medium sized stocky animal ranging from 5.8 – 7.6 m in length and weighing between 1318-2273 kg. They are dark black in color sometimes appearing dark grey or brown with pale gray/white marks extending from behind the eye toward the dorsal fin and a patch on their ventral side extending from their throat posteriorly. The species range includes the North Atlantic Ocean and oceans of the Southern hemisphere between 19- and 60-degrees south latitude. Their range

in the Northwest Atlantic Ocean includes the east coast of Canada (to the Northern tip of Labrador), southern Greenland, and to the southern United States. During winter and spring, they generally occur in offshore waters or along the continental slope, while during summer and fall they undertake feeding migrations onto the continental shelf and inshore areas in search of prey species. The species is highly social occurring as pods of 10-20 animals with numerous pods associating together to form large schools of hundreds of individuals and is known to associate with other whale and dolphin species. Prey items include cod, dogfish, hake, herring, mackerel, turbot (Greenland halibut), squid, octopus and shrimp; with most feeding occurring at night in deep water at depths of 200 to 500 m (NOAA 2026a).

4.8.2.2 Atlantic White-beaked Dolphin (*Lagenorhynchus albirostris*)

The Atlantic white-beaked dolphin ranges from 2.4 to 3.2 m in length and weighs between 180 and 350 kg with male typically larger than females. They are dark grey/black on the dorsal side with a tall curved dorsal fin with grey/white patches on their sides and ventral side, with a white coloration on their beak. Their range includes temperate and sub-polar waters of the western North Atlantic extending from Greenland to Massachusetts (United States), preferring waters less than 200 m deep. Distribution varies by season with more southern and offshore areas occupied through the winter months, and more northern areas closer to shore occupied during the summer months. The species is social, typically occurring as pods of 5-30 animals but may form large groups of 1,500 individuals and is known to associate with other whale and dolphin species. They often work together to capture prey items which include cod, haddock, hake, herring, whiting, squid, octopus, shrimp and crab (NOAA 2026b).

4.8.2.3 Atlantic White-sided Dolphin (*Leucopleurus acutus*)

The Atlantic white-sided dolphin can reach a length of 2.75m ranging from 182-227 kg in weight with males slightly larger than females. They are dark grey on the dorsal side with a curved dorsal fin, and a white belly. The coloration on the sides transition from the dark grey dorsal color to a lighter grey, with a light brown patch occurring posteriorly between the dark and light grey coloration. A conspicuous white patch occurs approximately mid body between the dark grey, light brown, light grey color pattern. Their range includes temperate and sub-polar waters of the North Atlantic between 38- and 80-degrees north latitude, with their western North Atlantic range extending from Greenland to the Gulf of Maine. Distribution varies by season with more southern and offshore areas occupied through the winter months, with more northern areas inshore areas occupied during the summer months. The species is social, typically occurring as pods of 5-50 animals but may form large groups up to 1,000 individuals and have been observed working together to capture prey items which include Atlantic cod, Atlantic mackerel, hake, herring, rainbow smelt, sand lance, squid and shrimp (NOAA 2026c).

4.8.2.4 Harbour Porpoise (*Phocoena phocoena*)

The harbour porpoise is one of the smallest cetaceans with a maximum length of 1.9 m and weight of 90 kg with females slightly larger than males. The dorsal side is dark gray or dark brown with a triangular shaped dorsal fin, transitioning to light gray on the sides to a white belly. An inshore species of the North Atlantic Ocean, North Pacific Ocean and Black Sea inhabiting shallow, coastal waters, often in bays and

sometimes in large rivers typically in waters less than 15°C. Observed as solitary, as pairs or in small groups of six to ten individuals but may be comprised of larger feeding groups of 50-100 individuals. Prey items include Atlantic cod, Atlantic herring, squid, Atlantic pollock, sardines and whiting (*Merluccius sp.*), (ACS 2026).

4.8.2.5 Sperm Whale (*Physeter macrocephalus*)

The sperm whale is the largest toothed whale with males ranging from 15-18 m in length with a weight of 31,750 -40,800 kgs, while females are considerable smaller at 11 m in length and 12,000 to 12,700 kg. The head of the sperm whale is large, blunt and squared comprising a third of its length and weight.

Sperm whales are a dark brownish gray color with the ventral side a lighter gray possibly with white patches. Sperm whales are found in all oceans of the world with males typically found in higher latitudes, occasionally migrating into lower latitudes, with only large males migrating to breeding grounds near the equator. Sperm whales are known to have an extraordinary diving ability, descending to depths of over 1000 m in search of prey. Sperm whales' primary prey are larger deep-water squid, but they also prey on small squid, octopus and species of fish including skate, consuming almost 1000 kg of food per day (ACS 2026).

4.8.3 Pinnipeds

Pinnipeds are a group of marine mammals known as seals. While there were no confirmed occurrences of seals within St. George's Bay encountered during this literature review, there are four species found in the general area (Gulf of St. Lawrence) including grey, harbour, harp and hooded seal (*Cystophora cristata*), with harp seals the most common species found in the area (C-NLOPB 2014).

4.8.4 Sea Turtles

As for seals there were no confirmed occurrences of sea turtles within St. George's Bay identified during this literature review. However, there are three species of sea turtles which may occur in the waters adjacent to St. George's Bay (Gulf of St. Lawrence). These are the leatherback sea turtle (*Dermochelys coriacea*), loggerhead sea turtle (*Caretta caretta*) and Kemp's Ridley turtle (*Lepidochelys kempii*). The leatherback is listed as endangered under Schedule 1 of the Species at Risk Act (C-NLOPB 2014).

