

4.2.2 Marine / Migratory Birds

This section summarizes the distribution and abundance of marine and other migratory birds in the Study Area, including avifauna species at risk.

The coast of Southeastern Newfoundland and the waters offshore provide important habitat for many species of marine-associated birds, notably the tens of millions of seabirds that nest on offshore islands and inaccessible mainland cliffs within the Study Area, and the nutrient-rich Grand Banks and Flemish Cap regions which are a major feeding area for dozens of marine bird species. A total of 21 Important Bird Areas (IBAs) have been identified and designated in Southern and Eastern Newfoundland, which provide important habitat for nationally and/or globally significant numbers of birds and/or to species at risk. In addition, there are various sites of provincial and regional significance in proximity to the Study Area. (Note that none of these areas or sites occurs within the Project Area.)

4.2.2.1 Seabirds

Seabirds are relatively long-lived avifauna species with low fecundity, delayed recruitment and low rates of population growth. They are key indicators of ecosystem health, and are also socioeconomically important in tourism, particularly in the Witless Bay and Cape St. Mary's Ecological Reserves, and as a food source (particularly murre, known locally as "turrs"). A variety of seabird species occur in the marine waters of the Study Area, including cormorants, gannets, phalaropes, gulls, terns, alcids, jaegers and skuas, fulmars, petrels and shearwaters, which are described in Table 4.15. Seabirds occur year-round in offshore waters, and are present at colonies within the Study Area throughout much of the year, with Black-legged Kittiwakes arriving as early as February and Northern Gannets remaining as late as November.

In 2006, the Canadian Wildlife Service (Environment Canada) initiated the Eastern Canada Seabirds at Sea (ECSAS) program (Gjerdrum et al 2008; Fifield et al 2009). According to the information presented by Fifield et al (2009), the survey data indicate that largest concentration of seabirds in the Study Area is from March to August, while seabirds are least abundant in the Fall (September - October). This monitoring is ongoing, and up-to-date information from the ECSAS program on the distribution and relative abundance of seabirds in the region was obtained (ECSAS 2014) and is summarized in Figures 4.47 to 4.59.

Table 4.15 Overview of Seabirds Known or Likely to Occur Within the Study Area

Group	Details ¹
<p style="text-align: center;">Cormorants (<i>Phalacrocoracidae</i>)</p>	<p>Species Double-crested Cormorant (<i>Phalacrocorax auritus</i>), Great Cormorant (<i>Phalacrocorax carbo</i>)</p> <p>Status Both species are secure in Canada. Populations of Double-crested have increased significantly since 1970 (Environment Canada 2011).</p> <p>Typical Habitat Nest on cliffs, artificial platforms, rocky ground, shrubs or trees Coastal; typically found in waters less than 8 m deep.</p> <p>Seasonal Movements Arrive at colony in early spring. Double-crested migrates south in late fall, while Great are partial migrants with some individuals remaining within the breeding range year round.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Begins to breed at 2 or (typically) 3 years of age. Lays 1 to 7 eggs per clutch (mean = 4). Annual number of fledglings per breeding pair for populations in eastern Canada ranges from 0.98 - 2.35 for Double-crested and from 1.2 - 1.97 for Great (Hatch and Weseloh 1999; Hatch et al 2000). • Double-crested has a wide breeding distribution in Newfoundland, while the Great is restricted to the south and southwest coast (Cairns et al 1989). • Feed by pursuit diving typically to depths of 10 m or less, occasionally up to 35 m. • Diet includes a variety of small fish (typically less than 20 cm) and invertebrates, predominantly benthic species.
<p style="text-align: center;">Gannets (<i>Sulidae</i>)</p>	<p>Species Northern Gannet (<i>Morus bassanus</i>)</p> <p>Status Secure in Canada. Steadily increasing population of 200,000 - 300,000 breeding adults (Environment Canada 2011).</p> <p>Typical Habitat Nest in dense colonies on cliff ledges, usually on islands, but occasionally inaccessible mainland cliffs. Typically found in continental shelf waters year-round.</p> <p>Seasonal Movements Adults arrive at colony in mid-March, followed a few weeks later by subadults. Juveniles migrate southward in September; adults and older immatures may travel north from the colonies to feed along the Labrador Coast before southward migration. Winter range extends from the Gulf of Maine to Mexico.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Begins to breed between 4 and 7 years of age, and lays 1 egg per clutch. Mean annual number of fledglings per breeding pair for populations in Eastern Canada is 0.81 (Mowbray 2002). • Northwest Atlantic breeding population is confined to six colonies in eastern Newfoundland and Québec (Mowbray 2002). • Feeds by plunge diving from a height of 10 - 40 metres above the surface, descending to depths of 15 m. Travels up to 180 km from breeding colony to forage, and flocks of up to 1000 may congregate over shoals of food fish.

Group	Details ¹
	<ul style="list-style-type: none"> • Preys on shoaling fish (herring, mackerel and capelin), and invertebrates such as squid.
<p>Phalaropes (Scolopacidae)</p>	<p>Species Red Phalarope (<i>Phalaropus fulicaria</i>), Red-necked Phalarope (<i>Phalaropus lobatus</i>)</p> <p>Status Red-necked Phalarope populations have decreased slightly; Red Phalarope population trends are unknown. Both species estimated to have a population of over 1,000,000 in Canada (Environment Canada 2011).</p> <p>Typical Habitat Nest on the ground in Arctic tundra, in short vegetation (sedges, mossy hummocks) typically close to fresh water. Winter offshore along ocean fronts, mostly in tropical and sub-tropical regions.</p> <p>Seasonal Movements Spend most of the year offshore, coming on land only during the summer months in the Arctic to breed. Congregate in areas such as upwellings, which are associated with higher prey densities.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Although taxonomically members of the shorebird family (<i>Scolopacidae</i>), phalaropes are pelagic outside of the breeding season and so are considered here as seabirds. • Phalaropes display reverse sexual dimorphism, females being larger and more brightly coloured than males; as well, female departs shortly after egg-laying, leaving male as sole provider to the offspring. • Begins to breed in first year. Lays 4 eggs per clutch. Annual number of fledglings per breeding pair for populations highly variable and dependent on predator populations; for Red Phalarope, the average fledging success is approximately 10 percent in Canada (Rubega et al 2000; Tracy et al 2002). • Surface feeders. Phalaropes swim on the water surface in tight circles, churning prey upwards to within reach. • Diet includes zooplankton and small aquatic invertebrates
<p>Gulls (Laridae)</p>	<p>Species Herring Gull (<i>Larus argentatus</i>), Iceland Gull (<i>Larus glaucoides</i>), Glaucous Gull (<i>Larus hyperboreus</i>), Great Black-backed Gull (<i>Larus marinus</i>), Lesser Black-backed Gull (<i>Larus fuscus</i>), Ring-billed Gull (<i>Larus delawarensis</i>), Black-headed Gull (<i>Chroicocephalus ridibundus</i>), Sabine’s Gull (<i>Xema sabini</i>), Ivory Gull (<i>Rissa tridactyla</i>), Black-legged Kittiwake (<i>Rissa tridactyla</i>)</p> <p>Status Ivory Gull is a provincially and federally listed species at risk (<i>NLESA</i> and <i>SARA</i>: Endangered), and has suffered severe population declines since 1970. Most other gull species considered secure in Canada; however, Glaucous are in decline, and there are insufficient data on Sabine’s population trends (Environment Canada 2011).</p> <p>Typical Habitat Most gulls are ground nesters; Black-legged Kittiwakes nest on cliffs. Outside of the breeding season, most gull species can be found in coastal and offshore areas, although Sabine’s and Ivory are more strictly offshore species. Black-legged Kittiwakes are more pelagic</p>

Group	Details ¹
	<p>than the larger gulls.</p> <p>Seasonal Movements Herring, Great Black-backed and Ring-billed Gulls and Black-legged Kittiwakes occur in temperate areas year-round. Iceland, Glaucous, Ivory and Sabine’s nest in the Arctic, occurring in the Study Area only outside the breeding season.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Begins to breed between 3 and 7 years of age, and lays 2 to 3 eggs per clutch. Mean annual fledging success varies depending on food availability and predation; estimates range from about 40 percent for Sabine’s (Day et al 2001) up to as high as 70 percent for Herring (Pierrotti and Good 1994). • Herring and Great Black-backed Gull and Black-legged Kittiwake nest in numerous coastal locations in southern and eastern Newfoundland, while Ring-billed Gulls nest in the Cabot Island and Wadham Islands Important Bird Areas (Warkentin and Newton 2009); the other species do not breed in the Study Area. • Surface feeders. • Feed on invertebrates (cephalopods and crustaceans) and fish, as well as offal. Larger species often prey on eggs, young, and occasionally adults of other seabird species.
<p>Terns (Sternidae)</p>	<p>Species Common Tern (<i>Sterna hirundo</i>), Arctic Tern (<i>Sterna paradisaea</i>), Caspian Tern (<i>Hydroprogne caspia</i>)</p> <p>Status Populations are considered stable in Canada. Estimated population of Common and Arctic Terns in Canada is between 100,000 and 200,000 individuals; Caspian Tern populations are somewhat smaller (Environment Canada 2011).</p> <p>Typical Habitat Usually breed on islands, typically in areas with sand or low vegetation. Occur in coastal and offshore waters outside the breeding season.</p> <p>Seasonal Movements These three tern species breed in northern North America. Arctic Terns undertake long migrations to the waters off of Antarctica. Common and Caspian Terns winter in Central and South America.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Begins to breed between 2 and 4 years of age, and lays 1 to 3 eggs per clutch. Mean annual number of chicks fledged per pair varies between 0.59 and 2.0 in different studies (Hatch 2002; Nisbet 2002; Cuthbert and Wires 1999). • Common and Arctic Terns are widely distributed in North America. Locally, they nest in the Green Island, Wadham Islands and Cabot Island IBAs, as well as Terra Nova National Park. Caspian Terns are uncommon in the Study Area, but nest in Wadham Islands and Cabot Island IBAs (Warkentin and Newton 2009). • Feed by surface feeding and pursuit plunging. • Prey on fish and small crustaceans.

Group	Details ¹
<p style="text-align: center;">Alcids (Alcidae)</p>	<p>Species Dovekie (<i>Alle alle</i>), Razorbill (<i>Alca torda</i>), Common Murre (<i>Uria aalge</i>), Thick-billed Murre (<i>Uria lomvia</i>), Atlantic Puffin (<i>Fratercula arctica</i>), Black Guillemot (<i>Cephus grylle</i>)</p> <p>Status Populations are considered secure, with many species showing slight increases in number in recent years (Environment Canada 2011; CWS Waterfowl Committee 2013).</p> <p>Typical Habitat Breed on islands or mainland cliffs, in areas inaccessible to terrestrial predators. Occur in offshore waters outside the breeding season.</p> <p>Seasonal Movements In eastern North America, alcids breed from the high arctic to north of the Carolinas. The Dovekie is a largely arctic species occurring in the waters off of eastern Canada only in winter, while the other five species may be found in the Study Area year round. They arrive at the colony in May to early June, and typically depart from the colony by late August. During breeding, they are most abundant in the waters near the colonies. In the winter months, murrens tend to spend very little time in coastal waters (Hedd et al 2011) while Black Guillemots tend to be more coastal, often found close to breeding colonies.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Alcids are most vulnerable at sea in the winter months, when they spend the greatest proportion of their time on the water, and in fact they are rendered flightless for a period of several weeks during their winter moult (Gaston and Hipfner 2000). • For Razorbills and the two murre species, the chick departs the colony with the male parent; the two remain together for several weeks before the chick reaches independence. • Begins to breed between 2 and 5 years of age, and lays 1 egg per clutch (2 eggs for Black Guillemot). Mean annual number of chicks fledged per pair depends on factors such as food availability, weather and parental experience. Number of fledglings per breeding pair varies from 0.26 - 0.72 for Black Guillemot and from around 0.40 to 0.60 for Atlantic Puffins in eastern Newfoundland studies. Successful nest departures per breeding pair ranges from 0.65 - 0.75 for the Razorbill, from 0.35 - 0.85 for Common Murrens (<i>aalge</i> subspecies), and 0.48 - 0.79 for Thick-billed Murrens in the Atlantic (Ainley et al 2002; Gaston and Hipfner 2000; Butler and Buckley 2002; Lowther et al 2002; Lavers et al 2009). • The coast of Newfoundland supports numerous alcid colonies, the largest being at Funk Island, Baccalieu Island, the Witless Bay islands and Cape St. Mary's (EC-CWS 2013). • Feed by pursuit diving. • Prey on small fish (capelin and sandlance) and some invertebrates such as copepods.
<p style="text-align: center;">Jaegers and Skuas (Stercorariidae)</p>	<p>Species Pomarine Jaeger (<i>Stercorarius pomarinus</i>), Parasitic Jaeger (<i>Stercorarius parasiticus</i>), Long-tailed Jaeger (<i>Stercorarius longicaudus</i>), Great Skua (<i>Stercorarius skua</i>), South Polar Skua (<i>Stercorarius maccormicki</i>)</p> <p>Status All three jaeger species have an estimated population of 100,000 to</p>

Group	Details ¹
	<p>200,000 adults in Canada, but there is insufficient information to determine trends (Environment Canada 2011). Skuas do not breed in Canada; they are occasional visitors to offshore waters of the northwest Atlantic.</p> <p>Typical Habitat Jaegers breed in high Arctic tundra. South Polar Skuas nest along the Antarctic coast, and Great Skuas on coastal moors and rocky islands in Europe. With the exception of nesting adults during the breeding season, jaegers and skuas are found in offshore waters.</p> <p>Seasonal Movements Non-breeders are found offshore year-round. Breeding adults return to the colonies in late May to early June, and typically leave in September.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Begin to breed at 4 years of age, and typically lay 2 eggs per clutch. Mean annual number of fledglings per pair varies with factors such as parental experience and prey density; range is between approximately 0.5 - 1.5 (Wiley and Lee 1998, 1999, 2000). • Occasional visitors to the Study Area during the spring, summer and fall months; largely absent in the winter, with the exception of the Great Skua which is occasionally observed year-round. • Typically feed by kleptoparasitizing prey items from other seabirds, particularly outside of breeding.
<p>Fulmars and Shearwaters (<i>Procellariidae</i>)</p>	<p>Species Northern Fulmar (<i>Fulmarus glacialis</i>), Great Shearwater (<i>Puffinus gravis</i>), Sooty Shearwater (<i>Puffinus griseus</i>), Manx Shearwater (<i>Puffinus puffinus</i>), Cory's Shearwater (<i>Calonectris diomedea</i>)</p> <p>Status Only the Northern Fulmar and Manx Shearwater breed in Canada. Fulmar populations are considered stable with 300,000 to 400,000 individuals in Canada (Environment Canada 2011). Only a small number of Manx Shearwaters (less than 100 pairs) nest in Canada (Mallory et al 2012).</p> <p>Typical Habitat Breed on offshore islands. Fulmars are cliff-nesters, while shearwaters generally nest in burrows. Occur in offshore waters outside the breeding season.</p> <p>Seasonal Movements Breeding individuals return to the colony in the spring, and depart in the fall; for Manx Shearwaters, they are present at the colony from mid-April to October, while for Northern Fulmar, colony attendance is from June to September (Lee and Haney 1996; Mallory et al 2012). Outside the breeding season, they occur primarily along the continental shelf in temperate to cold water environments.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Shearwaters are known to be strongly attracted to artificial light sources (Weise et al 2001). • Begins to breed between 5 and 8 years of age, and lays 1 egg per clutch. Mean annual

Group	Details ¹
	<p>number of chicks fledged per pair is approximately 0.55 for Northern Fulmar (Dunnet and Ollason 1978) and 0.69 for Manx Shearwater (Perrins et al 1973).</p> <ul style="list-style-type: none"> • The coast of Newfoundland supports a few colonies of Northern Fulmar, including the Witless Bay islands and Cape St. Mary's (EC-CWS 2013); however, they are primarily Arctic breeders. Manx Shearwaters nest on Middle Lawn Island; this is the only confirmed nesting location for the species in North America. Outside the breeding season, shearwaters and fulmars are wide-ranging at sea. • Shearwaters feed by pursuit plunging, while fulmars are surface feeders. • Prey on fish, offal and squid.
<p>Storm-petrels (<i>Hydrobatidae</i>)</p>	<p>Species Leach's Storm-petrel (<i>Oceanodroma leucorhoa</i>), Wilson's Storm-petrel (<i>Oceanites oceanicus</i>)</p> <p>Status Leach's population trends are unknown, but they are estimated to have a population of over 10,000,000 in Canada (Environment Canada 2011), most in Eastern Newfoundland. Wilson's is an uncommon offshore visitor to Canada.</p> <p>Typical Habitat Nest in burrows on offshore islands. Highly pelagic year-round; even breeding adults return to land only at night.</p> <p>Seasonal Movements Spend most of the year offshore, coming on land only to breed. Occur in higher numbers in areas such with higher prey densities. Leach's are very rare in winter months in the Study Area, but otherwise common, while Wilson's are uncommon spring and summer visitors.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Storm-petrels often follow ships and fishing boats, and are strongly attracted to artificial light sources. • Begin to breed at 5 years of age, and lay 1 egg per clutch. Annual average fledging success is approximately 48 percent in Canada (Huntington et al 1996). • Surface feeders. Storm-petrels hover over the water's surface, gleaning prey items. • Diet includes zooplankton and small crustaceans.
<p>¹ Information is summarized from Poole (2005) unless otherwise noted</p>	

Figure 4.47 Seasonal Distribution of Cormorant Observations

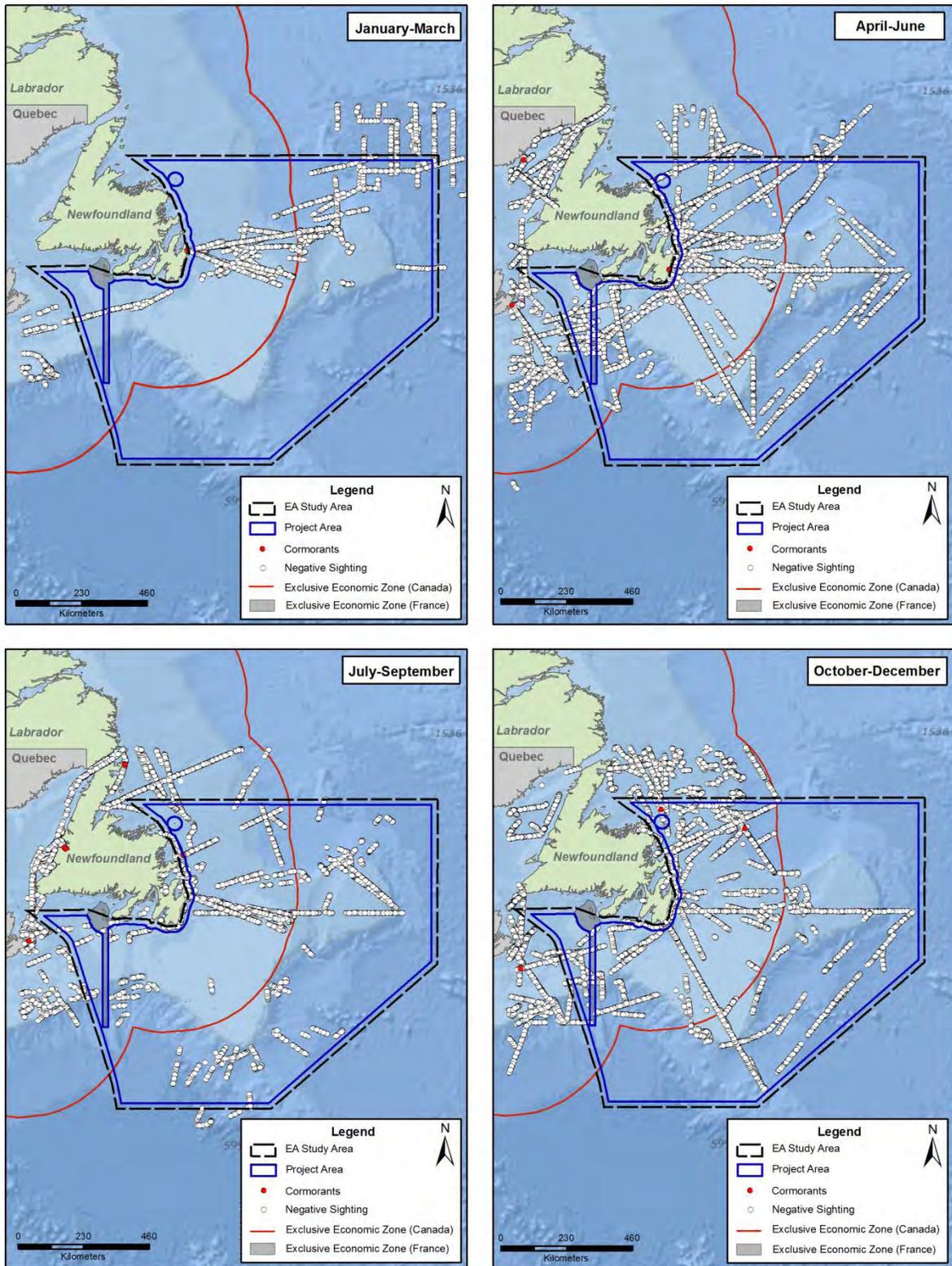


Figure 4.48 Seasonal Distribution of Gannet Observations

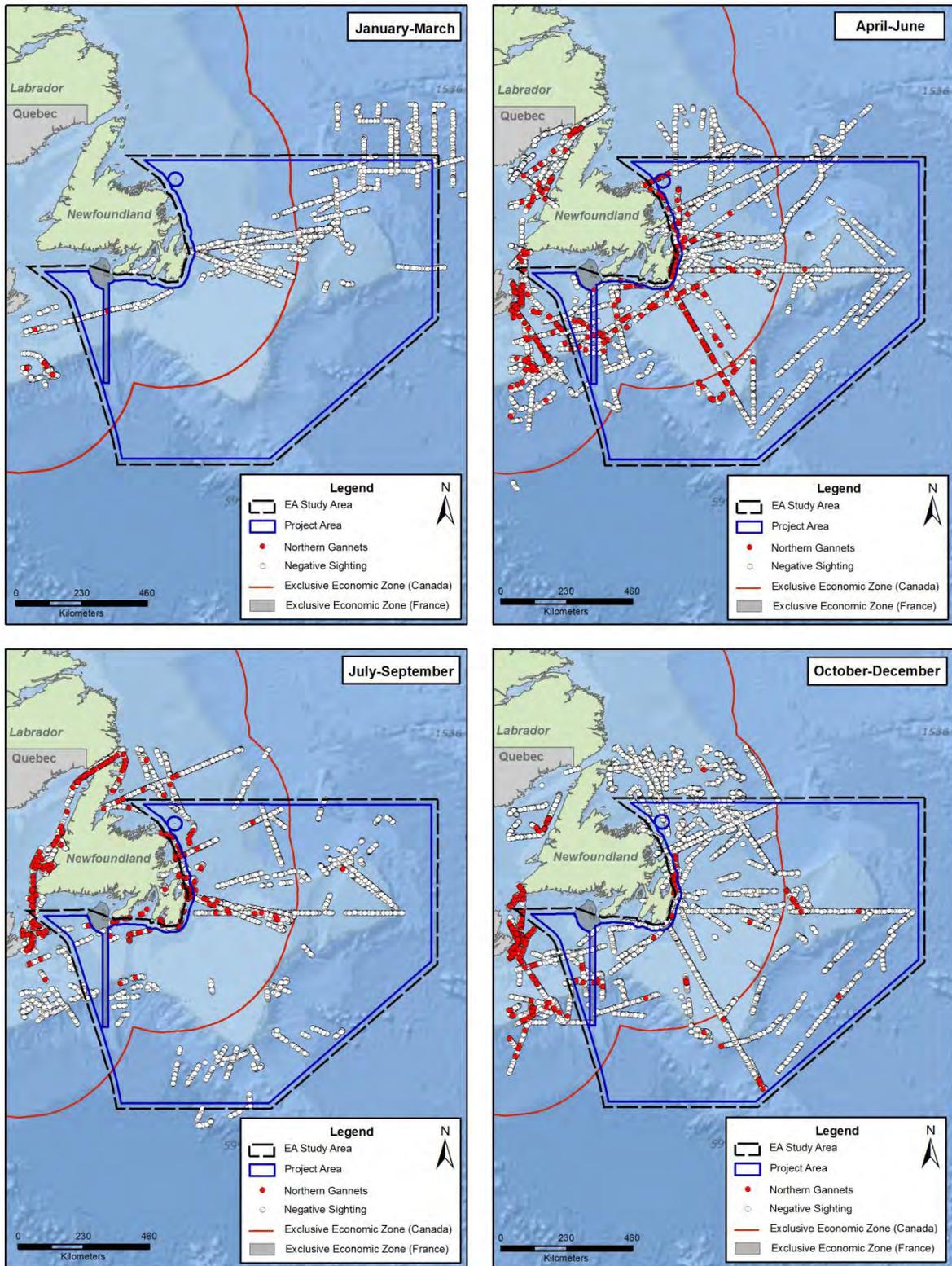


Figure 4.49 Seasonal Distribution of Phalarope Observations

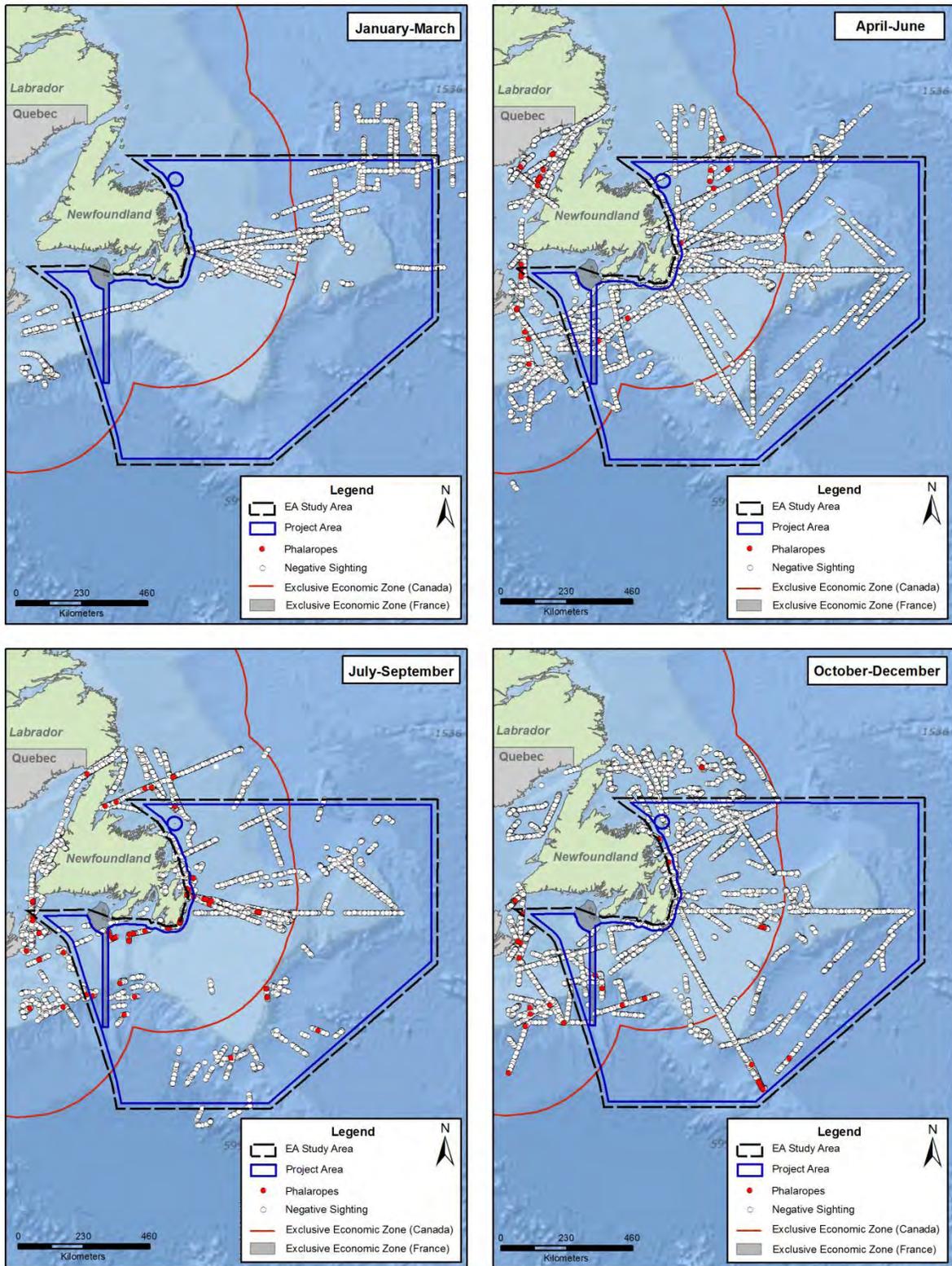


Figure 4.50 Seasonal Distribution of Large Gull Observations

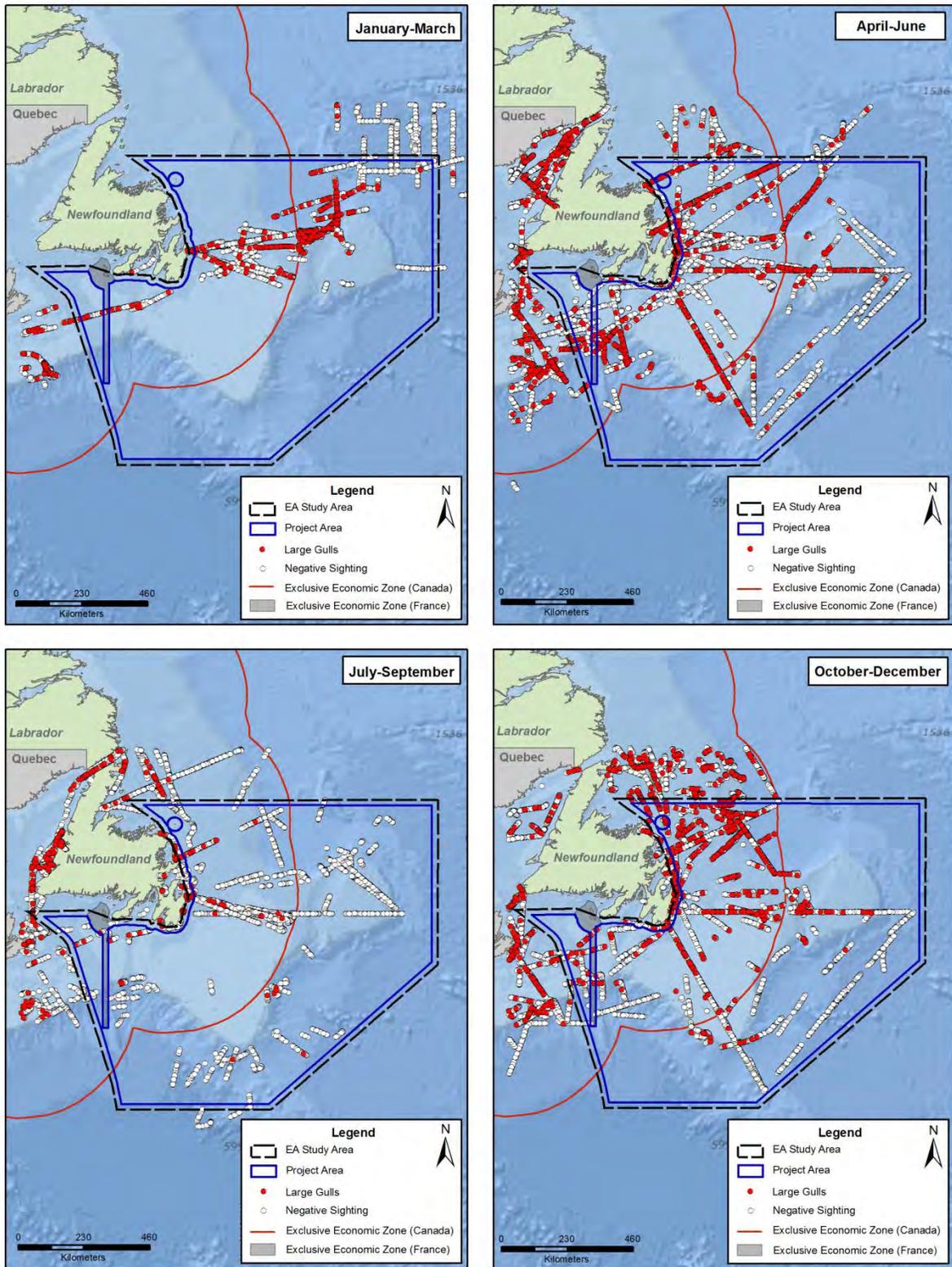


Figure 4.51 Seasonal Distribution of Kittiwake Observations

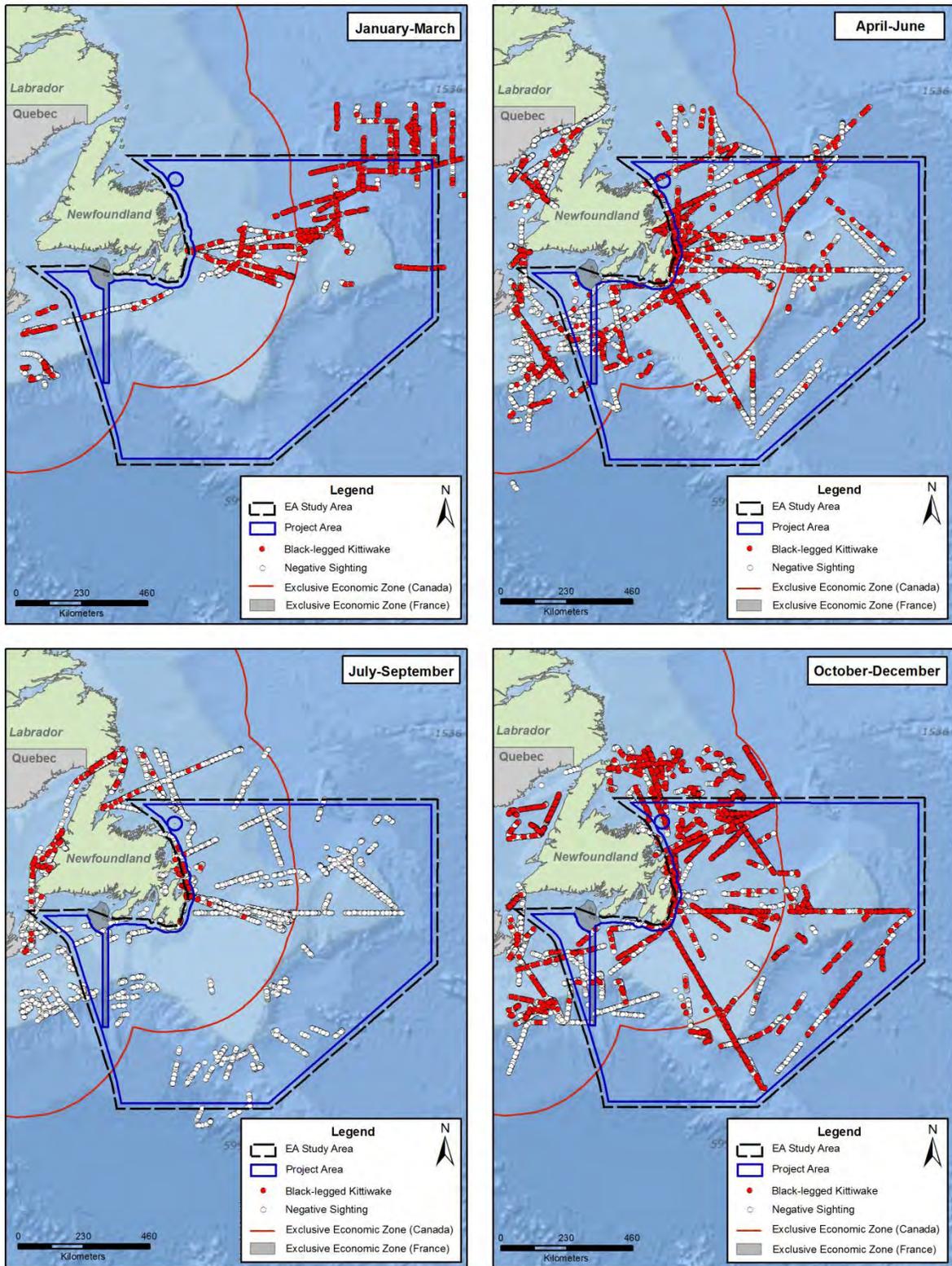


Figure 4.52 Seasonal Distribution of Tern Observations

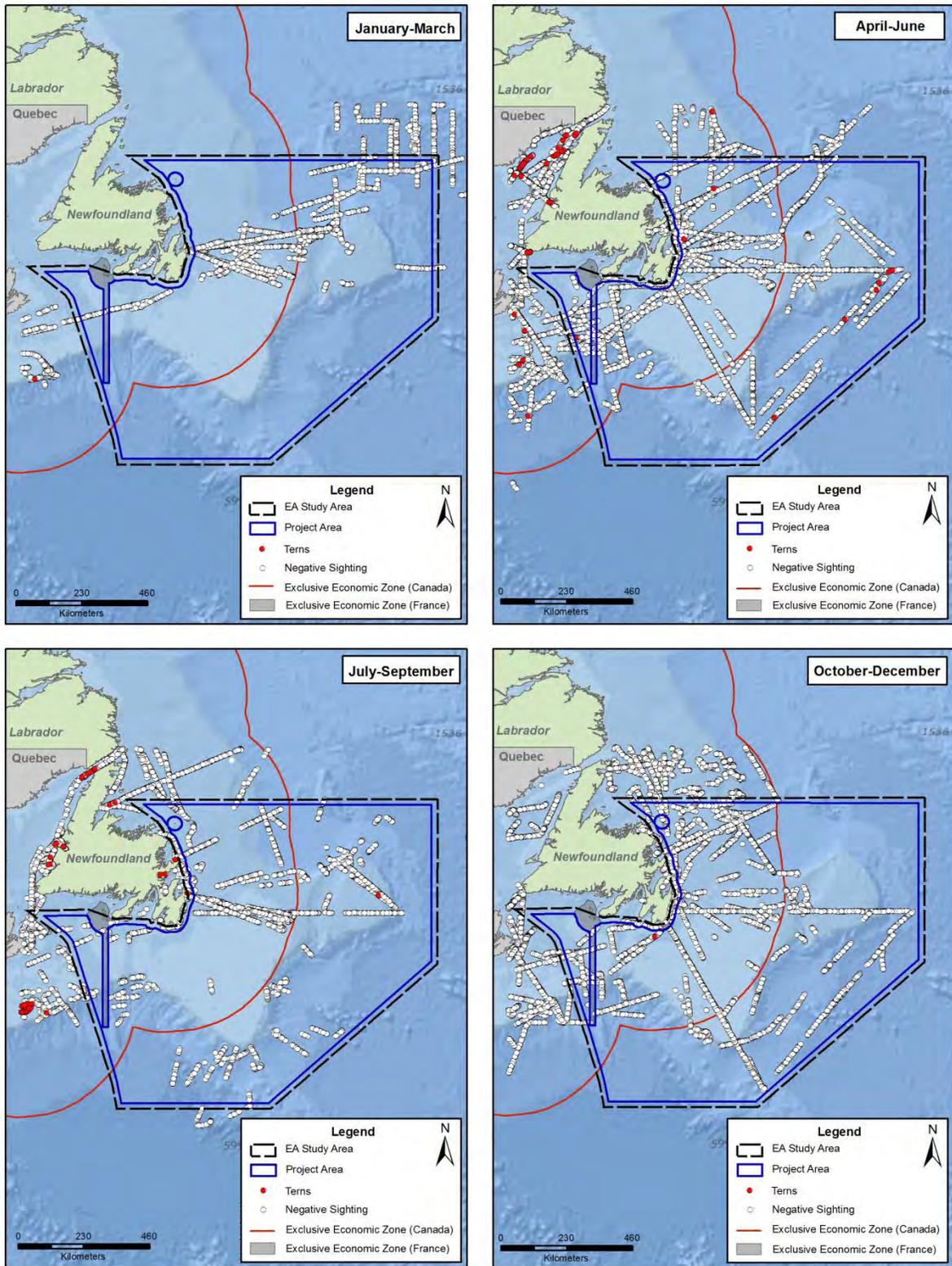


Figure 4.53 Seasonal Distribution of Dovekie Observations

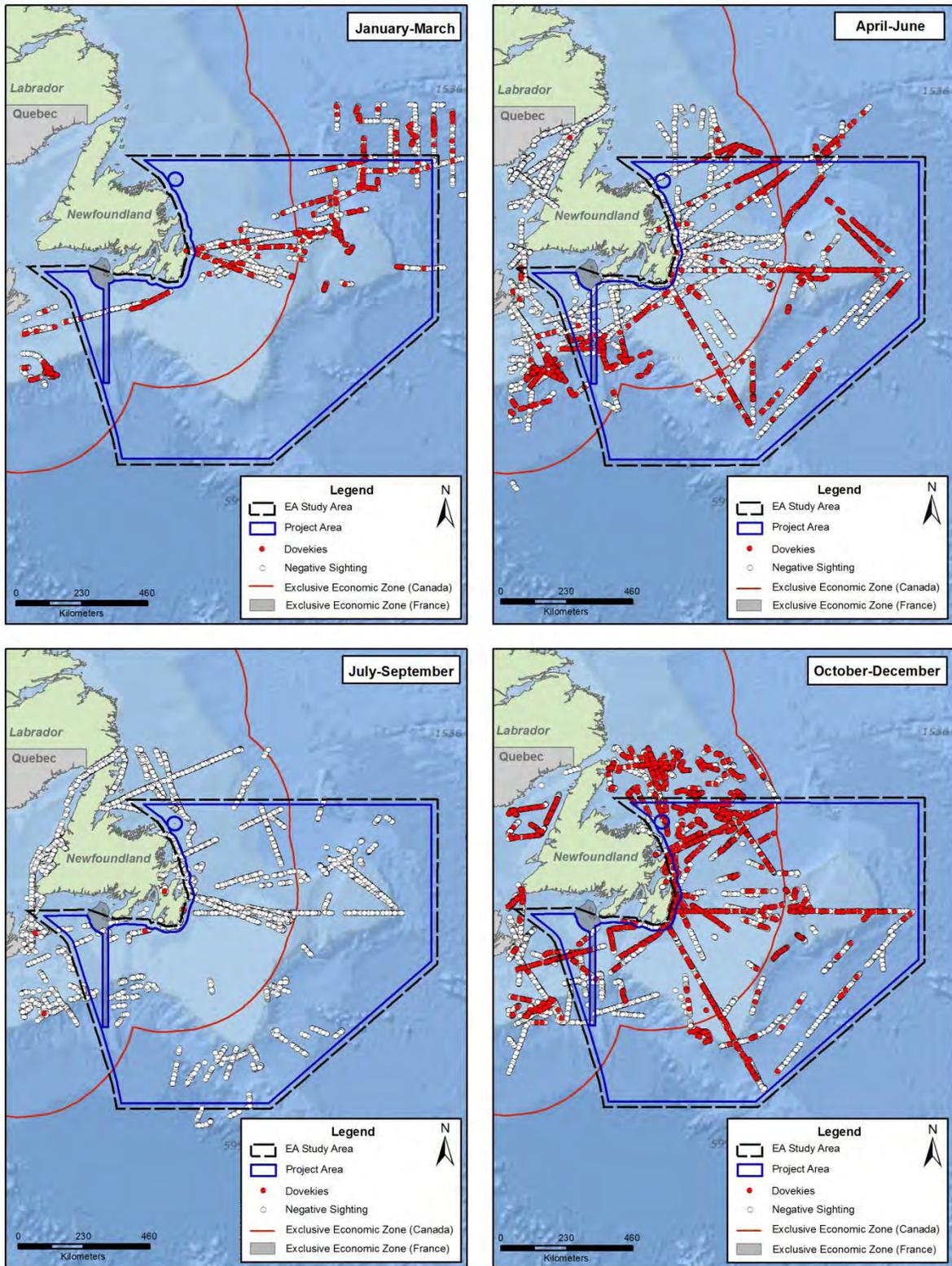


Figure 4.54 Seasonal Distribution of Murre Observations

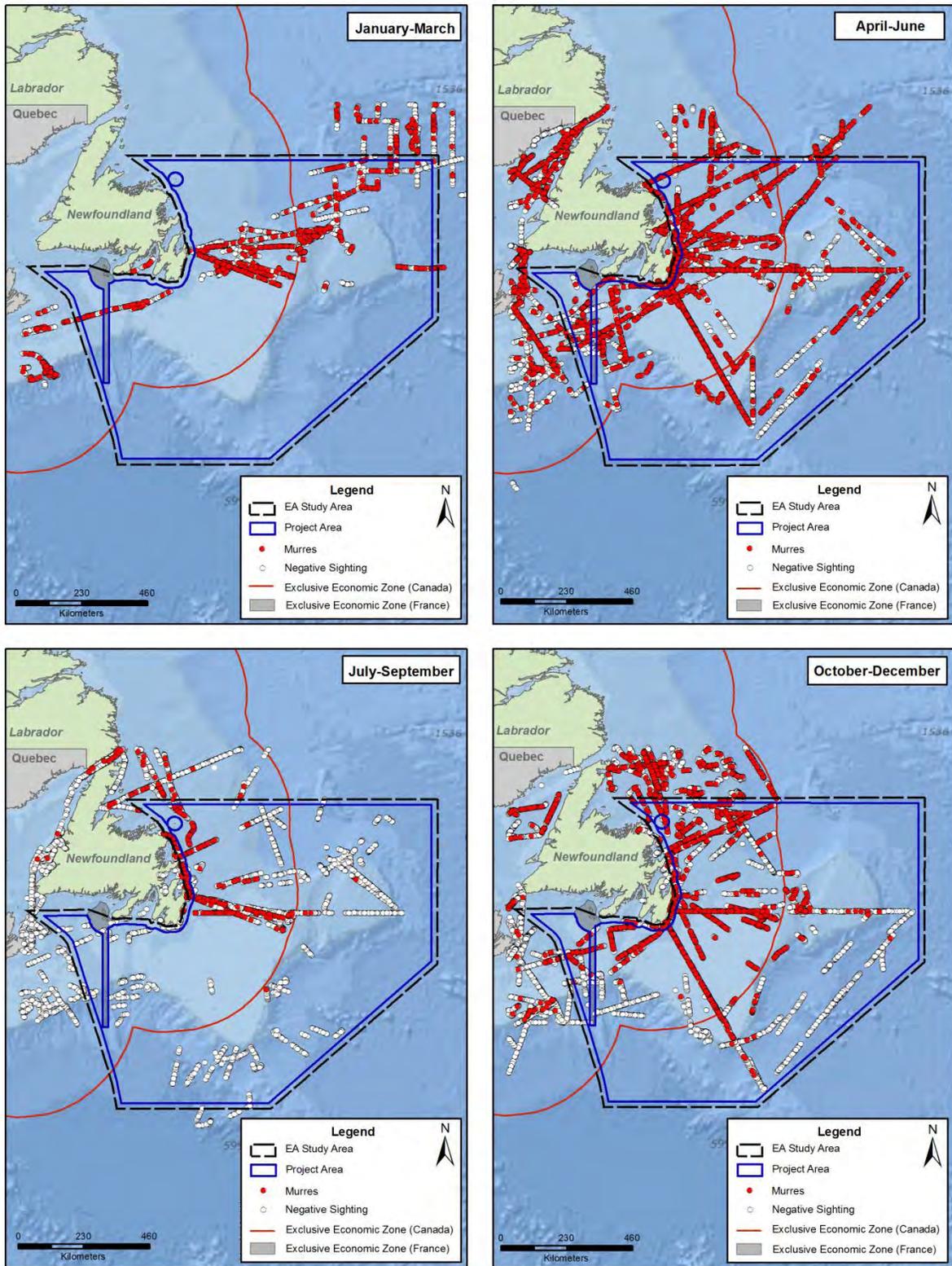


Figure 4.55 Seasonal Distribution of Other Alcids Observations

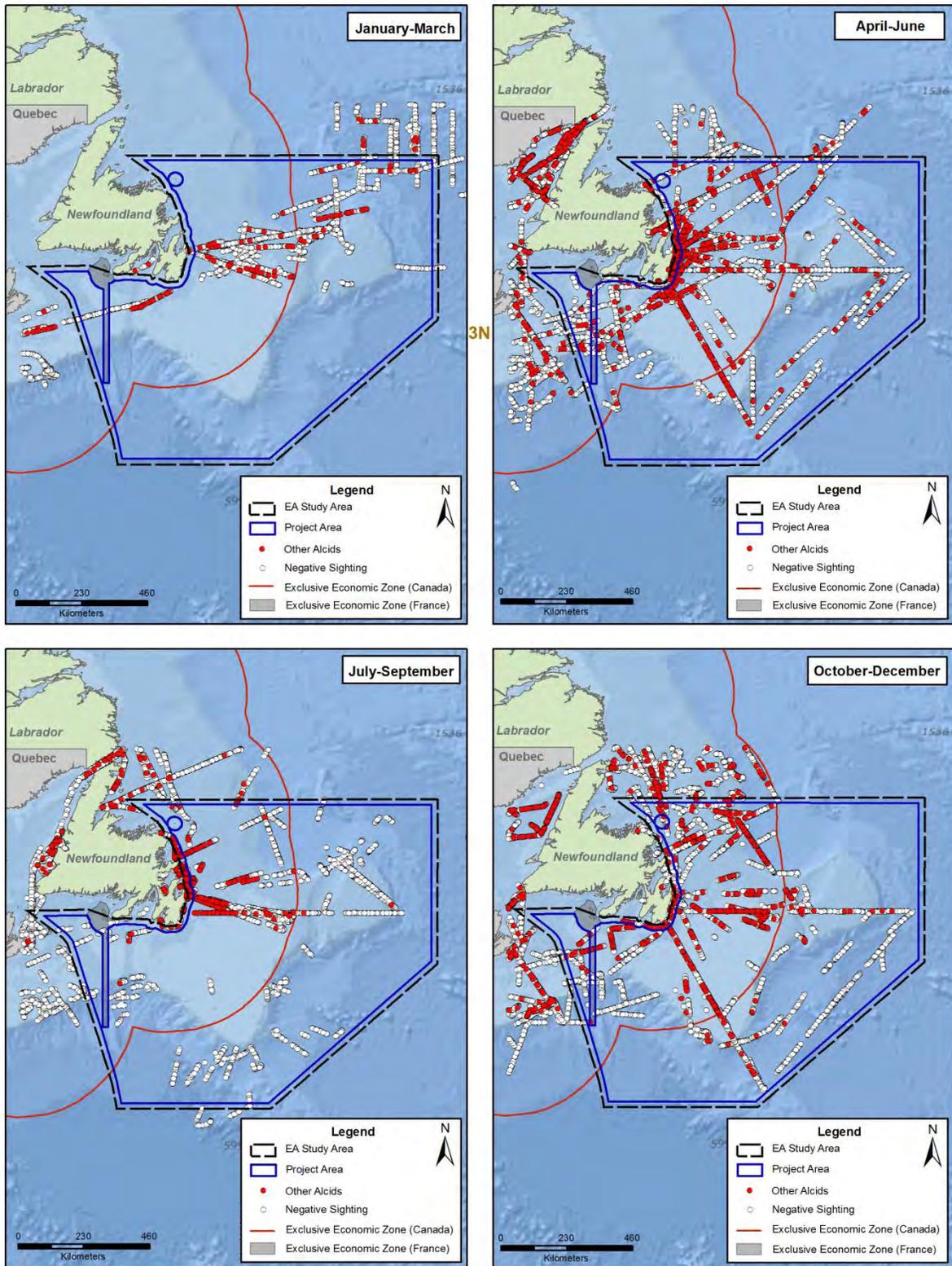


Figure 4.56 Seasonal Distribution of Jaegers and Skua Observations

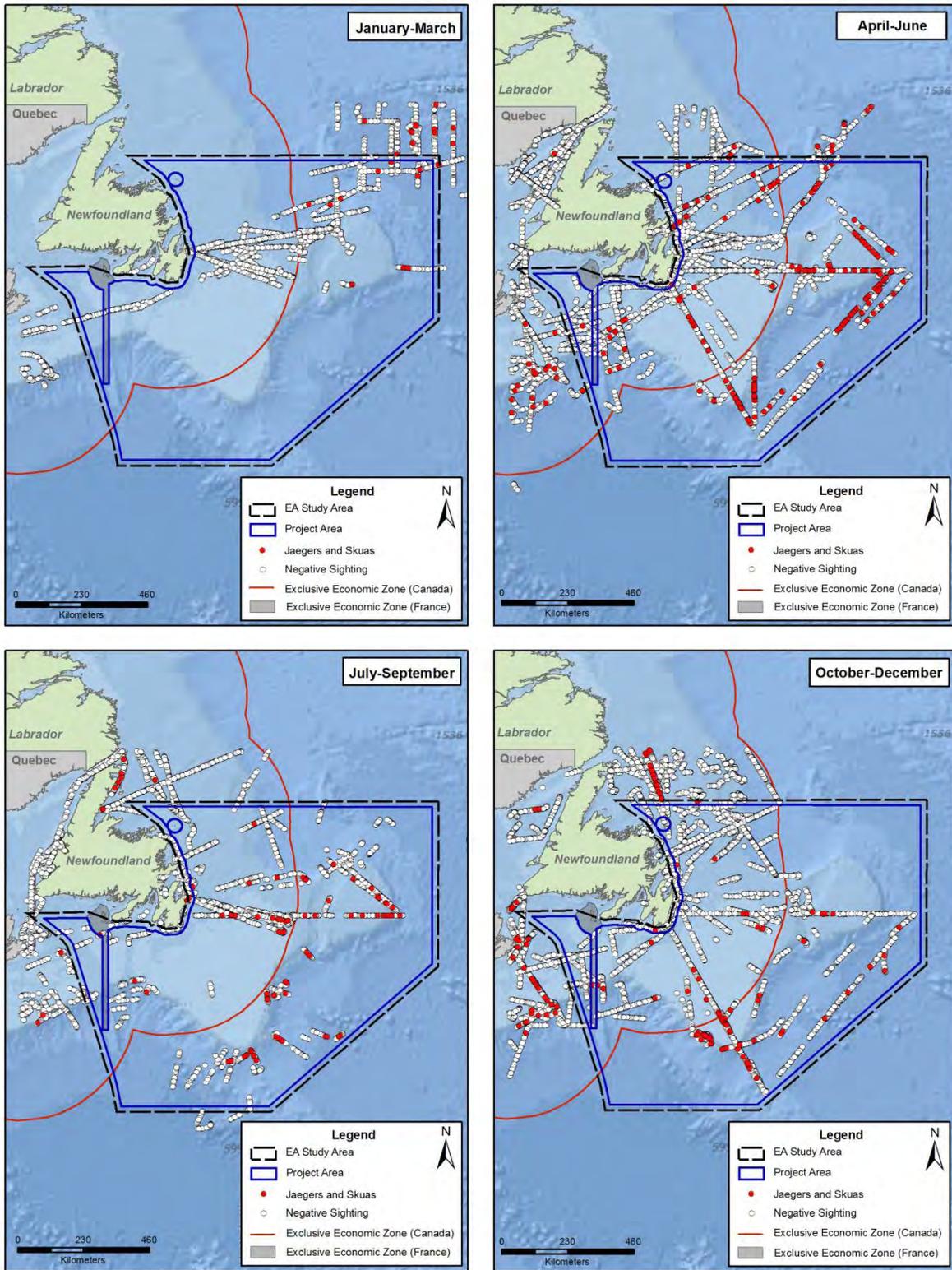


Figure 4.57 Seasonal Distribution of Fulmar Observations

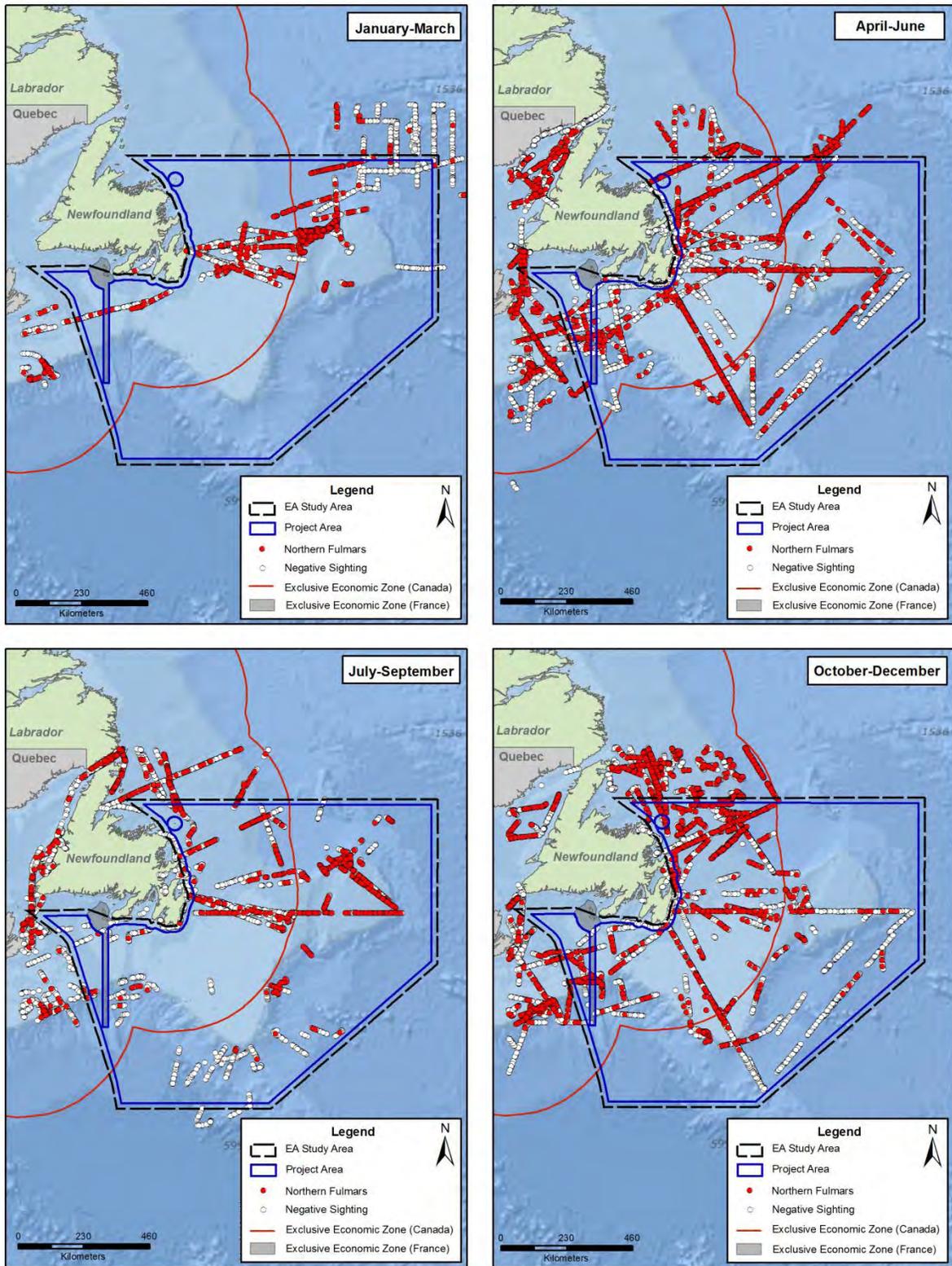


Figure 4.58 Seasonal Distribution of Shearwater Observations

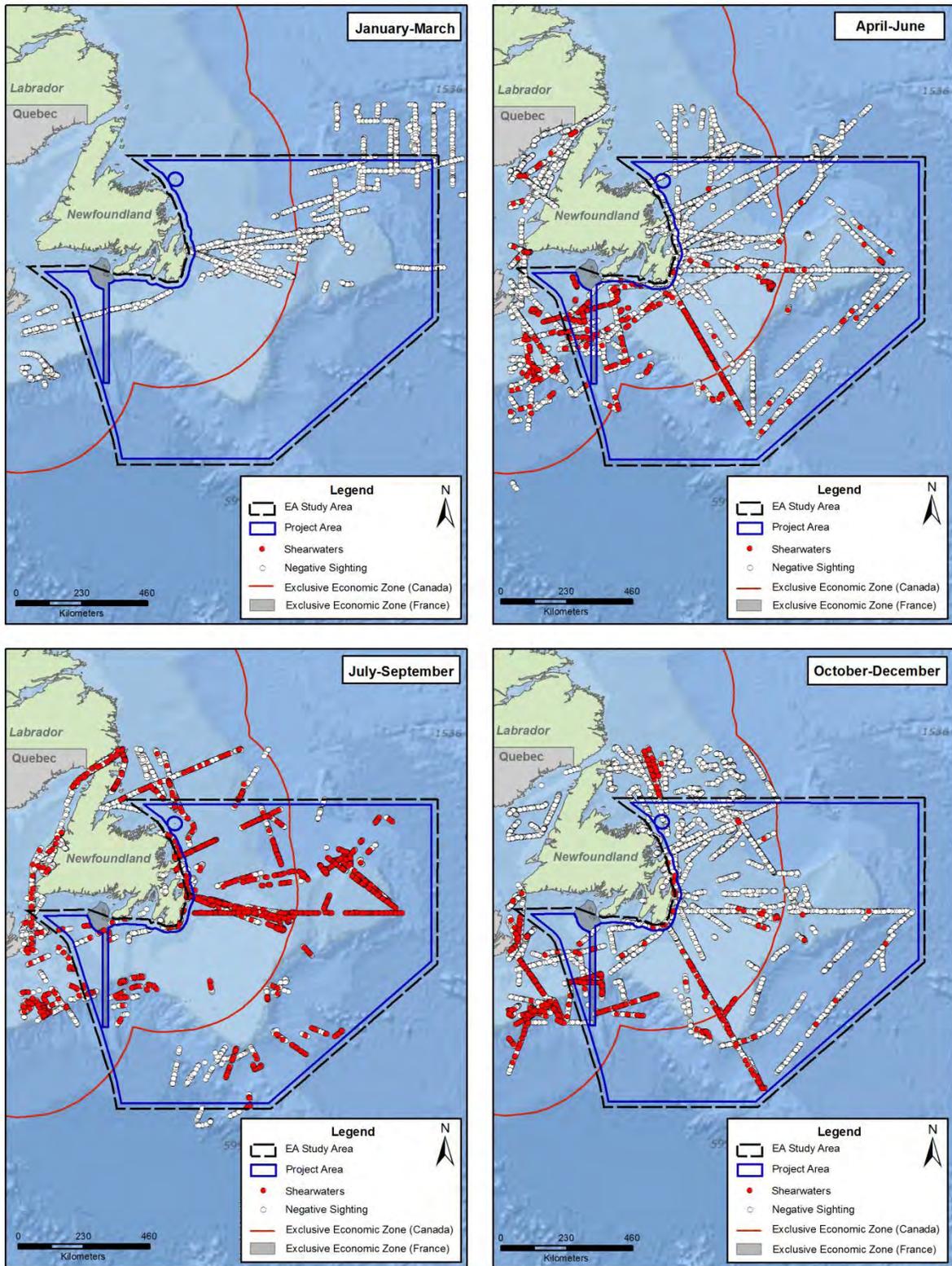
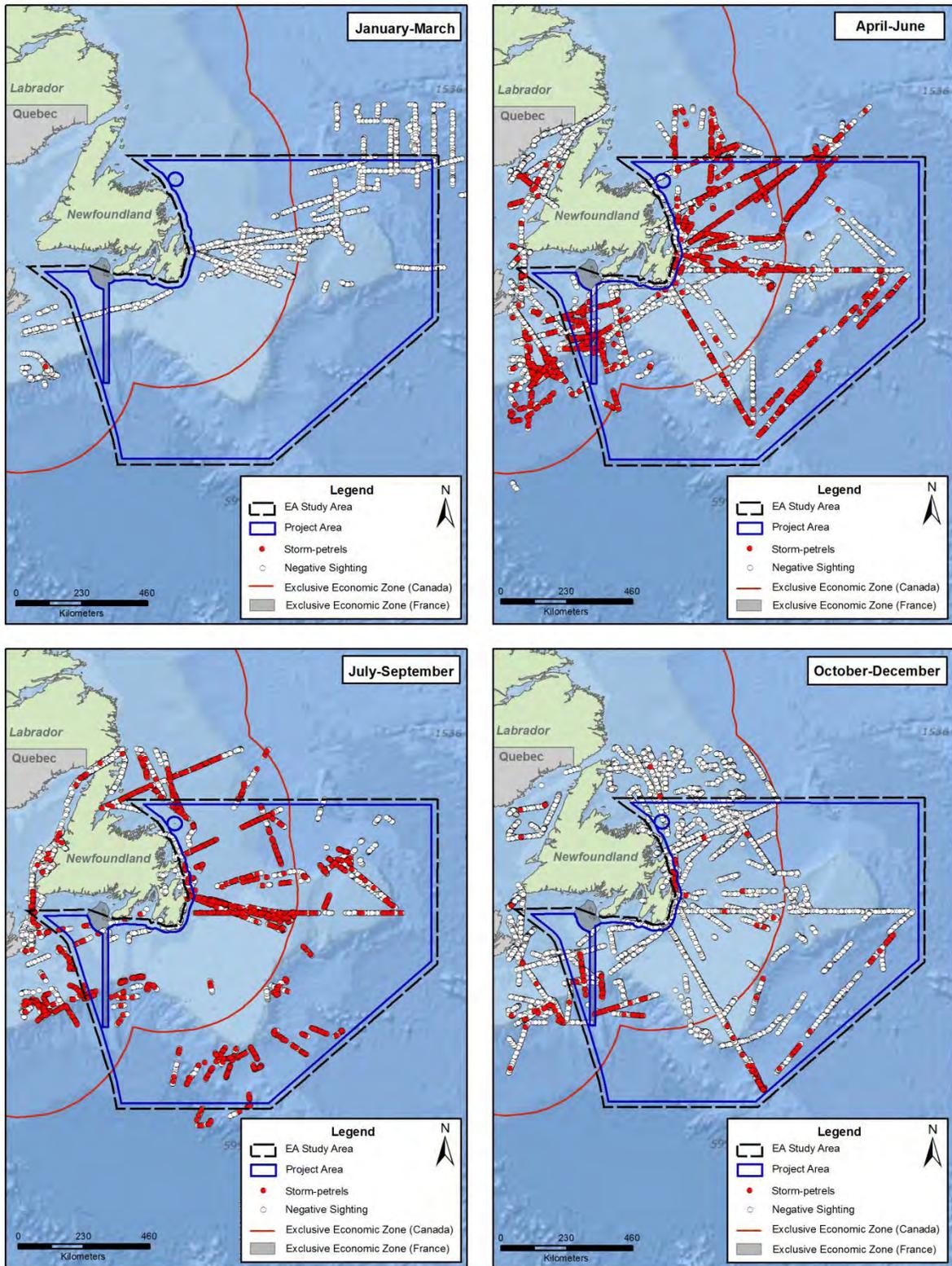


Figure 4.59 Seasonal Distribution of Storm-petrel Observations



4.2.2.2 Shorebirds

On the southern and eastern coasts of Newfoundland, shorebirds are most abundant during fall migration, when many species move southward from their Arctic breeding grounds. While not typically found offshore, marine shoreline habitats such as sandy mudflats are utilized by foraging shorebirds. Table 4.16 presents information on the habits, habitats and key life history characteristics of shorebirds that do or may occur within the Study Area.

Table 4.16 Overview of Shorebirds Known or Likely to Occur Within the Study Area

Group	Details ¹	
Shorebirds (Scolopacidae and Charadriidae)	Species	Close to 30 species of shorebirds occur in the province for at least part of the year. Least Sandpiper (<i>Calidris minutilla</i>), Spotted Sandpiper (<i>Actitis macularius</i>), Greater Yellowlegs (<i>Tringa melanoleuca</i>), Piping Plover (<i>Charadrius melodus</i>), Semipalmated Plover (<i>Charadrius semipalmatus</i>) and Killdeer (<i>Charadrius vociferus</i>) nest in Newfoundland (Warkentin and Newton 2009). Whimbrel (<i>Numenius phaeopus</i>), White-rumped Sandpiper (<i>Calidris fuscicollis</i>), Greater Yellowlegs, Semipalmated Plover, Sanderling (<i>Calidris alba</i>), American Golden-plover (<i>Pluvialis dominica</i>), Semipalmated Sandpiper (<i>Calidris pusilla</i>) and Black-bellied Plover (<i>Pluvialis squatarola</i>) are locally common during migration, while less common migrants include Dunlin (<i>Calidris alpina</i>), Hudsonian Godwit (<i>Limosa haemastica</i>), Ruddy Turnstone (<i>Arenaria interpres</i>), Least Sandpiper, Buff-breasted Sandpiper (<i>Tryngites subruficollis</i>) and Red Knot (<i>Calidris canutus rufa</i> subspecies) (Environment Canada 2009). Purple Sandpiper (<i>Calidris maritima</i>) and Ruddy Turnstone overwinter in the area (IBA 2014)
	Status	Two species of shorebird are protected under federal and provincial legislation (NLESA and SARA: Endangered), the Red Knot <i>rufa</i> subspecies and Piping Plover. The Buff-breasted Sandpiper was assessed as Special Concern by COSEWIC.
	Typical Habitat	Nest close to inland freshwater bodies, estuaries and tidal flats. Feed on tidal flats, coastal barrens, and rocky shorelines, and move to inland areas during high tide.
	Seasonal Movements	Most shorebirds are long-distance migrants. Spring and fall migration routes differ; in Atlantic Canada, greater numbers of most species are seen during fall migration. According to results from the Atlantic Canada Shorebird Survey, the eastern coast of the Avalon Peninsula has several important migration stopovers (e.g., Witless Bay, Renew's, Long Beach, St. Shotts, Spaniard's Bay, Bellevue Beach, etc.); other major stopovers in southern and eastern Newfoundland include Big Barasway, Grand Bay West to Cheeseman Provincial Park, Codroy Valley Estuary, Cape Freels and Cape Bonavista (IBA 2014; Environment Canada 2009). In the winter months, generally from November to April, Purple Sandpipers are present along rocky shorelines and offshore ledges and islands of southern and eastern Newfoundland, including at Cape Spear, Witless Bay, Ferryland, Cape St. Francis and Mistaken Point in