5. Species at Risk (SAR)

Several species that are known or may occur within the Study Area have been designated as being at risk and are therefore protected under provincial and/or federal legislation.

5.1 Legislative and Management Context

The Canadian *Species at Risk Act* (SARA) provides for the protection of species at the national level to prevent extinction and extirpation, facilitate the recovery of endangered and threatened species, and to promote the management of other species to prevent them from becoming at risk in the future. Designations under the Act follow the recommendations and advice provided by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC).

There are currently several schedules associated with the SARA. Species that have formal protection are listed on Schedule 1, which includes the following potential designations:

- *Extirpated*: A species that no longer exists in the wild in Canada, but exists elsewhere;
- *Endangered*: A species that is facing imminent extirpation or extinction;
- *Threatened*: A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction; and
- *Special Concern*: A species that may become threatened or endangered because of a combination of biological characteristics and identified threats.

Schedule 1 of SARA is the official federal list of species at risk in Canada. Once a species is listed, measures to protect and recover a listed species are established and implemented, including the development of a Recovery Strategy. Action Plans summarize the activities required to meet recovery strategy objectives and goals, and Management Plans set goals and objectives for maintaining sustainable population levels of one or more species that are particularly sensitive to environmental factors.

At the provincial level, the Newfoundland and Labrador *Endangered Species Act* (NL ESA) provides protection for indigenous species, sub-species and populations considered to be endangered, threatened, or vulnerable within the province. These potential designations under the legislation are defined as follows:

- *Endangered*: A species that is facing imminent extirpation or extinction;
- *Threatened*: A species that is likely to become endangered if nothing is done to reverse the factors leading to its extirpation or extinction; and

- **Vulnerable:** A species that has characteristics which make it particularly sensitive to human activities or natural events.

Designations are based on recommendations from COSEWIC and/or the provincial Species Status Advisory Committee (SSAC). Habitat that is important to the recovery and survival of endangered or threatened species can also be designated as critical habitat or recovery habitat and protected under the NL ESA.

5.2 Occurrence of SAR Species in St. Georges Bay

Marine species at risk identified during trawl surveys in St. George's Bay, include Atlantic wolffish and spotted wolffish (Bourdages and Oulette 2011). While these species are confirmed to occur in the bay, additional species at risk may also be present, either as resident species or as migratory species that use the bay during certain times of the year. Fisheries and Oceans Canada provide a web-based Aquatic Species at Risk mapping application that identifies species at risk known or expected to occur within selected areas. This tool (DFO 2026i) was used to determine the potential presence of aquatic SAR in St. George's Bay.

Figure 5.1 presents the mapped area assessed, while Table 5.1 lists the SAR species identified, the locations where they occur, and their status under the Species at Risk Act. In Figure 5.1, areas of critical habitat are shown in red, areas occupied by species of Special Concern are shown in yellow-green, and areas occupied by Extirpated, Endangered, or Threatened species are shown in purple. The critical habitat identified corresponds to northern wolffish (*Anarhichas denticulatus*), while the area associated with Special Concern status reflects habitat for banded killifish (*Fundulus diaphanus*). The remaining shaded areas represent potential habitat for Threatened or Endangered species.

In addition, the Newfoundland and Labrador Endangered Species Act lists American eel (*Anguilla rostrata*), banded killifish, and mummichog as Vulnerable. American eel has been identified in St. George's Bay by GEMTEC (2023) and based on traditional and local knowledge (LRREDB 2026); banded killifish has been identified through the Aquatic Species at Risk mapping tool and by Sargent et al. (2020); and mummichog has been reported in the area by Sargent et al. (2020) and GEMTEC (2023).

A description of each species at risk is provided below.