Group	Details ¹
	<p>Eastern Newfoundland (IBA 2014; Environment Canada 2009). At Mistaken Point, far north of the rest of the species' usual wintering range, a small number of Ruddy Turnstones regularly overwinters (IBA 2014).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Most species typically lay four eggs. Incubation lasts approximately three weeks. • Precocial young depart the nest within 24 hours of hatching; however, they are unable to fully thermoregulate for the first few days. • Most shorebirds feed in tidal mudflats, probing sand with their long bills; other species such as Whimbrel feed on berries in coastal barrens, while still others feed on small invertebrates (e.g. mollusks) along rocky shorelines and offshore ledges and islands.
<p>¹ Information is summarized from Poole (2005) unless otherwise noted</p>	

4.2.2.3 Waterfowl

Waterfowl, along with loons and grebes, spend much of their time on the water's surface. Taxonomically, loons and grebes are not waterfowl; however, they have fairly similar life histories and are therefore considered together in this section. Broadly, waterfowl may be categorized as dabbling ducks (primarily inland breeders) and diving ducks. Table 4.17 presents information on the habits, habitats and key life history characteristics of waterfowl (including loons and grebes) that do or may occur within the Study Area.

Table 4.17 Overview of Waterfowl (including Loons and Grebes) Known or Likely to Occur Within the Study Area

Group	Details ¹
Waterfowl	<p>Species Close to 20 species of waterfowl occur in the province during at least part of the year. Common Loon (<i>Gavia immer</i>), Pied-billed Grebe (<i>Podilymbus podiceps</i>), and at least 14 duck species (of which Common Eider, <i>Somateria mollissima</i>, is the most abundant) breed in the province (Warkentin and Newton 2009).</p> <p>Status Two duck species are protected under federal and provincial legislation (NLESA: Vulnerable and SARA: Special Concern), the Harlequin Duck (<i>Histrionicus histrionicus</i>) and Barrow's Goldeneye (<i>Bucephala islandica</i>). Populations of inland-breeding duck species surveyed by CWS (American Black Duck (<i>Anas rubripes</i>), Mallard (<i>Anas platyrhynchos</i>), Green-winged Teal (<i>Anas carolinensis</i>) and Ring-necked Duck (<i>Aythya collaris</i>)) are considered stable in Eastern Canada (CWS Waterfowl Committee 2013). Population trends for sea ducks are relatively poorly known, as most breed in remote areas; however, available information indicates that populations are stable (CWS Waterfowl Committee 2013).</p> <p>Typical Habitat Most species nest on freshwater lakes and rivers; some (e.g. American Wigeon (<i>Anas americana</i>), Blue-winged Teal (<i>Anas discors</i>), Northern Shoveler (<i>Anas clypeata</i>), Pied-billed Grebe, etc.) nest in estuaries. The</p>

Group	Details ¹
	<p>colonial Common Eider breeds on coastal islands. Many species winter in offshore waters, including scoters, mergansers, goldeneye and eiders.</p> <p>Seasonal Movements Many waterfowl species migrate south for the winter months, and in the fall, many species aggregate at staging and moulting areas. Other species, such as White-winged Scoters (<i>Melanitta deglandi</i>), Surf Scoters (<i>Melanitta perspicillata</i>), Black Scoters (<i>Melanitta americana</i>), Long-tailed Ducks (<i>Clangula hyemalis</i>) and Common Eiders, occur in large flocks (“rafts”) offshore in the Study Area from autumn to spring. Large wintering congregations occur at Witless Bay IBA, between the Cape Freels coastline and nearby Wadham Islands, Grates Point, Cape St. Francis, Mistaken Point, Cape St. Mary’s and Placentia Bay.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Clutch size for ducks typically 3-14; loons, grebes and sea ducks typically have lower reproductive rates compared with inland ducks (CWS Waterfowl Committee 2013). Age at first breeding 1-2 for most species, 2-3 for sea ducks (Sibley 2001). • Precocial young typically remain with female parent until near fledging. • The main foraging strategies of this group are dabbling (surface-feeding) and diving. • Dabbling ducks eat animals as juveniles and during breeding and pre-breeding, and plant material at other times. Sea ducks, loons and grebes feed on invertebrates, shellfish and fish year-round.
<p>¹ Information is summarized from Poole (2005) unless otherwise noted</p>	

4.2.2.4 Other Marine-Associated Avifauna

Many passerines (songbirds), raptors and other landbirds breed in Newfoundland. Two areas that support a particularly high abundance and diversity on the Island of Newfoundland are Terra Nova National Park and the Codroy Valley (IBA 2014). Terra Nova supports populations of Ovenbird (*Seiurus aurocapilla furvoir* subspecies, which is a restricted-range species), the provincially vulnerable Gray-cheeked Thrush (*Catharus minimus minimus* subspecies) and the federally and provincially endangered Red Crossbill (*Loxia curvirostra percna* subspecies). IBA (2014) provides a partial list of species that breed in the park, including the Black-backed Woodpecker (*Picoides arcticus*), Boreal Owl (*Aegolius funereus*), Ruby-crowned Kinglet (*Regulus calendula*), Northern Goshawk (*Accipiter gentilis*), Yellow-bellied Flycatcher (*Empidonax flaviventris*), American Redstart (*Setophaga ruticilla*), Black-throated Green Warbler (*Dendroica virens*), Magnolia Warbler (*Dendroica magnolia*), Mourning Warbler (*Oporornis philadelphia*), Ovenbird, Palm Warbler (*Dendroica palmarum*) and Tennessee Warbler (*Oreothlypis peregrina*). Red Crossbill and Ovenbird also breed in Codroy Valley, along with many species that are uncommon or absent elsewhere in Newfoundland (Ruby-throated Hummingbird (*Archilochus colubris*), Gray Catbird (*Dumetella carolinensis*), Red-eyed Vireo (*Vireo olivaceus*), Rose-breasted Grosbeak (*Pheucticus ludovicianus*) and Bobolink (*Dolichonyx oryzivorus*)) and a rich assemblage of woodland species including Magnolia Warbler, Black-throated Green Warbler, Bay-breasted Warbler (*Dendroica castanea*), Cape May Warbler (*Dendroica tigrina*) and Blackburnian Warbler (*Dendroica fusca*) (IBA 2014).

Although most do not regularly occur in the marine environment, some species of landbirds often feed in coastal habitats (e.g. Bank Swallow (*Riparia riparia*), Savannah Sparrow (*Passerculus sandwichensis*), Short-

eared Owl (*Asio flammeus*), some raptor species) and many fly long distances over water during migration. Nocturnal migrants such as passerines may be attracted to artificial light sources at sea, particularly in foggy conditions (Chapter 5).

4.2.2.5 Species at Risk and of Special Conservation Concern

A number of bird species at risk or which are otherwise subject to conservation concern occur in Newfoundland and in the waters offshore (Table 4.18).

Species that do not inhabit the offshore environment, or those that only migrate over the ocean in the daytime (and are therefore unlikely to be affected by attraction to artificial marine lighting), were considered unlikely to be affected by the proposed Project and so are not described herein. This includes the Red Crossbill (*percna* subspecies), a non-migratory forest dweller that does not occur in the offshore environment (Environment Canada 2006). The Rusty Blackbird (*Euphagus carolinus*) breeds throughout Newfoundland and may migrate over the offshore area, but as a diurnal migrant (Avery 2013). Other diurnal migrant species at risk or species of conservation concern that may occur in Newfoundland but are not considered here include the Chimney Swift (*Chaetura pelagica*) (Cink and Collins 2002) and Barn Swallow (*Hirundo rustica*) (Brown and Bomberger Brown 1999).

Two additional marine-associated avian species at risk in Eastern Canada, the Roseate Tern and Eskimo Curlew, are not considered likely to occur in the Study Area. The Roseate Tern breeds in Southern Nova Scotia and the Northeastern United States, and winters further south (Gochfeld et al 1998). The Eskimo Curlew once bred in large numbers in the Arctic and passed through Newfoundland and Labrador on its migration to the South American wintering grounds in the fall. However, the species' numbers have declined sharply, and there have been no confirmed sightings of the Eskimo Curlew since 1963. The species is therefore considered to possibly be extinct (COSEWIC 2009b).