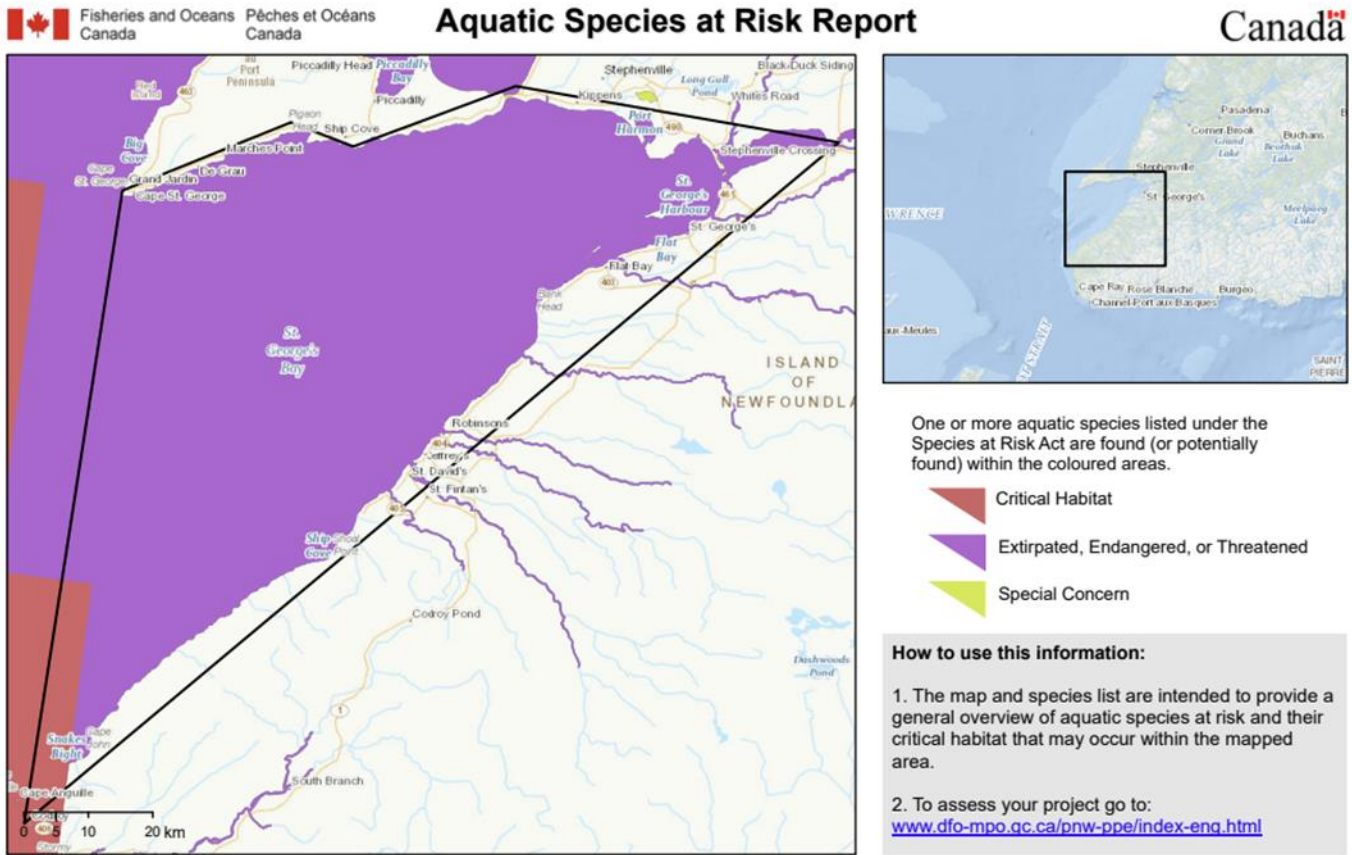


Figure 5.1 Map output from Fisheries and Oceans Canada Aquatic Species at Risk mapping application identifying the area assessed for species at risk in St. George's Bay (DFO 2026i)

Table 5.1 Species at Risk identified to occur/potentially occur within St. George’s Bay, NL

Species	Location Found	Federal Species Status – SARA Schedule 1	Provincial Species Status - NLESA	Source of Occurrence
American Eel (<i>Anguilla rostrata</i>)	Barachois Pond; Flat Bay Brook Estuary, Flat Bay West	No Status	Vulnerable	GEMTEC 2023; LRREDB 2026
Atlantic Wolffish (<i>Anarhichas lupus</i>)	Throughout to Mid portion of St. George’s Bay; Atlantic Ocean	Special Concern	No Status	Bourdages and Ouelette 2011; DFO 2026i
Banded Killifish (<i>Fundulus diaphanous</i>)	Goose Pond, Gravels Pond, Little River, Seal Cove Brook, St. George’s River	Special Concern	Vulnerable	DFO 2026i
Banded Killifish (<i>Fundulus diaphanous</i>)	Goose Pond, Gravels Pond, Little River, Seal Cove Brook, St. George’s River, Estuary of Flat Bay Brook, Loch Leven	Special Concern	Vulnerable	Sargent et al. 2020, DFO 2026i, LRREDB 2026
Blue Whale (<i>Balaenoptera musculus</i>)	Outer, middle and inner portions of St. Geroge’s Bay; Atlantic Ocean	Endangered	No Status	C-NLOPB 2014; DFO 2026i
Fin Whale (<i>Balaenoptera physalus</i>)	Mouth of St. George’s Bay; Atlantic Ocean	Special Concern	No Status	C-NLOPB 2014; DFO 2026i
Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)	Atlantic Ocean	Endangered	No Status	DFO 2026i
Mummichog (<i>Fundulus heteroclitus</i>)	Locations at head of St. George’s Bay; Barachois Pond	No Status	Vulnerable	Sargent et al. 2020; GEMTEC 2023

Species	Location Found	Federal Species Status – SARA Schedule 1	Provincial Species Status - NLESA	Source of Occurrence
North Atlantic Right Whale (<i>Eubalaena glacialis</i>)	Inner portion of St. George’s Bay; Atlantic Ocean	Endangered	No Status	C-NLOPB 2014; DFO 2026i
Northern Wolffish (<i>Anarhichas denticulatus</i>)	Atlantic Ocean, Gulf of St. Lawrence	Threatened	No Status	DFO 2026i
Spotted Wolffish (<i>Anarhichas minor</i>)	Throughout to Mid portion of St. George’s Bay; Atlantic Ocean	Threatened	No Status	Bourdages and Ouelette 2011; DFO 2026i
White Shark (<i>Carcharodon carcharias</i>)	Atlantic Ocean	Endangered	No Status	DFO 2026i

5.2.1 American Eel (*Anguilla rostrata*)

The historical Canadian range for American eel includes accessible freshwater, estuaries and coastal waters connected to the Atlantic Ocean as far north as the English River (near Postville, Labrador). The continental shelves are utilized by juveniles and silver eels during migrating to and from their spawning grounds in the Sargasso Sea. Preferred freshwater habitat can be found in lacustrine and riverine waters extending down to at least 10 m depth. Eels generally do not demonstrate consistent preferences for habitat type, cover, substrate, or water temperature in riverine environments. They are primarily benthic, using substrates, woody debris and submerged vegetation for protection and cover and commonly overwinter in areas with muddy bottoms (COSEWIC 2012a).