Table 4.18 Avian Species at Risk or Otherwise of Special Conservation Concern

Species	Provincial Status	Federal Status		Habitat and Distribution in Southern and Eastern Newfoundland	Potential Presence in the Study Area
		SARA Listing	COSEWIC Assessment		
Barrow's Goldeneye (<i>Bucephala islandica</i>)	Vulnerable	Special Concern Schedule 1	Special Concern	<ul style="list-style-type: none"> • Moults and winters in small numbers off the coast of Eastern Canada. • Often in groups with Common Goldeneye. • Small numbers have been reported wintering at Port Blandford and Newman Sound in Terra Nova National Park, as well as Traytown Bay, St. Mary's Bay, and Spaniard's Bay (Schmelzer 2006). 	Barrow's Goldeneye are known to congregate in relatively small geographic areas in important shipping corridors, therefore considered to be particularly vulnerable to being affected by accidental spills (NLDEC 2013a).
Harlequin Duck (<i>Histrionicus histrionicus</i>)	Vulnerable	Special Concern Schedule 1	Special Concern	<ul style="list-style-type: none"> • Breeds in fast-flowing streams, and congregate in moulting sites in the late summer to fall. • Winter along rocky coastlines, subtidal ledges, and exposed headlands. • Bay du Nord River in southeastern Newfoundland may support nesting Harlequins (IBA 2014). • Cape St. Mary's is one of just three known moulting sites in Newfoundland (Thomas 2008). • Regularly winter in the waters off Cape St. Mary's (IBA 2014; NLDEC 2013a). • A small number of non-breeding individuals may be found at Cape St. Mary's year round (Environment Canada 2007). 	Although they breed inland, Harlequin Ducks occur in the coastal marine environment throughout the fall and winter months. Some non-breeding individuals may be found year round at Cape St. Mary's.
Ivory Gull (<i>Pagophila eburnea</i>)	Endangered	Endangered Schedule 1	Endangered	<ul style="list-style-type: none"> • Breeds in the far north. • Winters offshore, occurring in small numbers in the waters off Eastern Newfoundland. • They are found most often among the pack ice. • Rarely seen on the coast of the Northern Peninsula and ashore (Stenhouse 2004; NLDEC 2013a). 	Outside of the breeding season, Ivory Gulls spend almost all of their time in the marine environment, including within the Study Area. However, because they are typically found among pack ice, frequent interactions with project activities are unlikely.
Piping Plover (<i>Charadrius melodus melodus</i> subspecies)	Endangered	Endangered Schedule 1	Endangered	<ul style="list-style-type: none"> • Nest on sandy beaches. • In Newfoundland, breeding population is concentrated in the southwest and western 	During the nesting season, Piping Plovers are found on sandy beaches along the coast. Piping Plovers are

Species	Provincial Status	Federal Status		Habitat and Distribution in Southern and Eastern Newfoundland	Potential Presence in the Study Area
		SARA Listing	COSEWIC Assessment		
				<p>portions of the Island (NLDEC 2013a).</p> <ul style="list-style-type: none"> In southern Newfoundland, major breeding areas include Grand Bay West to Cheeseman Provincial Park and Big Barasway, and nesting has also been observed in Codroy Valley Estuary (IBA 2014). In 2013, breeding was reported at Deadman’s Bay, near Cape Freels Coastline IBA in northeastern Newfoundland. 	<p>unlikely to be affected by typical project activities, although accidental spills near breeding habitat could potentially be harmful.</p>
<p>Red Knot <i>(Calidris canutus rufa</i> <i>subspecies)</i></p>	Endangered	Endangered Schedule 1	Endangered	<ul style="list-style-type: none"> Found on open sandy inlets, coastal mudflats, sand flats, salt marshes, sandy estuaries and areas with rotting kelp deposits during fall migration, from August 1st to October 30th (Garland and Thomas 2009; NLDEC 2013a). Newfoundland is not considered to be a major stopover location; nonetheless, sightings have been reported around almost the entire coast of Newfoundland, mostly on the west coast. In the Atlantic Canada Shorebird Survey, they are considered regular or occasional species during fall migration at Bellevue Beach, Cape Freels, and around the Codroy Valley Estuary, and they are rare visitors at a number of other survey sites (Environment Canada 2009). 	<p>During fall migration, the species may be found in small numbers at many locations along the coast. They are unlikely to be affected by typical project activities, although accidental spills near migration stopovers could potentially be harmful.</p>
<p>Buff-breasted Sandpiper <i>(Tryngites subruficollis)</i></p>			Special Concern	<ul style="list-style-type: none"> Arctic breeders; during fall migration, considered to be a rare migrant in the province (COSEWIC 2012c). Occasionally observed in Atlantic Canada Shorebird Surveys at St. Shott’s Sod Farm near the southern shore of the Avalon Peninsula and at Cape Bonavista, and are reported as rare visitors at a number of other survey sites (Environment Canada 2009). 	<p>See Red Knot.</p>

Species	Provincial Status	Federal Status		Habitat and Distribution in Southern and Eastern Newfoundland	Potential Presence in the Study Area
		SARA Listing	COSEWIC Assessment		
Peregrine Falcon (<i>Falco peregrinus</i>)	Vulnerable	Special Concern Schedule 1	Special Concern	<ul style="list-style-type: none"> Migrates along the coast of Newfoundland during the fall (particularly the west coast) Preys on concentrations of migrating shorebirds (Thomas 2008). Peregrine Falcon sightings have been reported in the fall near Port-aux-Basques, St. Pierre et Miquelon, and on the Bonavista Peninsula, and at all times of year (but most frequently during the fall) on the Avalon Peninsula (e-Bird 2014). 	Present in small numbers in coastal areas within the Study Area during fall migration.
Bank Swallow (<i>Riparia riparia</i>)			Threatened	<ul style="list-style-type: none"> Colonial, nesting in burrows constructed in banks. Diurnal migrants (Garrison 1999). Within the province, breeds primarily in southwestern Newfoundland (Warkentin and Newton 2009); however, sightings have also been reported in eastern Newfoundland (e-Bird 2014). 	Bank Swallow colonies are often found in banks created through coastal erosion and so may be located in close proximity to the marine environment during the breeding season.
Gray-cheeked Thrush (<i>Catharus minimus minimus</i> subspecies)	Vulnerable			<ul style="list-style-type: none"> Occurs in dense coniferous forest habitat throughout insular Newfoundland. Migrates south in the fall. Most common on the Northern Peninsula and along the northeast coast, as well as the northern Avalon Peninsula (Endangered Species and Biodiversity Section 2010). Has also been reported in Placentia Bay (Endangered Species and Biodiversity Section 2010) and breeds in Terra Nova National Park (IBA 2014). 	The Gray-cheeked Thrush is an inland species, and so is unlikely to be affected by offshore activities at most times of year. During fall migration, like other nocturnal migrants, there is potential for Gray-cheeked Thrush to be attracted to or disoriented by artificial light sources on the water such as ship lighting.
Olive-sided Flycatcher (<i>Contopus cooperi</i>)	Threatened	Threatened Schedule 1	Threatened	<ul style="list-style-type: none"> Found in boreal forest habitat, particularly open areas such as wetlands with tall trees and snags. Migrates to south and central America to overwinter (Altman and Sallabanks 2012). Breeds throughout insular Newfoundland and Southern Labrador (COSEWIC 2007), and in Eastern 	See Gray-cheeked Thrush.

Species	Provincial Status	Federal Status		Habitat and Distribution in Southern and Eastern Newfoundland	Potential Presence in the Study Area
		SARA Listing	COSEWIC Assessment		
				Newfoundland it has been reported at several locations on the Avalon Peninsula as well as at Terra Nova National Park (e-Bird 2014).	
Bobolink <i>(Dolichonyx oryzivorus)</i>			Threatened	<ul style="list-style-type: none"> Nests in agricultural and natural grasslands, and migrates to South America in the fall (Martin and Gavin 1995). Breeding has been reported at Codroy Valley (IBA 2014), and there have been sightings on the Avalon Peninsula and Terra Nova National Park (e-Bird 2014). 	See Gray-cheeked Thrush.
Short-eared Owl <i>(Asio flammeus)</i>	Vulnerable	Special Concern Schedule 1	Special Concern	<ul style="list-style-type: none"> Typically nests in coastal barrens and grasslands, and suitable habitat occurs in much of coastal Newfoundland. Sightings have been reported throughout the eastern portion of the Island from Wadham Islands to the Avalon and Burin Peninsulas, and near Port-aux-Basques and Codroy Valley in southwestern Newfoundland Most sightings are in the summer months (Schmelzer 2005; e-Bird 2014). 	Present in coastal areas within the Study Area, primarily during the summer months.

4.2.2.6 Key Areas and Times for Marine / Migratory Birds

The Important Bird Area (IBA) program is coordinated by BirdLife International, and administered in Canada by the Canadian Nature Federation and Bird Studies Canada (IBA 2014). This program identifies areas of important habitat using internationally standardized criteria based on the presence of species at risk, species with restricted range, habitats holding representative species assemblages, or a congregation of a nationally and/or globally significant proportion of a species' population during one or more season. In Eastern and Southern Newfoundland, in proximity to the Study Area, there are a total of 21 designated IBAs (Figure 4.60; Table 4.19).

Table 4.19 Important Bird Areas within or Near the Study Area

IBA Name	Area (km ²)	Location	Characteristics and Importance
<i>Funk Island (NF004)</i>	135.18	An island off northeastern Newfoundland, situated approximately 60 km from shore.	<ul style="list-style-type: none"> Major concentration of nesting seabirds Globally significant Common Murre population Large numbers of Northern Gannets Provincially protected Seabird Ecological Reserve; as such, access to the island is restricted to scientific researchers.
<i>Wadham Islands and adjacent Marine Area (NF013)</i>	159.23	Located near Fogo Island, approximately 40 km offshore, this IBA includes 7 main islands and several smaller rocks and shoals.	<ul style="list-style-type: none"> Globally significant number of wintering Common Eider (approximately 25,000 counted in a 1995 survey) Large numbers of nesting Atlantic Puffin, Leach's Storm-Petrel and Razorbill
<i>Cape Freels Coastline and Cabot Island (NF025)</i>	334.48	Located at the head of Bonavista Bay, this IBA includes several small islands and shoals.	<ul style="list-style-type: none"> Up to 25,000 wintering Common Eiders have been reported between the Cape Freels coastline and Wadham Islands Large numbers of nesting Common Murres, as well as some pairs of Razorbills Historic records of breeding Atlantic Puffins, although none were recorded in recent EC-CWS surveys
<i>Terra Nova National Park (NF017)</i>	655.56	Situated on the inner reaches of Bonavista Bay. Much of the area is forested, but there are numerous lakes and wetlands, as well as a significant coastal component.	<ul style="list-style-type: none"> Numerous forest species nest here, including two subspecies with restricted ranges: the federally-listed Red Crossbill (<i>percna</i> ssp.) and Ovenbird (<i>furvoir</i> ssp.) Shorebirds, gulls and waterfowl can be seen on the flats at the outlet of Big Brook, as well as Newman Sound At least six tern colonies (Common and Arctic Tern), totalling between 1000 and 1500 pairs.
<i>Grates Point (NF019)</i>	66.55	The northern tip of the Bay de Verde Peninsula, which separates Trinity Bay from Conception Bay.	<ul style="list-style-type: none"> Large number of wintering Common Eiders (up to 12,000 individuals, but typically around 2,800) Other wintering species include Black-legged Kittiwake, Thick-billed Murre and Dovekie Atlantic Puffin and Northern Gannet are present in the summer months
<i>Baccalieu Island</i>	45.22	Located 5.5 km from the northern tip of the Avalon	<ul style="list-style-type: none"> Greatest seabird abundance and diversity in Eastern North America

IBA Name	Area (km ²)	Location	Characteristics and Importance
(NF003)		Peninsula.	<ul style="list-style-type: none"> World's largest colony of Leach's Storm-petrels, including 70 percent of the North American population Significant numbers of breeding Atlantic Puffin, Black-legged Kittiwake and Northern Gannet Smaller numbers of nesting Common Murre, Thick-billed Murre, Razorbill, Black Guillemot, Northern Fulmar, Herring Gull and Great Black-backed Gull Like Funk Island, a provincially designated Seabird Ecological Reserve
<i>Cape St. Francis</i> (NF021)	70.21	Located at the northern tip of the Avalon Peninsula.	<ul style="list-style-type: none"> Winter congregating area for Common Eiders; up to 5000 individuals recorded Purple Sandpipers regularly observed along the rocky shoreline in the winter
<i>Quidi Vidi Lake</i> (NF022)	7.0	Situated within St. John's city limits, and fed by the Virginia River and Rennies River.	<ul style="list-style-type: none"> Important daytime resting site for gulls from late fall to early spring, including significant numbers of Herring, Great Black-backed, Iceland, Glaucous and Common Black-headed Gulls Locally rare Ring-billed Gull, Mew Gull and Lesser Black-backed Gull occasionally reported Waterfowl including American Black Ducks, Mallards and Northern Pintails are common here in the winter, subsisting on food handouts from people
<i>Witless Bay Islands</i> (NF002)	62.08	Composed of four small islands off the east coast of the Avalon Peninsula.	<ul style="list-style-type: none"> Provincially designated Seabird Ecological Reserve Globally significant numbers of breeding seabirds, including more than half of the eastern North American population of Atlantic Puffins and almost 10 percent of the global Leach's Storm-petrel population Large numbers of nesting Common Murres, Black-legged Kittiwakes and Herring Gulls Great Black-back Gulls, Northern Fulmars, Thick-billed Murres, Razorbills and Black Guillemots nest in smaller numbers During the fall migration, surrounding marine area is important to sea ducks including White-winged Scoter, Surf Scoter, Long-tailed Duck and Common Eider
<i>Mistaken Point</i> (NF024)	102.77	Located near the southeastern corner of the Avalon Peninsula.	<ul style="list-style-type: none"> Important wintering area for up to 12,000 Common Eiders Continentially significant numbers of wintering Purple Sandpiper (over 1 percent of North American population) Small numbers of overwintering Ruddy Turnstone, far north of its usual wintering range Nesting Black-legged Kittiwake, Common Murre and Razorbill Provincially designated Ecological Reserve because of its rich fossil deposits
<i>Cape St. Mary's</i>	329.39	Located at the entrance to Placentia Bay on the	<ul style="list-style-type: none"> Significant numbers of nesting Northern Gannet (over 2 percent of global population)

IBA Name	Area (km ²)	Location	Characteristics and Importance
(NF001)		southwestern Avalon Peninsula.	<ul style="list-style-type: none"> • Large numbers of Common Murre and Black-legged Kittiwake, and smaller numbers of nesting Thick-billed Murre, Razorbill, Great Cormorant and Double-crested Cormorant • Herring Gull, Great Black-backed Gull and Black Guillemot historically reported nesting • In the winter, large numbers of migrating sea ducks including scoters, Common Eider, Long-tailed Duck and the endangered Harlequin Duck • Small numbers of Harlequin Duck during summer, moulting season in some years • Designated as a provincial Seabird Ecological Reserve
Placentia Bay (NF028)	1398.05	Includes the eastern half of Placentia Bay in southeastern Newfoundland (between the Avalon and Burin peninsulas), and extends out 25 km from shore	<ul style="list-style-type: none"> • Exceptional feeding area for seabirds during the summer capelin spawning season • More than 100,000 shearwaters recorded in a single survey (mostly Greater and Sooty Shearwater, some Manx Shearwater) • Large numbers of other species breeding at Cape St. Mary's feed here, including Northern Gannet, Black-legged Kittiwake, Atlantic Puffin, Thick-billed Murre and Common Murre • Large numbers of feeding Pomarine and Parasitic Jaegers • More than 1,000 wintering Common Eiders
Cape Pine and St. Shotts Barren (NF015)	57.4	Located on the southern tip of the Avalon Peninsula.	<ul style="list-style-type: none"> • Large, possibly globally significant numbers of American Golden-Plover during their fall migration (August to mid-October) • Dozens of Whimbrel during fall migration
Corbin Island (NF030)	5.25	Located at the southeast corner of the Burin Peninsula.	<ul style="list-style-type: none"> • An estimated 100,000 nesting Leach's Storm-petrels (2 percent of western Atlantic population) • Historic records of Herring Gull, Great Black-backed Gull, Black Guillemot and Black-legged Kittiwake colonies
Middle Lawn Island (NF031)	4.17	A small, rugged island off the southern tip of the Burin Peninsula.	<ul style="list-style-type: none"> • One of the few known colonies of Manx Shearwaters in North America, as well as the largest with up to 100 pairs reported; another 300 non-breeding individuals are estimated to occur • Globally significant numbers of Leach's Storm Petrels breed on the island • Black Guillemot, Herring Gull and Great Black-backed Gull have been reported breeding • Part of the Lawn Islands Archipelago, a provisional Seabird Ecological Reserve
Green Island (NF032)	5.61	Located midway between the Burin Peninsula and the French islands of St. Pierre and Miquelon.	<ul style="list-style-type: none"> • Globally significant colony of Leach's Storm-petrels • Common Tern, Arctic Tern and small numbers of Herring Gull have been reported breeding • Spotted Sandpipers observed in the summer • Manx Shearwater and Black Guillemot are believed to

IBA Name	Area (km ²)	Location	Characteristics and Importance
			breed on the island
<i>Bay du Nord Wilderness Reserve and Middle Ridge Wildlife Reserve (NF018)</i>	3804.04	An upland plateau with extensive barrens, heaths and wetlands, this IBA comprises two large inland reserves in southeastern Newfoundland.	<ul style="list-style-type: none"> • Several species of breeding waterfowl, including Canada Goose, American Black Duck, Green-winged Teal, Common Goldeneye and Common Merganser • The endangered Harlequin Duck may breed on Bay du Nord River • Rock Ptarmigan (<i>welchii</i> subspecies), a restricted-range species, is believed to breed in small numbers
<i>Big Barasway (NF037)</i>	10.4	This beach and associated bar lagoon is located near the community of Burgeo on the southern coast of Newfoundland.	<ul style="list-style-type: none"> • Supports an average of 7 Piping Plovers, about 1.6 percent of the Atlantic Canada population, in the breeding season; this is approximately 24 percent of Newfoundland's Piping Plovers
<i>Grand Bay West to Cheeseman Provincial Park (NF038)</i>	40.33	This beach system spans approximately 8 km of shoreline near Port-aux-Basques.	<ul style="list-style-type: none"> • As many as 21 Piping Plovers have been counted during the breeding season; 18 Piping Plovers were recorded in 1996, representing 4.2 percent of the estimated Atlantic Canada population at the time
<i>Codroy Valley (NF040)</i>	35.46	Located just south of the Grand Codroy River Estuary in southwestern Newfoundland (north of the Study Area).	<ul style="list-style-type: none"> • Provides breeding habitat for two restricted-range forest birds, the Red Crossbill (subspecies <i>percna</i>) and Ovenbird (subspecies <i>furvoir</i>) • Supports many species that are uncommon or absent elsewhere on the island, including Ruby-throated Hummingbird, Gray Catbird, Red-eyed Vireo, Rose-breasted Grosbeak and Bobolink • Rich in woodland species
<i>Codroy Valley Estuary (NF041)</i>	13.56	Located at the mouth of the Grand Codroy River, where it broadens into an estuary. The IBA comprises the open waters of the estuary up to the high tide marks on the shoreline.	<ul style="list-style-type: none"> • Continentally significant numbers (over 1 percent of the population) of North Atlantic population of Canada Goose, averaging 1,385 birds • Piping Plovers have successfully fledged young • Provincially significant breeding populations of American Wigeon and Blue-winged Teal, as well as first breeding record for Northern Shoveler in the province • Important breeding and staging site for over 19 other species of waterfowl, including Wood Duck (<i>Aix sponsa</i>), Green-winged Teal, American Black Duck, Northern Pintail (<i>Anas acuta</i>), Gadwall (<i>Anas strepera</i>), Lesser Scaup (<i>Aythya affinis</i>), Greater Scaup (<i>Aythya marila</i>), Common Merganser (<i>Mergus merganser</i>) and Red-breasted Merganser (<i>Mergus serrator</i>); rare waterfowl have also been reported, including Eurasian Wigeon (<i>Anas penelope</i>) and Tufted Duck (<i>Aythya fuligula</i>) • The only important designated wetland habitat (Ramsar site) in Newfoundland (Ramsar 2013).
Sources: IBA (2014); Atlantic Canada Colonial Waterbird Database (EC-CWS 2013); AMEC (2014)			

Other designated sites that are important to migratory birds include federal Migratory Bird Sanctuaries (MBS), provincially-designated Wilderness and Ecological Reserves, and Ramsar sites which are designated wetlands of international importance. Migratory Bird Sanctuaries are designated by Environment Canada and are protected by the *Migratory Bird Sanctuary Regulations* regarding the taking, injuring or destruction of migratory birds or their nests or eggs in the sanctuaries. Hunting of migratory species not permitted in any Migratory Bird Sanctuary. There is one MBS in the general area, the Terra Nova Bird Sanctuary, which is part of the Terra Nova National Park and is described in the preceding Table.