5.2.2 Atlantic Wolffish (*Anarhichas lupus*)

The Atlantic wolffish is benthic species which exhibits conspicuous canine like teeth. It has snake like body form, but its body is much more robust. It has a continuous dorsal fin, lacks pelvic fins, has large pectoral fins and a large head with a rounded snout reaching lengths of up to 150 cm. The species has dark bars on its body running dorso-ventrally which allows it to be easily distinguished from other wolffish species. The species inhabits northern regions of the North Atlantic Ocean and the Arctic Ocean with a range extending from Cape Hatteras to the Davis Strait in the Northwest Atlantic Ocean. They commonly found on the continental shelf, while in the Gulf of St. Lawrence they are found in coastal areas and

along the edges of deep channels, while avoiding the bottom areas of deep channels. The species utilizes habitats with rocky or sandy bottoms in near shore areas to depths of 918 m, while most abundant in depths around 250 m. The species primarily preys upon invertebrates and less frequently on fish. Eggs are deposited in crevices over rocky bottoms (COSEWIC 2012b).

5.2.3 Banded Killifish (*Fundulus diaphanus*)

The banded killifish is a small fish with a brown-olive color dorsally transitioning to a cream or silver color ventrally. The species has a flat head, upward pointing mouth, with dorso-ventral bands and reaches a maximum length of 130 mm. The species is distributed over eastern North America with a scattered distribution within the province with the highest concentrations occurring on the southwest coast with occurrences in Grand Bay West, Loch Leven, St. George's Bay, Bay of Islands and Cow Head; while other populations have been identified on Ramea Island, Indian Bay watershed, Burin Peninsula (three locations) and Star Pond (Exploits River headwaters). The species is primarily found in freshwater but may also occupy estuaries. The typical habitat is comprised of shallow, slow-moving water, with a soft bottom substrate and an abundance of aquatic vegetation. Aquatic vegetation is critical as the species attached its eggs to the vegetation (COSEWIC 2014). Sargent et al. (2020) identified several locations where the species occurred based upon the collection of samples, and from literature/museum records (Figure 5.2).