As described in a later section, there are six provincial Ecological Reserves within the Study Area (NLDEC 2013b), though outside the Project Area. Four of these are Seabird Ecological Reserves (Witless Bay, Baccalieu Island, Cape St. Mary's and Funk Island) and these sites are also IBAs (see above). In 2009, the Lawn Islands Archipelago (which includes Middle Lawn Island) was named as a provisional Seabird Ecological Reserve, and as such has been afforded interim protection until the site assessment process has been completed (Government of NL 2009). The provincial *Seabird Ecological Reserve Regulations* prohibit or limit industrial development as well as certain activities that can cause disturbance to breeding seabirds, including limitations on hiking, boat traffic and low-flying aircraft near the colonies during the breeding season, and prohibition of ATVs at all times. Mistaken Point (also an IBA, see preceding Table) and Fortune Head are designated Ecological Reserves because of their rich assemblage of fossils, and so are protected from development and off-road vehicles. The 1998 Convention on Wetlands of International Importance (also referred to as the Ramsar Convention) established an objective of sustaining important wetland habitats. In 1981, Canada became a contracting party to the Ramsar Convention, and to date, Canada has designated 37 Ramsar Sites of which 17 are also National Wildlife Areas or Migratory Bird Sanctuaries (Environment Canada 2012). The only Ramsar site in Newfoundland is the Codroy Valley Estuary (Ramsar 2013), which is not within or near the Study Area. Nesting sites for colonial seabirds and rare species also constitute particularly important areas and habitats. Table 4.20 summarizes the major nesting sites along the coast of Eastern and Southern Newfoundland. It should be noted that this is not an exhaustive list, as there exist a number of smaller colonies of Leach's Storm-Petrel, Atlantic Puffin, Herring Gull, Great Black-backed Gull and Black-Legged Kittiwake within the Study Area.

As also described in Section 4.2.1, a number of EBSAs have also been identified within the Placentia Bay Grand Banks Large Ocean Management Area. Among the criteria for selection and ranking of these areas was their importance to marine birds and marine mammals in terms of biodiversity, density and importance to reproduction and survival. A discussion of key relevant characteristics of EBSAs that were identified as possessing important attributes to marine mammals and birds is provided later in this report (Section 4.2.3). For seabirds, these are primarily important offshore feeding areas.

The abundance and distribution of birds in the Study Area changes throughout the year. The phenology of species and groups in the area is shown in Figure 4.61. Information on key locations and times of year for Marine / Migratory Bird Species at Risk is found in the preceding section.

Figure 4.60 Important Birds Areas

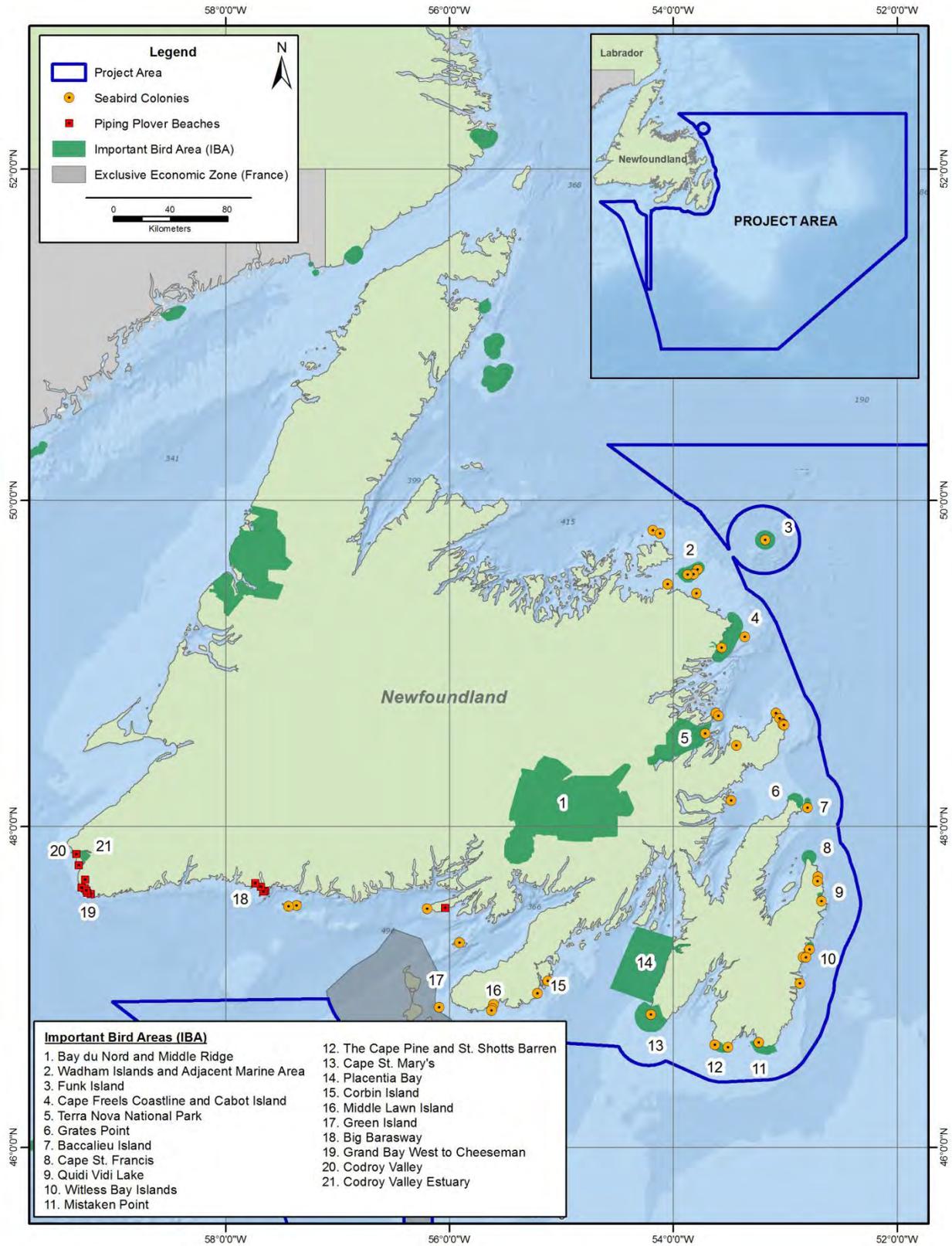


Table 4.20 Estimated Numbers of Pairs of Colonial Seabirds and Species at Risk along Coastal Southern and Eastern Newfoundland

Nesting Areas and Important Bird Areas ¹	Colony # (Refer to Figure) ²	Fulmars and Shearwaters		Storm-Petrels	Gannets	Gulls				Terns	Alcids (Auks)					Shore birds
		N Fulmar	Manx Shearwater	Leach's Storm-petrel	N Gannet	Herring Gull	Great Black-backed Gull	Ring-billed Gull ³	Black-legged Kittiwake	Common and Arctic Terns ³	Common Murre	Thick-billed Murre	Razor bill	Black Guillemot ⁴	Atl Puffin	Piping Plover ⁵
Storehouse Islets	1			100		1 - 100 ³	1 - 100 ³			48						
Little Fogo Islands	2			38,000		506	67		110		15		265	290	12,015	
<i>Funk Island</i>	3	85			9,043	150	75		100		470,000	250	200		2,000	
Deadman's Bay P.P.	--															breed
Small Island, <i>Wadham Island</i>	4			1,038			1 - 100 ³						273		6,190	
Coleman Island	5			5,000			1 - 100 ³	101 - 500 ³		85			10		950	
Pigeon Island (NDB)	6									28					120	
Ladle Island	7			20		1 - 100 ³	1 - 100 ³									
Penguin Island, South	8			7,800		101 - 500 ³	1 - 100 ³			80					1,500	
<i>Cabot Island, South</i>	9					1 - 100 ³	1 - 100 ³				10,000		4			
Pound Island	10			1,000		101 - 500 ³	1 - 100 ³									
Shag Islands	11			1,700						200						
Little Denier Island	12			1,300		1 - 100 ³	1 - 100 ³		101 - 500 ³						1,000	
Copper Island	13			10		1 - 100 ³	1 - 100 ³									
Green Island, Trinity Bay	14					>1000 ³	1 - 100 ³	101 - 500 ³							1,277	
Cape Bonavista, uni E. of	15														120	
Spillars Point	16								501 - 1000 ³						250	
North Bird Island	17					101 - 500 ³			1 - 100 ³						1,000	
Elliston Point Island	18					101 - 500 ³									400	
Bird, South	19			50		101 - 500 ³	1 - 100 ³		1 - 100 ³						1,000	

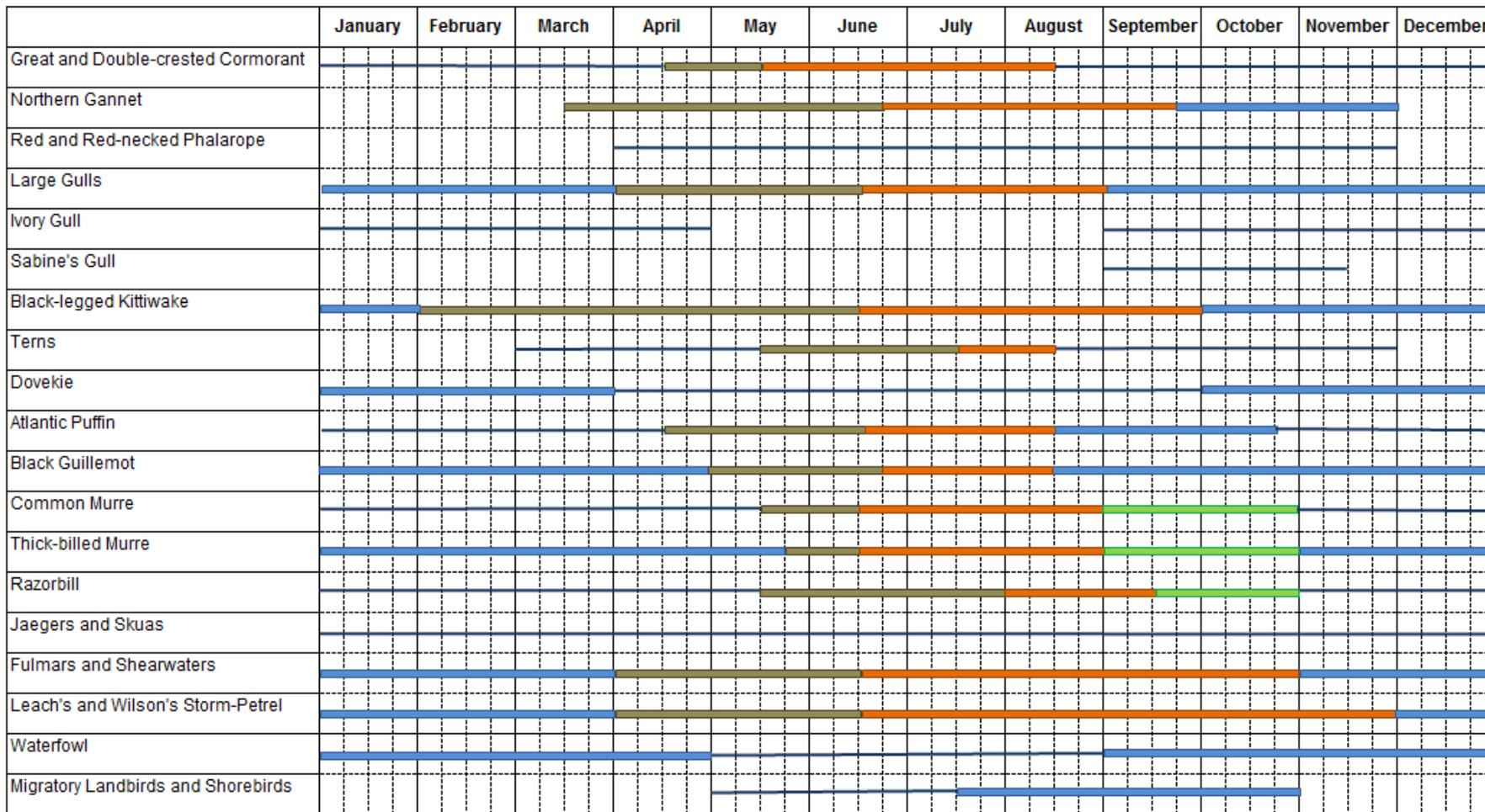
Nesting Areas and Important Bird Areas ¹	Colony # (Refer to Figure) ²	Fulmars and Shearwaters		Storm-Petrels	Gannets	Gulls				Terns	Alcids (Auks)					Shore birds
		N Fulmar	Manx Shearwater	Leach's Storm-petrel	N Gannet	Herring Gull	Great Black-backed Gull	Ring-billed Gull ³	Black-legged Kittiwake	Common and Arctic Terns ³	Common Murre	Thick-billed Murre	Razor bill	Black Guillemot ⁴	Atl Puffin	Piping Plover ⁵
Duck Island, Trinity Bay	20					101 - 500 ³									3,000	
Baccalieu Island	21	13		4,623,911	2,157	180	9		5,096		1,440	73	1,500	143	75,000	
Flatrock	22								1,644							
Torbay	23								115							
Freshwater Bay	24								2,747							
Gull Island, Witless Bay	25	7		170,000		1,881	33		4,530		3,496		294	2	140,429	
Green Island, Witless Bay	26	1		20		100	20		2,188		250,000	242	170		9,300	
Pee Pee Island, Witless Bay	27					present	present								1,850	
Great Island, Witless Bay	28	10		134,000		1,640	28		6,710		4,656		117	3	174,500	
Ship Island	29	10				101 - 500 ³	1 - 100 ³									
The Drook	30														50	
Mistaken Point	31								4,170		84		72			
Cape Pine Head	32								575		9		189		259	
Western Head	33										27		7			
Cape St. Mary's	34	9			14,696				10,000		15,484	1,000	100			
Iron Island	35			10,000		101 - 500 ³	1 - 100 ³									
Corbin Island	36			100,000		1 - 100 ³										
Swale Island	37			88												
Middle Lawn Island	38		13	8,773		1 - 100 ³										
Lawn Island, Offer	39			224		1 - 100 ³	1 - 100 ³									
Green Island, Fortune Bay	40			103,833												
Brunette Island (north of)	41					1 - 100 ³	1 - 100 ³						50			

Nesting Areas and Important Bird Areas ¹	Colony # (Refer to Figure) ²	Fulmars and Shearwaters		Storm-Petrels	Gannets	Gulls				Terns	Alcids (Auks)					Shore birds
		N Fulmar	Manx Shearwater	Leach's Storm-petrel	N Gannet	Herring Gull	Great Black-backed Gull	Ring-billed Gull ³	Black-legged Kittiwake	Common and Arctic Terns ³	Common Murre	Thick-billed Murre	Razor bill	Black Guillemot ⁴	Atl Puffin	Piping Plover ⁵
Harbour Breton)																
Pass Island	42			100			1 - 100 ³		1 - 100 ³							
Big Barasway IBA	--															7
Grand Bay West to Cheeseman P.P. IBA	--															17
Codroy Valley Estuary IBA	--															breed

Notes: Data obtained from the Atlantic Canada Colonial Waterbird database maintained by Environment Canada - Canadian Wildlife Service (EC-CWS 2013) unless otherwise noted.

1. Bird colonies in *italics* are IBAs.
2. Colony # corresponds to the numbered seabird colonies in Figure 4.60.
3. Data obtained from Thomas et al (2011). These numbers are reported as individual birds, not breeding pairs. Common and Arctic Terns are combined, as the two species cannot be reliably distinguished from aerial surveys.
4. Black Guillemot numbers are likely to be underestimates due to the loose colony distribution and solitary nature of the species.
5. Piping Plover numbers are reported as individuals, not breeding pairs (IBA 2014).

Figure 4.61 Summary Overview of the Seasonal Presence of Marine / Migratory Birds in the Study Area



- Present at colony
- Chick rearing period
- Flightless birds (dependent young and/or moulting adults) at sea
- Common in coastal areas in Southern and Eastern Newfoundland and offshore
- Present in coastal areas in Southern and Eastern Newfoundland and offshore

4.2.3 Marine Mammals and Sea Turtles

The waters off Southern and Eastern Newfoundland support a diverse assemblage of marine fauna, including more than 20 marine mammals and three sea turtle species, many of which are considered to be at risk or otherwise of special conservation concern. Areas such as the Grand Banks are of particular importance to marine mammals and turtles, providing key feeding grounds for these animals. Several Ecologically and Biologically Significant Areas (EBSAs) have been identified in or near the Study Area, due in part to their known importance to a number of marine mammal species (Templeman 2007).

4.2.3.1 Mysticetes

Six species of the cetacean suborder Mysticetes (the baleen whales) have been reported in the waters off Southern and Eastern Newfoundland. These large whales are characterized by having plates of baleen (instead of teeth), which filter food items from seawater. They are typically solitary or clustered in small groups.

Table 4.21 summarizes key life history and habitat information for each of the species of baleen whales that do or may occur in the Study Area.

Table 4.21 Overview of Baleen Whales Known or Likely to Occur within the Study Area

Species	Details	
Humpback Whale <i>(Megaptera novaengliae)</i>	Population	Western North Atlantic
	Status	Not At Risk (COSEWIC); Special Concern (SARA Schedule 3). Relatively common in the Study Area; abundance estimate in Southern and Eastern Newfoundland is 1,427 individuals (95 percent confidence limits: 952 - 2,140) based on 2007 surveys. Estimate is considered by the authors to be preliminary, as it has not been corrected for perception biases (Lawson and Gosselin 2009).
	Habitat and Distribution	Usually found in coastal waters, but also may occur in offshore habitats (Baird 2003). Wide-ranging species found in all oceans (Reilly et al 2008a)
	Seasonal Movements	Highly migratory; individuals from the Newfoundland and Labrador feeding stock breed, calve in the West Indies (Katona and Beard 1990; IWC 2002). Calving occurs between January and April.
	Biology and Ecology	<ul style="list-style-type: none"> • Usually observed singly or in groups of 2-3; during breeding and feeding, groups of up to 15 individuals seen. • Sexual maturity at 9 years of age, on average. Gestation approximately 12 months, and inter-calving interval is 2 years (Baird 2003). • Feed on krill and small schooling fishes such as capelin (Reilly et al 2008a). • Often feed cooperatively, using specialized feeding techniques such as bubble net feeding (Reilly et al 2008a).

Species	Details
<p>Blue Whale <i>(Balaenoptera musculus)</i></p>	<p>Population Atlantic</p> <p>Status Endangered (SARA Schedule 1 and COSEWIC). The population size in Canadian waters is unknown, but based on data from a 2007 DFO survey in Atlantic Canadian waters, is believed to be fewer than 250 mature individuals (Lawson and Gosselin 2009; COSEWIC 2012d).</p> <p>Habitat and Distribution Found in both coastal and pelagic waters; frequently at continental shelf edge where food production is high (Schoenherr 1991). Wide-ranging species found in all oceans except the Arctic (Reilly et al 2008b).</p> <p>Seasonal Movements In the summer, distribution in the western Atlantic extends in the west from the Scotian Shelf to the Davis Strait; they are found off the southwest and eastern coasts of Newfoundland during winter and early spring (Sears et al 1990; Lesage et al 2007). Migration patterns are poorly understood, but variable and apparently related to food availability (Reilly et al 2008b). Mating and calving occurs between late fall to mid-winter (Yochem and Leatherwood 1985).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Usually observed singly or in small groups. • Sexual maturity at 5 - 15 years of age. Gestation approximately 10 - 11 months, and inter-calving interval is 2 - 3 years (Yochem and Leatherwood 1985). • Feed almost exclusively on krill (Reilly et al 2008b).
<p>Fin Whale <i>(Balaenoptera physalus)</i></p>	<p>Population Atlantic</p> <p>Status Special Concern (SARA Schedule 1 and COSEWIC). Relatively common in the Study Area, particularly in summer; abundance estimate in Southern and Eastern Newfoundland is 890 individuals (95 percent confidence limits: 551 - 1,435) based on 2007 surveys. Estimate is considered by the authors to be preliminary, as it has not been corrected for perception biases (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Generally found at the coastal shelf edge and further offshore (COSEWIC 2005). World-wide distribution, with higher abundance in temperate and polar latitudes compared with tropical waters (Reeves et al 2002)</p> <p>Seasonal Movements Migration habitats are not well understood; however, Newfoundland stocks appear to migrate southward in the winter (Allen 1971). Conception and calving takes place in the winter, and is thought to occur in low latitudes. Summer distribution is typically in areas with high prey concentration (e.g., the Grand Banks).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Usually observed singly or in pairs; groups of up to 20 individuals seen on feeding grounds. • Sexual maturity at 6 - 7 years of age for females, 7 – 8 for males. Gestation approximately 12 months, and inter-calving interval averages 2.7 years (COSEWIC 2005).