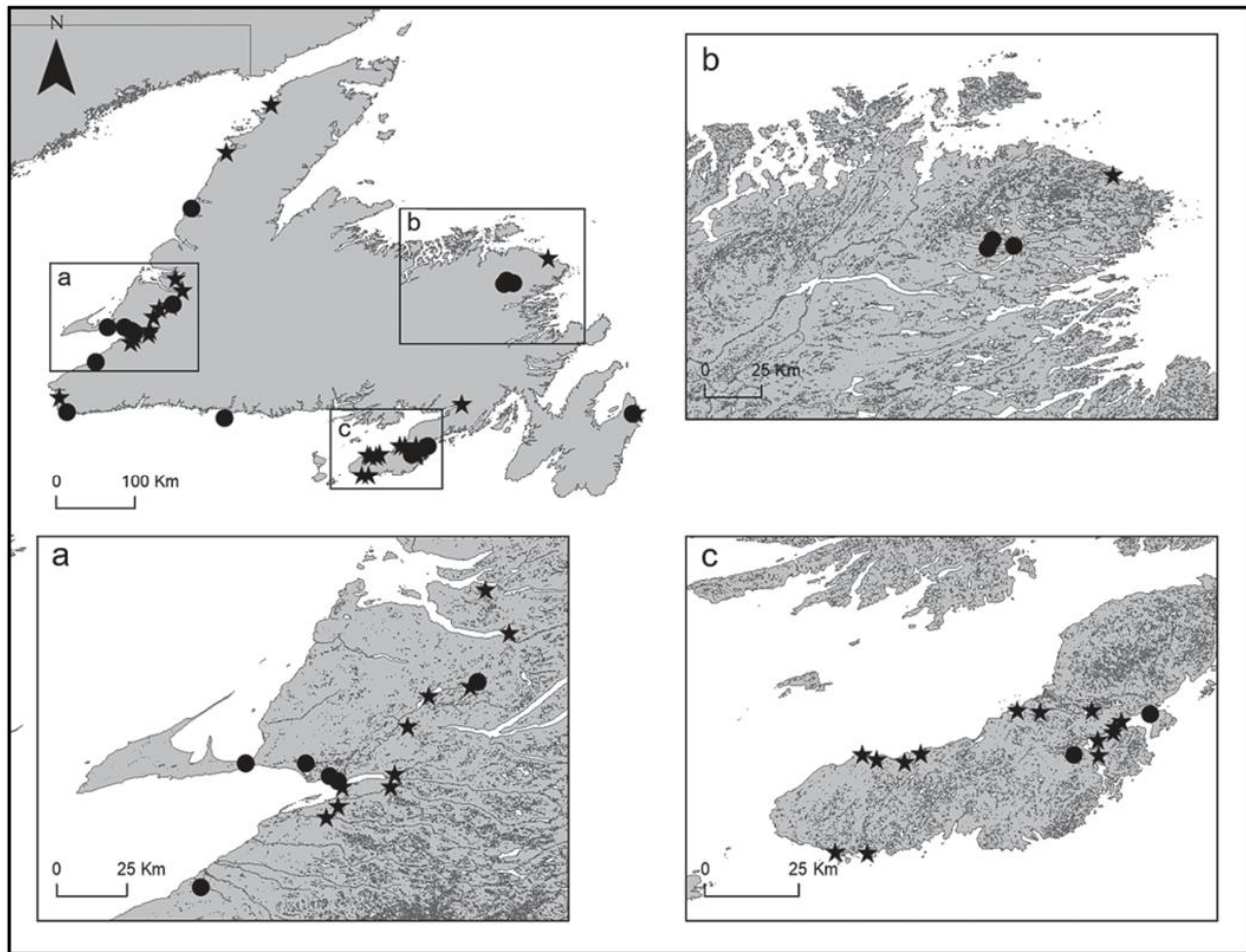


Figure 5.2 Confirmed locations of banded killifish in insular Newfoundland. Stars are locations confirmed through direct sample collection or samples provided by residents during study. Circles indicate locations confirmed by museum and literature records. Figure from Sargent et al. (2020).

5.2.4 Blue Whale (*Balaenoptera musculus*)

The blue whale is the largest animal to have lived on earth with a maximum length of 33.6 m reported. The species is distributed globally, but in the North Atlantic Ocean they are found mostly in Icelandic and the waters off eastern Canada. Sightings regularly occur within the Gulf of St. Lawrence from spring through fall. They have wide ranges inhabiting coastal and offshore waters. Aggregations of Blue Whales commonly occur along the continental shelf where upwelling of deep ocean waters results in an abundance of prey (krill), (COSEWIC 2002).

5.2.5 Fin Whale (*Balaenoptera physalus*)

The fin whale is the second largest whale in the world, behind the Blue Whale. It can be identified by its streamlined body, fast swimming speed and the difference in lower jaw and baleen pigmentation having a dark pigment on the left and light in the right. They are found in all of the world's oceans and make

season migrations between low (winter) and high latitudes (summer). In the western North Atlantic the species is concentrated in the Gulf of St. Lawrence, Scotian Shelf, Bay of Fundy, and in nearshore and offshore waters of Newfoundland and Labrador. Feeding habitats include areas with high prey concentrations of small schooling fish and euphausiids (COSEWIC 2005).

5.2.6 Leatherback Sea Turtle (*Dermochelys coriacea*)

The leatherback sea turtle is the largest species of marine turtle reaching a length of over two meters and a weight more than nine-hundred kilograms. The carapace (shell) is a teardrop shape, blue/black color and is covered by a leathery fibrous tissue with seven longitudinal ridges. The species occurs in tropical and temperate waters of the Atlantic, Pacific and Indian Oceans. Nesting usually occurs in tropical latitudes, with the species undertaking extensive migrations as they forage on seasonally abundant food sources (typically jellyfish). In Canadian waters the species can be found in coastal waters, waters over the continental shelf and deep offshore areas where water depth can range from 2 to over 5000 m, with most sightings recorded in waters over the continental shelf (typical in waters less than 200 m deep), (COSEWIC 2012c).

5.2.7 Mummichog (*Fundulus heteroclitus*)

Mummichogs are a small, relatively sedentary fundulid fish that occur in Atlantic coastal and brackish waters from south western Newfoundland (Leim and Scott 1966) to north eastern Florida (Scott and Crossman 1998), including the shore waters of the Maritime provinces to Port au Port Bay (Scott and Crossman 1998) and the Bay of Islands in south western Newfoundland (Dickinson 1974). They are considered a brackish water species with only a few documented freshwater populations with distribution generally restricted to southwester Newfoundland (Scott and Scott 1988). Therefore, they typically occupy saltwater flats, estuaries and tidal areas, particularly around submerged vegetation. Although they can tolerate short exposures to fresh water, prolonged exposures can be lethal (Nead and Buttner 1987). Sargent et al. (2020) completed a focused sampling program for both mummichog and documented populations along the west coast of the Island and in the St. George's Bay area (Figure 5.3).