Species	Details
<p>Sei Whale (<i>Balaenoptera borealis</i>)</p>	<ul style="list-style-type: none"> • Feed on krill and small schooling fishes such as capelin (Kenney 2001). <p>Population Atlantic</p> <p>Status Data Deficient (COSEWIC). Uncommon in the Study Area (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Usually found in offshore waters, and associated with shelf edge in the northwest Atlantic (Hain et al 1985). World-wide distribution, but generally found at temperate latitudes (Perry et al 1999)</p> <p>Seasonal Movements In the Northwest Atlantic, migrate north along the continental slope in July-August, and return south in September to November for breeding and calving (Mitchell and Chapman 1977).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Sexual maturity at 5 - 15 years of age, on average. Gestation 10.5 - 12 months, and inter-calving interval is 2 - 3 years (COSEWIC 2003a). • Feed on copepods, krill and small fish (Reilly et al 2008c).
<p>Common Minke Whale (<i>Balaenoptera acutorostrata</i>)</p>	<p>Population North Atlantic (<i>acutorostrata</i> subspecies)</p> <p>Status Not At Risk (COSEWIC). Relatively common in the Study Area; abundance estimate in Southern and Eastern Newfoundland is 1,315 individuals (95 percent confidence limits: 855 - 2,046) based on 2007 surveys. Estimate is considered by the authors to be preliminary, as it has not been corrected for perception biases (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Occurs in both coastal and offshore waters. Worldwide distribution, although they are only rarely seen in the tropics (ACS 2006).</p> <p>Seasonal Movements In the Northwest Atlantic, common in the waters off New Jersey to Baffin Island during spring and summer. Particularly common on the Grand Banks where prey is abundant (Piatt et al 1989). Very little information on winter distribution, but it is possible that some individuals remain within the summer range year-round (Reilly et al 2008d).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Usually observed singly, but may be seen in groups of 2 – 6. Where food is concentrated (generally in polar regions), larger aggregations occur. • Sexual maturity at 7 - 8 years of age. Gestation approximately 10 - 11 months, and inter-calving interval is 2 years (ACS 2006). • Feed on small schooling fishes such as capelin and sandlance, as well as copepods and krill (ACS 2006).
<p>North Atlantic Right Whale (<i>Eubalaena glacialis</i>)</p>	<p>Population Western North Atlantic</p> <p>Status Endangered (SARA Schedule 1 and COSEWIC). The western North Atlantic population is estimated at about 322 animals (IWC 2001). Only rarely sighted in the Study Area; none were observed during aerial surveys</p>

Species	Details
	<p>conducted in 2007 off of Eastern and Southern Newfoundland (Brown et al 2009; Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Usually found in waters 100 – 200 m deep with surface temperatures between 8 and 15°C (Kenney 2001). The species was formerly distributed throughout the North Atlantic; however, it appears to be extinct in the eastern North Atlantic (Reilly et al 2012).</p> <p>Seasonal Movements Known to aggregate in five seasonal habitat areas along the east coast of North America, all of which are south of Newfoundland. Within their range, distribution can shift dramatically with prey distribution and abundance. Calving takes place in the winter in the waters off of Georgia south to Florida; winter distribution of males and non-calving females is poorly known, but they are thought to be scattered along the waters off the eastern US as far north as Cape Cod Bay (Winn et al 1986).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Sexual maturity at approximately 10 years of age. Gestation unknown, but may be over 12 months, and inter-calving interval averages 3.7 years (COSEWIC 2003b). • Feed on plankton, primarily copepods (Kenney 2001).

4.2.3.2 Odontocetes

The suborder Odontoceti includes toothed whales, dolphins and porpoises. In the waters off Eastern and Southern Newfoundland, six species of larger toothed whales have been reported, along with four dolphin species and one porpoise. Table 4.22 summarizes key life history and habitat information for toothed whales, dolphins and porpoises that do or may occur in the Study Area.

Table 4.22 Overview of Baleen Whales Known or Likely to Occur within the Study Area

Species	Details
<p>Sperm Whale (<i>Physeter macrocephalus</i>)</p>	<p>Status Not At Risk (COSEWIC). Uncommon in the Study Area; just 2 groups totaling 11 individuals were observed in 2007 DFO surveys (Lawson and Gosselin 2009). However, the western North Atlantic population appears healthy, with reasonably high population density and reproduction (NMFS 2000)</p> <p>Habitat and Distribution Generally a deep-water species (over 1000 m), but has been sighted in coastal waters. Worldwide distribution, though most abundant in tropical and temperate waters over 15°C (Rice 1989).</p> <p>Seasonal Movements Adult females and juveniles generally found in tropical and subtropical waters year-round; adult males often found in higher latitudes outside of the breeding season (Rice 1989).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Males usually observed singly. • Sexual maturity at 7 - 13 years of age for females; somewhat later for males. Gestation

Species	Details
	approximately 14 - 16 months, and inter-calving interval is 3 - 6 years (Shirihai and Jarrett 2006). Feed primarily on deep-water squid (Shirihai and Jarrett 2006).
<p style="text-align: center;">Northern Bottlenose Whale (<i>Hyperoodon ampullatus</i>)</p>	<p>Population Davis Strait; Scotian Shelf</p> <p>Status Davis Strait population: Special Concern (COSEWIC); Scotian Shelf population: Endangered (SARA Schedule 1). The Scotian Shelf population, though apparently stable, is estimated at only 164 individuals; numbers and population trends for the Davis Strait population are unknown (COSEWIC 2011). Small numbers have been observed in the Study Area (Lawson and Gosselin 2009), though it is not clear as to which population these individuals belong.</p> <p>Habitat and Distribution Found in deep waters, typically 800 m to 1500 m. Distribution is restricted to the North Atlantic ocean; in western North Atlantic, they are found from Baffin Island to New England (Taylor et al 2008a).</p> <p>Seasonal Movements The Scotian Shelf population is believed to be non-migratory. While the Davis Strait population appears to move north to south seasonally, these patterns are not consistent, as there have been sightings in the winter (Benjaminsen and Christensen 1979; Reeves et al 1993).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • May be found in groups of up to 20 individuals. • Females reach reproductive age at 8 - 13 years, males at 7 – 9. Gestation approximately 12 months, and inter-calving interval is 2 years (Benjaminsen and Christensen 1979). • Feed on deep-water squid, some fish and invertebrates; usually feed at or near the sea bed (Hooker and Baird 1999).
<p style="text-align: center;">Sowerby's Beaked Whale (<i>Mesoplodon bidens</i>)</p>	<p>Population Atlantic Ocean</p> <p>Status Special Concern (SARA Schedule 1 and COSEWIC). No population estimate exists (COSEWIC 2006b; Taylor et al 2008b).</p> <p>Habitat and Distribution Generally found in deep water environments (550 m to over 1500 m), including continental shelf edges and slopes. Distribution is limited to the colder waters of the North Atlantic; in North America, they occur from Massachusetts north to Labrador (Taylor et al 2008b).</p> <p>Seasonal Movements Unknown. All confirmed observations off Newfoundland have been in the summer months, but this may be due to the relatively higher search effort relative to other times of the year (COSEWIC 2006b).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Most sightings and strandings are of groups of 3 - 10 individuals. • Life history poorly understood; females attain sexual maturity upon reaching a length of between 4.6 and 4.8 m, while males are apparently sexually mature at 5.0 m (COSEWIC 2006b). • Feed on squid and fish, including cod (Ostrom et al 1993).

Species	Details
<p>Beluga Whale <i>(Delphinaptera leucas)</i></p>	<p>Population St. Lawrence Estuary</p> <p>Status Threatened (SARA Schedule 1 and COSEWIC). Abundance is estimated at 952 individuals, and the numbers are believed to be stable or increasing (Gosselin et al 2001). As they seldom range far from the St. Lawrence Estuary, belugas are likely to be extremely rare in the Study Area.</p> <p>Habitat and Distribution Typically found in coastal waters (ACS 2006). In the summer, St. Lawrence population is concentrated near the outlet of the Saguenay river; in the winter months, they disperse from estuarine habitats, regularly occurring as far downstream as the western end of Anticosti Island (COSEWIC 2004). St. Lawrence population is considerably less migratory than some high-Arctic populations (Jefferson et al 2013)</p> <p>Seasonal Movements In the summer, aggregate in comparatively warm and shallow waters of freshwater rivers to calve (ACS 2006).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • May be seen in large aggregations during spring migration (COSEWIC 2004). • Sexual maturity at 4 - 7 years of age for females, 6 - 7 for males (COSEWIC 2004). Gestation approximately 14 months, and inter-calving interval is 3 years (ACS 2006). • Feed on a variety of prey items including small squid, crabs, clams, shrimp, sandworms, and various kinds of fish (ACS 2006).
<p>Killer Whale <i>(Orcinus orca)</i></p>	<p>Population Northwest Atlantic/Eastern Arctic</p> <p>Status Special Concern (COSEWIC). The population size is estimated at less than 1000 individuals (COSEWIC 2008).</p> <p>Habitat and Distribution Occur in nearshore and pelagic environments, and tolerate a broad range of temperatures. Found in all oceans, although they tend to be concentrated in areas of high productivity (Forney and Wade 2006).</p> <p>Seasonal Movements Not known to be reliably migratory (Higdon 2007). Small numbers observed year-round in the Study Area (Lein et al 1988; Lawson and Gosselin 2009).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Usually observed in matrilineal groups of a few up to tens of individuals. • Sexual maturity at 14 - 15 years of age for females, and 13 years for males. Gestation approximately 16 - 17 months, and inter-calving interval is 5 years Calving peaks from fall to spring. (Olesiuk et al 2005). • Prey on a diverse variety of items including marine mammals, seabirds, fish and squid, and have been known to use cooperative tactics to herd prey (Taylor et al 2013).
<p>Long-finned Pilot Whale <i>(Globicephala melas)</i></p>	<p>Population Atlantic Ocean</p> <p>Status Not At Risk (COSEWIC). Abundance in western North Atlantic is estimated at 31,000 individuals (Waring et al 2006)</p>

Species	Details
	<p>Habitat and Distribution Typically found in deep water with steep bottom topography in temperate to subpolar latitudes (Kingsley and Reeves 1998). In the northern hemisphere they are found only in the North Atlantic; circum-Antarctic distribution south of the equator (Taylor et al 2008c).</p> <p>Seasonal Movements Occur in high densities over the continental slope in winter and spring months in the western North Atlantic; in summer and autumn, they move off the shelf (Taylor et al 2008c). Considered to be abundant in the Grand Banks from July to December (LGL Limited 2003).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Very social, occurring in pods of 20 to 90 individuals. Pods are known to strand en masse (ACS 2006). • Sexual maturity at 6 - 7 years of age. Gestation approximately 12 - 15 months, and inter-calving interval is 3 - 5 years (ACS 2006). • Feed on cephalopods and fish (Taylor et al 2008c).
<p>Common Bottlenose Dolphin (<i>Tursiops truncatus</i>)</p>	<p>Population Atlantic Ocean</p> <p>Status Not At Risk (COSEWIC). Likely uncommon in the Study Area, as they tend to frequent more tropical waters. None were observed in 2007 DFO aerial surveys (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Primarily coastal, but also found in inshore, shelf and offshore areas. Worldwide distribution in temperate and tropical waters; seldom found north of 45° latitude (Hammond et al 2012a).</p> <p>Seasonal Movements Many populations non-migratory; however, near the extremes of the species' range, they do undertake migration (Hammond et al 2012a); unlikely to occur in the Study Area outside the summer months.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Usually seen in large groups, often mixed with other cetaceans, including large whales and other dolphin species (Hammond et al 2012a). • Dolphins generally reach sexual maturity at 3 - 4 years, and gestation is from 10 - 14 months (ACS 2006). • Feed primarily on fish and squid (Hammond et al 2012a).
<p>Short-beaked Common Dolphin (<i>Delphinus delphis</i>)</p>	<p>Population Atlantic Ocean</p> <p>Status Not At Risk (COSEWIC). Fairly common in the Study Area; abundance estimate in Southern and Eastern Newfoundland is 576 individuals (95 percent confidence limits: 314 - 1,056) based on 2007 surveys. Estimate is considered by the authors to be preliminary, as it has not been corrected for perception biases (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Occurs in nearshore and offshore waters in tropical to cool temperate latitudes in the Atlantic and Pacific (Hammond et al 2008a). In the northwest Atlantic, most abundant south of George's Bank (Reeves et al 1999).</p>

Species	Details
	<p>Seasonal Movements Will move to follow aggregations of prey.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • In the waters off Newfoundland, usually observed in groups of 50 - 200 individuals (Reeves et al 1999). • Dolphins generally reach sexual maturity at 3 - 4 years, and gestation is from 10 - 14 months (ACS 2006). • Feed on small schooling fishes and squid (Hammond et al 2008a).
<p>Atlantic White-sided Dolphin <i>(Lagenorhynchus acutus)</i></p>	<p>Population Atlantic Ocean</p> <p>Status Not At Risk (COSEWIC). Common in the Study Area; abundance estimate in Southern and Eastern Newfoundland is 1,507 individuals (95 percent confidence limits: 968 - 2,347) based on 2007 surveys. Estimate is considered by the authors to be preliminary, as it has not been corrected for perception biases (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Occurs along the continental shelf and slope, as well as offshore, in cold temperate to subpolar latitudes in the North Atlantic (Hammond et al 2008b).</p> <p>Seasonal Movements Not migratory.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Often associate with other cetaceans, including baleen whales, pilot whales and other dolphin species (Hammond et al 2008b). • Dolphins generally reach sexual maturity at 3 - 4 years, and gestation is from 10 - 14 months (ACS 2006). • Feed on small schooling fishes, shrimp and squid (Hammond et al 2008b).
<p>White-beaked Dolphin <i>(Lagenorhynchus albirostris)</i></p>	<p>Population Atlantic Ocean</p> <p>Status Not At Risk (COSEWIC). Common in the Study Area; abundance estimate in Southern and Eastern Newfoundland is 1,842 individuals (95 percent confidence limits: 1,118 - 2,854) based on 2007 surveys. Estimate is considered by the authors to be preliminary, as it has not been corrected for perception biases (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Typically found in coastal and continental shelf areas in relatively shallow (less than 200 m) waters in cool temperate to subpolar regions of the North Atlantic (Reeves et al 1999; Hammond et al 2012b).</p> <p>Seasonal Movements Non-migratory; will move to follow aggregations of prey.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Associate with other cetaceans, including large whales and other dolphin species (Reeves et al 1999). • Dolphins generally reach sexual maturity at 3 - 4 years, and gestation is from 10 - 14 months (ACS 2006).

Species	Details
Striped Dolphin <i>(Stenella coeruleoalba)</i>	<ul style="list-style-type: none"> • Feed on small schooling fish, squid and crustaceans (Hammond et al 2012b). <p>Population Atlantic Ocean</p> <p>Status Not At Risk (COSEWIC). Unlikely to be common in the Study Area, as they are typically found in more southerly waters; none were observed in 2007 DFO surveys (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Occurs in tropical and warm-temperate latitudes in the Atlantic, Pacific and Indian Oceans (Hammond et al 2008c). In the northwest Atlantic, appear to prefer continental slope waters offshore of the Gulf Stream (Hammond et al 2008c)</p> <p>Seasonal Movements Will move to follow aggregations of prey. Atlantic populations not known to be migratory.</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Usually observed in large groups, often with other dolphin species. • Dolphins generally reach sexual maturity at 3 - 4 years, and gestation is from 10 - 14 months (ACS 2006). • Feed on pelagic and benthopelagic fishes and squid (Hammond et al 2008c).
Risso's Dolphin <i>(Grampus griseus)</i>	<p>Population Atlantic Ocean</p> <p>Status Not At Risk (COSEWIC). Believed to be abundant throughout their range (ACS 2006); however, unlikely to be common in the Study Area as they are typically found in more southerly waters. None were observed in 2007 DFO surveys (Lawson and Gosselin 2009).</p> <p>Habitat and Distribution Occurs in deep (400 - 1000 m) oceanic and continental shelf and slope areas in tropical to temperate (mainly warm-temperate) latitudes in the Atlantic and Pacific (Taylor et al 2012; ACS 2006).</p> <p>Seasonal Movements General migrations are not known; some individuals move to cooler waters during the summer (ACS 2006)</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Usually observed in groups of 3 - 30 individuals (ACS 2006). • Dolphins generally reach sexual maturity at 3 - 4 years, and gestation is from 10 - 14 months (ACS 2006). • Feed on cephalopods (mainly squid) and crustaceans (Taylor et al 2012).
Harbour Porpoise <i>(Phocoena phocoena)</i>	<p>Population Atlantic Ocean</p> <p>Status Special Concern (COSEWIC); Threatened (SARA Schedule 2). Fairly common in the Study Area; abundance estimate in Southern and Eastern Newfoundland is 1,195 individuals (95 percent confidence limits: 639 - 1,195) based on 2007 surveys. Estimate is considered by the authors to be preliminary, as it has not been corrected for perception biases (Lawson and Gosselin 2009).</p>

Species	Details
	<p>Habitat and Distribution Occurs in cold temperate to sub-polar waters in the northern hemisphere, usually in coastal shelf waters in shallow bays and estuaries less than 200 m in depth, although occasionally offshore (Hammond et al 2008d).</p> <p>Seasonal Movements Movements of porpoises in the waters off Newfoundland are poorly known (COSEWIC 2006).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Usually observed in groups of 1 - 3 individuals, often including at least one calf (COSEWIC 2006c). • Reach sexual maturity at 3 - 4 years, and gestation is 10 - 11 months (ACS 2006). Intercalving interval of 1 - 2 years (COSEWIC 2006; ACS 2006). • Feed on small schooling fishes and cephalopods (Hammond et al 2008d).

4.2.3.3 Pinnipeds

Four seal species are known to occur regularly in the Study Area, a summary of the key characteristics of which is provided in Table 4.23. Two additional species, the bearded and ringed seal, are typically Arctic dwellers, although they may occasionally occur in the Study Area in the winter months.