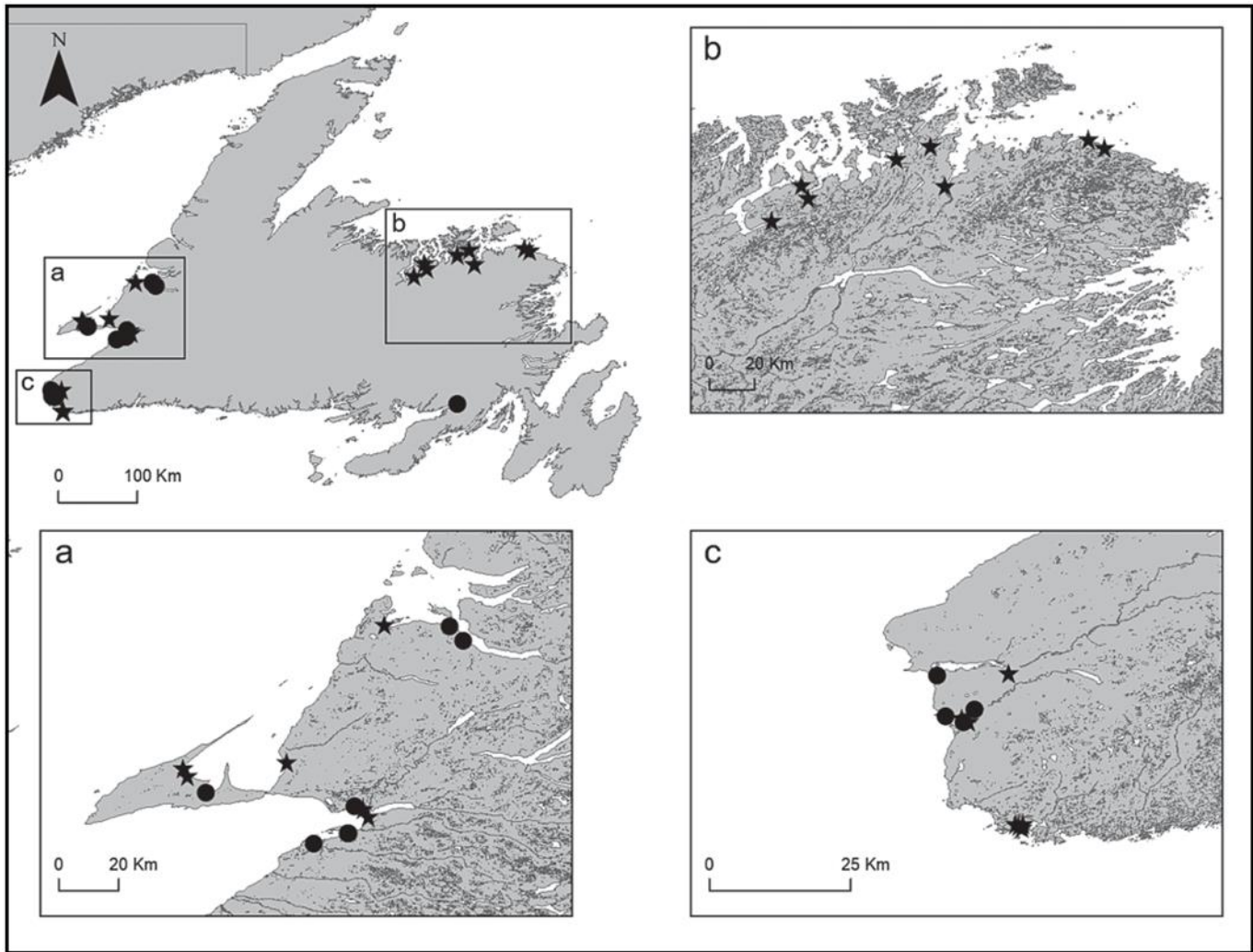


Figure 5.3 Confirmed locations of mummichog in insular Newfoundland. Stars are locations confirmed by direct sample collection or samples provided by residents during study. Circles indicate locations confirmed by museum and literature records. From Sargent et al. (2020).

5.2.8 North Atlantic Right Whale (*Eubalaena glacialis*)

The North Atlantic right whale is a baleen whale which can reach a length of 18 m with a stocky appearance and large head. The species' fins are broad with a paddle like appearance, lacks a dorsal fin with their body primarily black. The species range extends from Florida to Newfoundland and Gulf of St. Lawrence. The species migrates from the wintering grounds to Canada with aggregations occurring in the lower Bay of Fundy, the Scotian Shelf and in areas northeast and southeast of the Gaspé Peninsula. The species occupy shallow and deep coastal waters as well as offshore waters with their locations guided by the presence of dense aggregations of copepods (COSEWIC 2013).

5.2.9 Northern Wolffish (*Anarhichas denticulatus*)

The northern wolffish has a body form similar to the Atlantic Wolffish, but has a smaller head relative to its body, reaching a length of 180 cm. It has the prominent canine like teeth indicative of Wolffish species, a grey to dark brown body covered by faint dark bars or spots. The species inhabits subarctic and boreal waters in the North Atlantic and Arctic Oceans. Its Canadian distribution extends from the Gulf of Maine (Canadian portion) eastward to the Grand Banks; and north through the Bay of Fundy, Scotian Shelf, Gulf of St. Lawrence to the Labrador Sea and into the western Arctic. Adults of the species is found in water depths ranging from 38-1504 m, but primarily between 500 and 1000 m. Historically, the species was caught over a variety of substrates but in more recent years it has been primarily caught over sand and shells and less frequently over mud or mixtures of muddy sediment. Atlantic Wolffish primarily feed on pelagic fish, but also consume jellyfish, echinoderms, crustaceans and molluscs (COSEWIC 2012d).

5.2.10 Spotted Wolffish (*Anarhichas minor*)

The Spotted Wolffish has a similar body form as the Atlantic wolffish including the large, rounded snout. It has a yellowish/greyish brown to dark brown coloration with numerous dark spots on its body. The species' range extends from the Canadian portion of the Gulf of Maine to Western Greenland, and includes the Scotian Shelf, Grand Banks, Gulf of St. Lawrence, Northeastern Newfoundland waters and the Labrador Sea. The species are bottom dwellers as juveniles and adults and occupy water depths between 200 and 750 m. Specific substrate preferences are unknown but based upon prey species they likely forage in silty and sandy areas. Diet consists of echinoderms (primarily sea urchins, sand dollars and brittle stars), fish and crustaceans (COSEWIC 2012e).

5.2.11 White Shark (*Carcharodon carcharias*)

The white shark is a species with an extensive range in the Atlantic and Pacific Oceans between 60 degree North and South latitudes. In the western North Atlantic Ocean the species ranges from Hare Bay, NL (northeast coast of NL) to northern Brazil. The white shark can be found in coastal inshore waters, waters over the continental shelf and waters in deep pelagic zones within depths ranging from just below the water surface to 1,128 m, but usually occupy waters less than 100 m deep. Nearshore habitats can include breaking waves along sandy beaches, rocky shores, bays, harbours, lagoons and estuaries but generally does not enter brackish or fresh water. Prey items depend upon the size of the white shark but the diet can including teleost fish, elasmobranchs (sharks, rays, skates) invertebrates, pinnipeds (seals), odontocetes (dolphins, porposes) and other opportunistic prey items including a variety of cetacean carcasses (whales, dolphins), (COSEWIC 2021).

6. Summary

This Existing Marine Environment report provides a detailed literature review of fish and fish habitat within St. George's Bay, Newfoundland and Labrador. The review incorporates information on physical attributes of the bay, specific habitats identified in the area, historical records of fish presence, and species at risk that may inhabit or utilize the bay.

St. George's Bay, located on the southwest coast of insular Newfoundland and Labrador, is generally shallow, with depths typically less than 100 m except for a deeper channel along the south coast and at the mouth of the bay. The surficial geology of the region, including the bay itself, has been shaped by glacial activity. Glacial processes deposited thick layers of material in the inner bay, forming a shallow sill (less than 30 m deep) that separates two inner deep-water basins from the larger bay.

Although no protected areas or Ecologically and Biologically Significant Areas (EBSAs) have been identified within St. George's Bay, several important habitat types occur, including eelgrass beds, spawning areas, rearing areas, cold-water coral habitats, and habitats used by Species at Risk. Spawning and rearing habitats support species of commercial importance such as American lobster, Atlantic cod, Atlantic mackerel, Atlantic herring, capelin, halibut, and snow crab. These habitats may also support species targeted by recreational fisheries, including Atlantic cod, Atlantic mackerel, Atlantic salmon, and capelin. While recreational species contribute to local subsistence fisheries, Atlantic salmon angling also provides economic benefits at both local and provincial scales.

Several species that may occur in St. George's Bay are listed under Schedule 1 of the federal Species at Risk Act, including Atlantic wolffish, banded killifish, blue whale, fin whale, leatherback sea turtle, North Atlantic right whale, northern wolffish, spotted wolffish, and white shark. Blue whale, leatherback sea turtle, North Atlantic right whale, and white shark are listed as Endangered, while Atlantic, northern, and spotted wolffish are listed as Threatened. The remaining species are designated as Special Concern. Additional species that may utilize estuarine habitats in the area (American eel, banded killifish, and mummichog), are listed as Vulnerable under the Newfoundland and Labrador Endangered Species Act (NLESA).

While species at risk may occur in St. George's Bay, the presence of some species is expected to be transitory, with no strong association to specific habitats. Occurrences of whales, sea turtles, or white sharks are likely related to temporary foraging activity rather than long-term residency.

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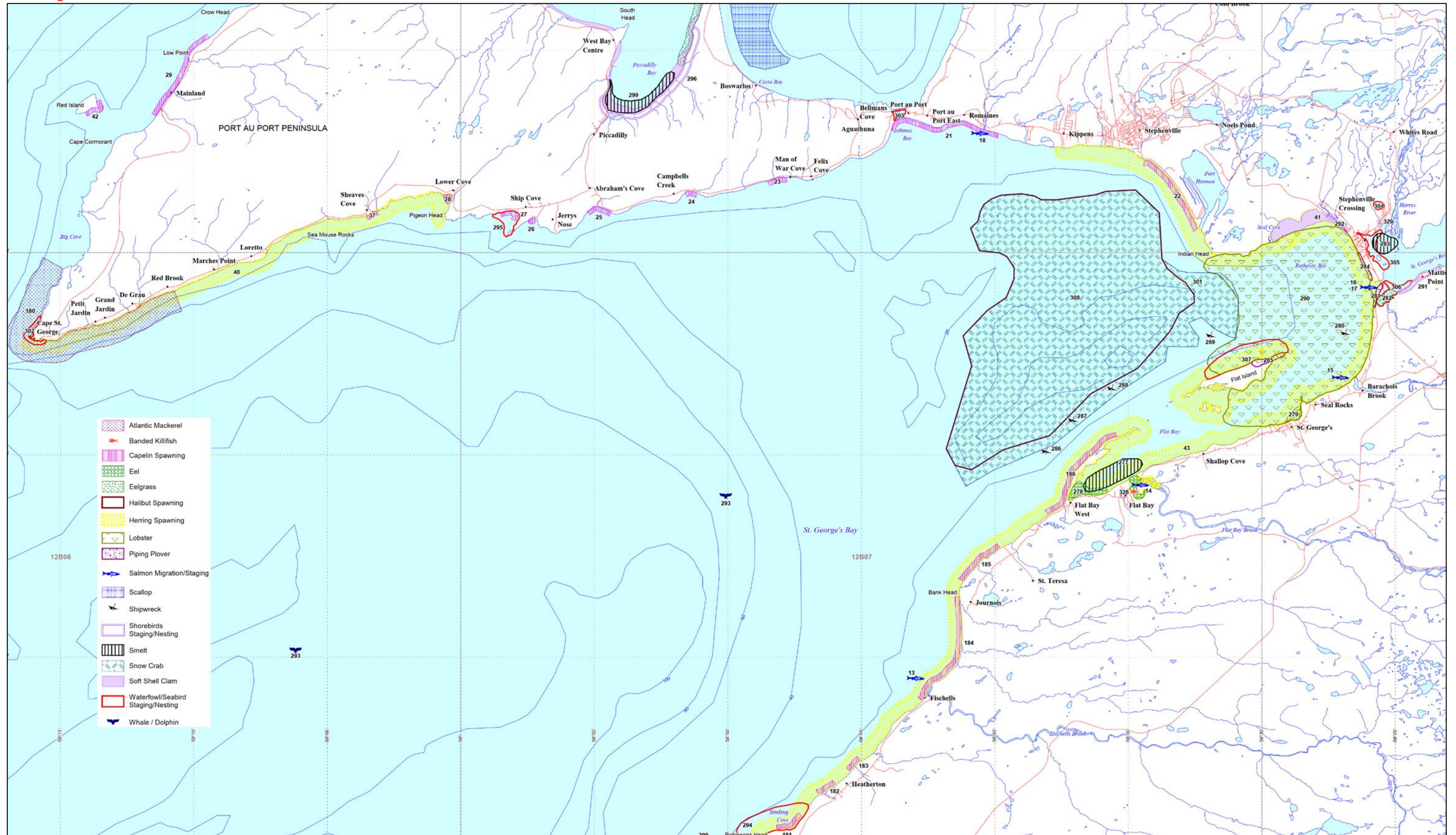
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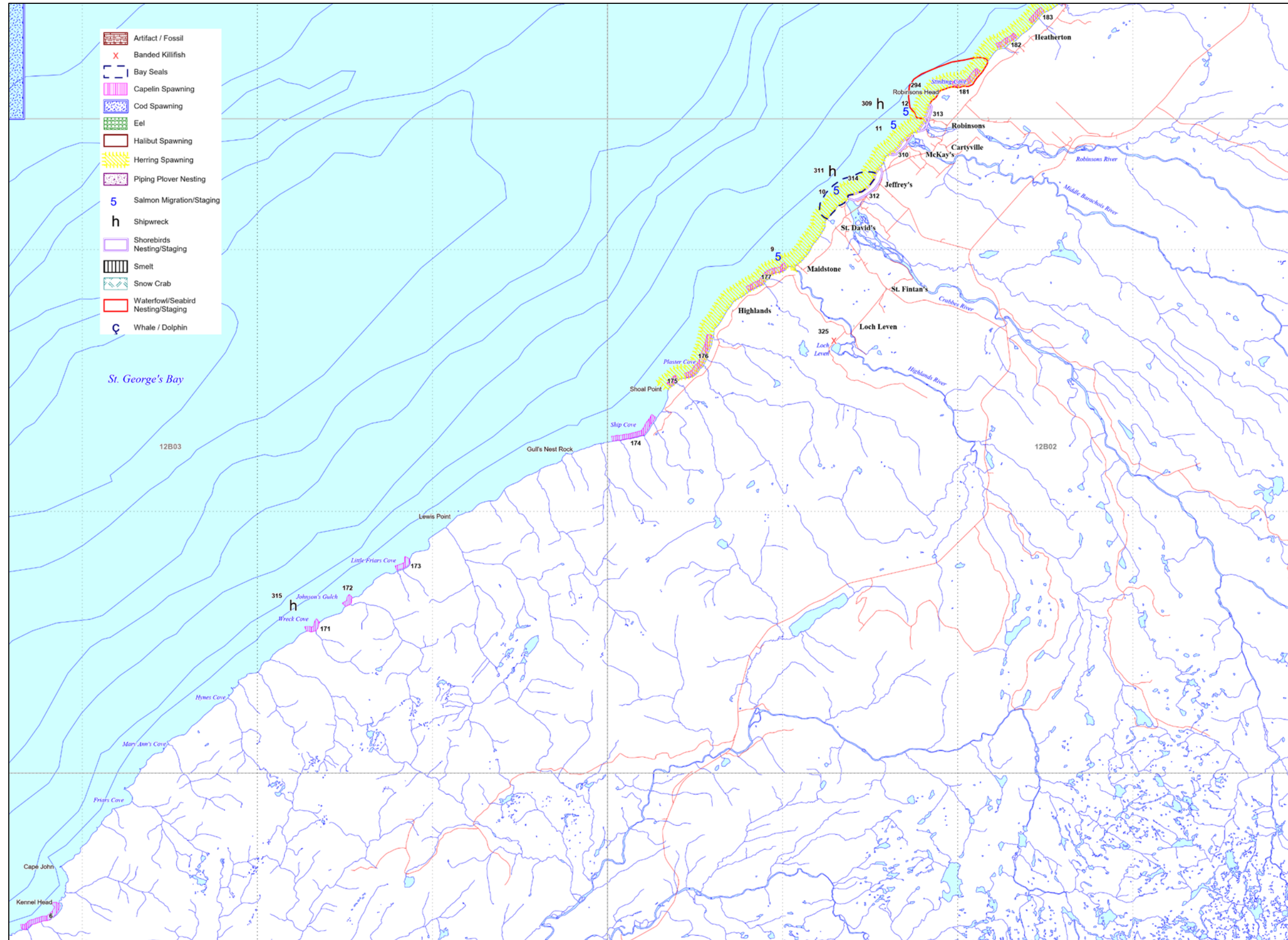
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Appendix A – Long Range Regional Economic Development Board Significant Coastal and Marine Areas Map Series (Adapted to Fit Study Area)







Appendix B – Limitations Statement



Limitations Statement

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