Table 4.23 Overview of Pinnipeds Known or Likely to Occur within the Study Area

Species	Details
Harp Seal (<i>Pagophilus groenlandicus</i>)	<p>Population Western North Atlantic (<i>groenlandicus</i>) subspecies</p> <p>Status Populations are considered secure; it is the most abundant pinniped in the northern hemisphere, and numbers are increasing (Kovacs 2008a). The Northwest Atlantic stock is estimated at 5,900,000 (DFO 2005).</p> <p>Habitat and Distribution Widespread in pack ice in coastal and offshore waters of the North Atlantic and adjacent Arctic Ocean (Kovacs 2008a)</p> <p>Seasonal Movements Summer in the Canadian Arctic and Greenland, migrating to the Gulf of St. Lawrence in December - January and returning north in April - May after breeding. Presence in the Study Area is likeliest in the winter months, when the Grand Banks provide an important feeding/overwintering area (Lesage et al 2007; Templeman 2007).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Highly social, travelling and foraging in groups (Kovacs 2008a). • Reach sexual maturity at 4 - 8 years, and gestation is 11.5 months. Pups are born on pack ice and nursed for approximately 12 days (Kovacs 2008a). • Feed on a wide variety of fish and invertebrates (Kovacs 2008a; Hammill and Stenson 2000).
Harbour Seal (<i>Phoca vitulina</i>)	<p>Population Western Atlantic (<i>concolor</i>) subspecies</p>

Species	Details
	<p>Status Not At Risk (COSEWIC). Populations have been stable and likely increasing since the 1980s.</p> <p>Habitat and Distribution Very widespread distribution; occurs in temperate to polar latitudes in the northern hemisphere in coastal waters, bays, rivers, estuaries and intertidal areas (Thompson and Härkönen 2008a).</p> <p>Seasonal Movements Generally considered non-migratory (Thompson and Härkönen 2008a). Likely present in the Study Area year-round (Lesage et al 2007)</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Gregarious at haul-out areas, but at sea, most often seen alone or in small groups (Thompson and Härkönen 2008a). • Reach sexual maturity at 3 - 4 years, and gestation is 10.5 - 11 months (Thompson and Härkönen 2008a). • Generalist feeders, taking a wide variety of fish, cephalopods and crustaceans from surface, mid-water, and benthic habitats (Olesiuk et al 1990).
<p>Hooded Seal (<i>Cystophora cristata</i>)</p>	<p>Population East Coast Canada breeding stock</p> <p>Status Not At Risk (COSEWIC). In the northwest Atlantic, populations are stable or increasing slightly (Kovacs 2008b).</p> <p>Habitat and Distribution Occurs in high latitudes in the North Atlantic and into the Arctic Ocean. Associated with pack ice during breeding and over much of the year, but also spend significant periods of time at sea without hauling out (Lavigne and Kovacs 1988; Kovacs 2008b).</p> <p>Seasonal Movements Congregate at one of four major pupping areas in mid-March, where they remain for approximately 2.5 weeks (Kovacs 2008b); individuals in the Study Area pup near the Magdalen Islands. Individuals again congregate in August for moulting. Following the moulting period, seals disperse throughout the North Atlantic (Kovacs 2008b). Primarily found in the winter months in the Study Area (Lesage et al 2007).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Form loose aggregations during breeding and moulting, but otherwise believed to be solitary (Kovacs 2008b). • Pups are born on pack ice and nursed for just 4 days (Kovacs 2008b; Bowen et al 1985). • Feed on a wide variety of fish and invertebrates throughout the water column (Kovacs 2008b).
<p>Grey Seal (<i>Halichoerus grypus</i>)</p>	<p>Population West Atlantic (<i>grypus</i>) subspecies</p> <p>Status Not At Risk (COSEWIC). Populations apparently secure, numbering approximately 250,000 in the western Atlantic, divided between two herds, one in the Gulf of St Lawrence and the other at Sable Island (DFO 2006d).</p> <p>Habitat and Distribution Occurs in cold temperate to sub-Arctic regions of the North Atlantic, over</p>

Species	Details
	<p>the continental shelf; in the west Atlantic, ranges from the Gulf of Maine to southern Labrador (Thompson and Härkönen 2008b).</p> <p>Seasonal Movements Not long-distance migrants, but will forage hundreds of kilometres from haul-out sites (Thompson and Härkönen 2008b). Pupping peaks in January in the Gulf of St. Lawrence and Sable Island colonies, and moulting occurs in the spring. Most abundant in the Study Area in the summer months, although they occur year round (Lesage et al 2007; Stenson 1994).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Pups may be born on land or pack ice, and are nursed for 15 - 18 days (Thompson and Härkönen 2008b). • Feeds primarily on fish; in Canada, Atlantic cod, herring and capelin are the main species taken (Thompson and Härkönen 2008).

4.2.3.4 Sea Turtles

Three species of sea turtles do or may occur in the Study Area, as described in Table 4.24. Like all sea turtle species, they are considered to be of conservation concern, with fisheries bycatch, hunting, contamination and beach development all considered to be key threats.

Table 4.24 Overview of Sea Turtles Known or Likely to Occur within the Study Area

Species	Details
<p>Leatherback Sea Turtle (<i>Dermochelys coriacea</i>)</p>	<p>Population Atlantic</p> <p>Status Endangered (<i>SARA</i> Schedule 1). Populations in the northwest Atlantic are increasing (Wallace et al 2013), and estimates in the North Atlantic range from 34,000 - 94,000 individuals (COSEWIC 2012e). They are considered a regular but uncommon part of the Newfoundland marine fauna (Goff and Lien 1988).</p> <p>Habitat and Distribution Occurs in tropical to sub-polar regions in the Atlantic, Pacific and Indian oceans. They are predominantly pelagic, typically inhabiting coastal shelf waters to a depth of less than 200 m (COSEWIC 2012e).</p> <p>Seasonal Movements Undertake extensive migrations between different feeding areas at different seasons, and to and from nesting areas in the tropics (Wallace et al 2013). In Atlantic Canadian waters, present from April to December and most numerous from July to September; the south coast of Newfoundland, in particular the Placentia Bay area, is a relatively high-use habitat for this species, particularly in the summer and fall (Templeman 2007).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Females produce 3 -10 clutches of 60 - 90 eggs per season, with an inter-migration interval of 2 or more years between reproductive seasons (Wallace et al 2013)

Species	Details
	<ul style="list-style-type: none"> • Feed primarily on jellyfish and other gelatinous organisms (COSEWIC 2012e).
Loggerhead Sea Turtle <i>(Caretta caretta)</i>	<p>Population Atlantic</p> <p>Status Endangered (COSEWIC). No population estimate available; they are believed to be the most abundant marine turtle in Canadian waters (COSEWIC 2010c), but are less commonly observed than Leatherbacks in the Study Area.</p> <p>Habitat and Distribution Occurs in temperate to tropical regions of the Atlantic, Pacific and Indian Oceans. Nest on ocean beaches; outside of nesting, they inhabit the oceanic and near-shore zones of temperate and tropical waters (COSEWIC 2010c). In the waters off Atlantic Canada, they are generally associated with the warmer waters of the Gulf Stream.</p> <p>Seasonal Movements Nests in tropical to sub-tropical regions, and undertake extensive lateral migrations between different feeding areas at different seasons, as well as north-south migrations to and from nesting areas in the tropics. In Atlantic Canadian waters, they are most abundant in the spring, summer and fall (Canadian Sea Turtle Sighting Database, cited in COSEWIC 2010c).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Lay 3 - 4 clutches of over 100 eggs per season, with an interval of 2 - 3 years between breeding seasons (Miller 1997). • Feeds on crustaceans, molluscs and jellyfish (COSEWIC 2010c).
Kemp's Ridley Sea Turtle <i>(Lepidochelys kempii)</i>	<p>Status Critically endangered; however, populations are showing signs of recovery in the last 50 years (Marine Turtle Specialist Group 1996).</p> <p>Habitat and Distribution Extremely restricted breeding range in the Atlantic coast of Mexico and Texas. Outside the nesting season, occurs offshore in the Northwest Atlantic in tropical and temperate waters, usually as far north as New Jersey (Marine Turtle Specialist Group 1996); however, juveniles occasionally wander further north and may occur in the Study Area.</p> <p>Seasonal Movements Nesting occurs from April to July, after which females return to the offshore environment. Individuals forage in coastal areas along coastal United States, more northerly feeders moving to more favourable overwintering sites south of Cape Hatteras in late fall (NMFS et al 2010).</p> <p>Biology and Ecology</p> <ul style="list-style-type: none"> • Lay 2 - 3 clutches of over 100 eggs per season, with an interval of 1 - 3 years between breeding seasons (Marine Turtle Specialist Group 1996). • Feeds on crustaceans, fish, molluscs and jellyfish (Marine Turtle Specialist Group 1996).

4.2.3.5 Species at Risk and Otherwise of Special Conservation Concern

A number of marine mammal and sea turtle species at risk and other species of conservation concern occur in the waters offshore Eastern and Southern Newfoundland (Table 4.25).

Table 4.25 Overview of Marine Mammal and Sea Turtle Species at Risk or Otherwise of Special Conservation Concern

Species	Federal Status		Habitat and Distribution	Potential Presence in Study Area
	SARA Listing	COSEWIC Assessment		
Blue Whale - Atlantic Population	Endangered Schedule 1	Endangered	<ul style="list-style-type: none"> Coastal and pelagic waters; frequently at shelf edge where food production is high (Schoenherr 1991). Found in all oceans except the Arctic (Reilly et al 2008b). No critical habitat has been identified for the species. 	<ul style="list-style-type: none"> Present in small numbers throughout the year; most common in the winter and early spring.
Fin Whale - Atlantic Population	Special Concern Schedule 1	Special Concern	<ul style="list-style-type: none"> Coastal shelf edge and offshore (COSEWIC 2005). World-wide distribution; most abundant in temperate and polar latitudes (Reeves et al 2002) Summer distribution is typically in areas with high prey concentration (e.g., the Grand Banks). 	<ul style="list-style-type: none"> Present year-round, but likely most common in the summer months.
North Atlantic Right Whale	Endangered Schedule 1	Endangered	<ul style="list-style-type: none"> Usually found in waters 100 – 200 m deep with surface temperatures between 8 and 15°C (Kenney 2001). Distribution shifts with prey distribution and abundance. Aggregate in five seasonal habitat areas along the east coast of North America, including two in Canada: the lower Bay of Fundy and Roseway Basin on the Scotian Shelf. These two areas have been designated as critical habitat for the species (Brown et al 2009). 	<ul style="list-style-type: none"> Likely to be very rare visitors to the area, primarily in the summer months.
Northern Bottlenose Whale - Davis Strait population; Scotian Shelf population	Endangered Schedule 1 (Scotian Shelf population)	Special Concern (Davis Strait population)	<ul style="list-style-type: none"> Deep-diving species found in waters 800 - 1500 m deep. In western North Atlantic, occur from Baffin Island to New England (Taylor et al 2008). Davis Strait population seemingly tends to migrate north to south seasonally; however, patterns are not consistent (Reeves et al 1993). 	<ul style="list-style-type: none"> May be present in small numbers in the area year round; most sightings have been in the spring and summer. It is unclear to which population individuals observed in the Study Area belong.

Species	Federal Status		Habitat and Distribution	Potential Presence in Study Area
	SARA Listing	COSEWIC Assessment		
			<ul style="list-style-type: none"> Scotian Shelf population apparently non-migratory. Three marine canyons, all along the Scotian Shelf, have been identified as critical habitat for this population (DFO 2010c). 	
Sowerby's Beaked Whale	Special Concern Schedule 1	Special Concern	<ul style="list-style-type: none"> Deep-diving species found at continental edges and slopes in depths of 550 - 1500 m or more. Seasonal movements unknown. Found in cold North Atlantic waters, from Massachusetts to Labrador (Taylor et al 2008). 	<ul style="list-style-type: none"> May be present year round in deep water habitats.
Beluga Whale (St. Lawrence Estuary population)	Threatened Schedule 1	Threatened	<ul style="list-style-type: none"> Coastal species (ACS 2006). Concentrated near the outlet of the Saguenay river in summer; in the winter months, they disperse from estuarine habitats, regularly occurring as far downstream as the western end of Anticosti Island (COSEWIC 2004). Critical habitat has been identified in the St. Lawrence Estuary and lower reaches of the Saguenay River (DFO 2012a). 	<ul style="list-style-type: none"> Very rare in the Study Area. Seldom range far from the St. Lawrence estuary.
Killer Whale	none	Special Concern	<ul style="list-style-type: none"> Nearshore and pelagic environments. Cosmopolitan distribution, concentrated in areas of high productivity (Forney and Wade 2006). 	<ul style="list-style-type: none"> Small numbers have been observed in the area at all times of year.
Harbour Porpoise	none	Special Concern	<ul style="list-style-type: none"> Coastal shelf, bays and estuaries; occasionally offshore (Hammond et al 2008d). Found in cold waters throughout the northern hemisphere (Hammond et al 2008d). Seasonal movements poorly known. 	<ul style="list-style-type: none"> Fairly common in the Study Area, possibly present year round.
Leatherback Sea Turtle	Endangered Schedule 1	none	<ul style="list-style-type: none"> Typically found in coastal shelf waters with depths of less than 200 m. Range from tropical to sub-polar regions in the Atlantic, Pacific and Indian oceans (COSEWIC 2012e). Undertake extensive migrations between feeding areas and to tropical nesting areas (Wallace et al 2013). To date, critical habitat has not been identified; however, DFO (2012b) 	<ul style="list-style-type: none"> Occur with some regularity in the Study Area, mainly from April to December.

Species	Federal Status		Habitat and Distribution	Potential Presence in Study Area
	SARA Listing	COSEWIC Assessment		
			observed three high-use feeding areas: 1) waters east and southeast of Georges Bank, including the Northeast Channel near the southwestern boundary of the Canadian Exclusive Economic Zone; 2) the southeastern Gulf of St. Lawrence and waters off eastern Cape Breton Island, including Sydney Bight, the Cabot Strait, portions of the Magdalen Shallows and adjacent portions of the Laurentian Channel; and 3) waters south and east of the Burin Peninsula, Newfoundland, including parts of Placentia Bay. Information from the DFO study is being used to inform the identification of critical habitat in a forthcoming amendment to the species' Recovery Strategy (DFO 2013c).	
Loggerhead Sea Turtle	none	Endangered	<ul style="list-style-type: none"> • Found in oceanic and near-shore zones of temperate and tropical Atlantic, Pacific and Indian Oceans. (COSEWIC 2010c). • Nest on beaches in subtropical and tropical climates. • In Atlantic Canada, most abundant in spring to fall, and generally associated with the Gulf Stream. 	<ul style="list-style-type: none"> • Uncommon; most frequently observed in the spring to summer months.

A third sea turtle species, the Kemp’s ridley, has not been assessed by COSEWIC but is considered by the International Union for Conservation of Nature (IUCN) to be critically endangered. This species is usually found south of New Jersey, although juveniles are sometimes observed further north and could potentially occur in the Study Area in the summer months.

4.2.3.6 Key Areas and Times for Marine Mammals and Sea Turtles

As described earlier, a number of EBSAs have been identified by DFO within the Placentia Bay Grand Banks Large Ocean Management Area (Templeman 2007). Among the criteria for the identification, evaluation and selection of these important areas was their importance to marine mammals and seabirds in terms of biodiversity, density and importance for reproduction and survival.

Table 4.26 provides an overview of the key relevant characteristics of those EBSAs that are located within or near the Study Area, with particular reference to their use by and importance for marine mammals and seabirds.

Table 4.26 EBSAs within or in Proximity to the Study Area and their Importance to Marine Mammals and Seabirds

EBSA Name	Description	Importance to Marine Mammals and Seabirds
Southeast Shoal and Tail of the Banks	The area east of 51°W and south of 45°N, extending to the edge of the Grand Banks	<ul style="list-style-type: none"> • Offshore spawning area for Capelin and Sand Lance, key prey species for marine mammals and birds. • High concentration of forage species draws large and diverse aggregations of seabirds and marine mammals, especially humpback whale and northern bottlenose whale. • In terms of fitness consequences, an important seasonal foraging area for seabirds and cetaceans.
Placentia Bay Extension	All of Placentia Bay, across the mouth of the bay from Point Crewe (Burin Peninsula) to Point Lance (Avalon Peninsula), and extending out to the 50 m isobath	<ul style="list-style-type: none"> • High level of biodiversity. • Supports important seabird breeding areas along the coast, as well as a high biomass of birds and mammals typical of river and estuarine habitats. • In the spring and summer, supports a high aggregation of cetaceans and leatherback sea turtles. • Otters and harbour seals use the area year round. • In terms of aggregation and fitness consequences, an important feeding area from spring to fall for many seabird species, cetaceans (especially humpbacks and porpoises) and leatherback turtles; otters, harbour seals and some cetaceans feed in the area year-round. • Important for reproduction of many seabird species, harbour seals and otters; female cetaceans with young inhabit the area during critical feeding periods. • Thought to be a possible migratory path for leatherbacks.
Southwest Shelf Edge and Slope	The area from 55°W to 52°W, encompassing the shelf edge of the Grand Bank to the 2000 m isobath	<ul style="list-style-type: none"> • Critical to a wide variety of seabirds, providing the highest density of pelagic seabird feeding within the Placentia Bay Grand Banks Large Ocean Management Area. • Many marine mammals and leatherback sea turtles aggregate here, particularly in the summer months.
St. Pierre Bank	The northwest St. Pierre Bank to the south and west of the Canada-France International Boundary to the 200 m isobath.	<ul style="list-style-type: none"> • Important feeding area for several species of cetaceans. • In particular, considered a potentially important spring feeding area for migrating and overwintering whales.
Laurentian Channel and Slope	Extends from 45°N to 47.5°N, from the slopes of the banks into the Laurentian Channel, westward to the boundary of the Placentia Bay Grand Banks Large Ocean Management Area	<ul style="list-style-type: none"> • Serves as the main migratory corridor for marine mammals moving in and out of the Gulf of St. Lawrence.
Eastern Avalon	The area from Blackhead to Cappahayden, out to	<ul style="list-style-type: none"> • Potentially important feeding area for marine mammals, particularly humpback whales.

EBSA Name	Description	Importance to Marine Mammals and Seabirds
Coast	the 100m isobaths.	<ul style="list-style-type: none"> • Many marine mammals aggregate in the area, particularly in the summer months. • Diverse assemblage of cetaceans, seals, leatherback sea turtles and seabirds feed in the area from spring to fall.
Lilly Canyon-Carson Canyon	The area from 44.8°N to 45.6°N along the 200 m isobath of the southeast slope of the Grand Bank	<ul style="list-style-type: none"> • Important seasonal refuge and feeding area for overwintering marine mammals.
Northeast Shelf and Slope	The northeastern Grand Bank starting at the nose of the Bank, from 48°W to 50°W, and from the edge of the shelf to the 1000 m isobath	<ul style="list-style-type: none"> • Moderate fitness consequences as a potentially important marine mammal feeding area; harp seals, hooded seals and pilot whales in particular aggregate in this area.
Sources: Templeman (2007), DFO (2013b), AMEC (2014)		

Critical habitat has been identified in the federal recovery strategies for the northern bottlenose whale (Scotian Shelf population) and the North Atlantic right whale. Critical habitat for the former species is located in three deep underwater canyons off the southern coast of Nova Scotia, along the Scotian Shelf (DFO 2010c). The North Atlantic right whale's critical habitat is located within the Bay of Fundy and off of southern Nova Scotia at Roseway Basin (Brown et al 2009).

Recovery strategies identifying critical habitat are not currently available for the other species at risk reported in the Study Area. It is anticipated that the identification and delineation of critical habitat for the blue whale will be completed in 2014 (Beauchamp et al 2009). Information from the COSEWIC species assessments indicate that sightings of the leatherback turtle and harbour porpoise occur throughout the Study Area (COSEWIC 2006c; 2012b). The range of Sowerby's beaked whale encompasses much of the area as well (COSEWIC 2006b). DFO (2012b) observed three high-use feeding areas: 1) waters east and southeast of Georges Bank, including the Northeast Channel near the southwestern boundary of the Canadian Exclusive Economic Zone; 2) the southeastern Gulf of St. Lawrence and waters off eastern Cape Breton Island, including Sydney Bight, the Cabot Strait, portions of the Magdalen Shallows and adjacent portions of the Laurentian Channel; and 3) waters south and east of the Burin Peninsula, Newfoundland, including parts of Placentia Bay. Information from the DFO tracking study is being used to inform the identification of critical habitat in a forthcoming amendment to the species' Recovery Strategy (DFO 2013c).

Key times of year for marine mammals and sea turtles, including species of conservation concern, are detailed in the preceding sections. In general, cetaceans and sea turtles are most abundant in the area during the summer months, when the Grand Banks and surrounding waters provide important feeding habitat. Pinnipeds are most abundant in the winter months, with the exception of grey seals which are present year-round.

4.2.4 Protected Areas (Existing and Proposed)

This section describes various types of existing and proposed protected areas that are located in or near the Study Area, and which have been designated to help protect important or sensitive species and habitats, as representative natural areas, for cultural or historical reasons, and/or for human use and enjoyment.

Protected areas in Newfoundland and Labrador include National Parks, National Historic Sites, Provincial Parks, Provincial Wildlife Reserves and Provincial Ecological Reserves.

4.2.4.1 National Parks and Historic Sites

Parks Canada establishes National Parks (under the *National Parks Act*) to protect representative examples of Canada's 39 terrestrial natural regions. Terra Nova National Park, located in Eastern Newfoundland, protects inland and coastal areas including offshore islands and estuarine and intertidal ecosystems (Figure 4.62) (Parks Canada 2013), and is a popular recreational area.

National Historic Sites commemorate significant historical locations or events. The Ryan Premises, Signal Hill, Cape Spear and Castle Hill are located on the coast. National Historic Sites are also managed by other entities, including provincial and municipal governments. Adjacent to the Study Area, other coastal National Historic Sites include Boyd's Cove, Tilting, Port Union, Fort Amherst, Murray Premises, Colony of Avalon, Cape Race Lighthouse and Cape Pine Lighthouse (Parks Canada 2014).

Figure 4.62 Marine and Coastal Parks and Protected Areas

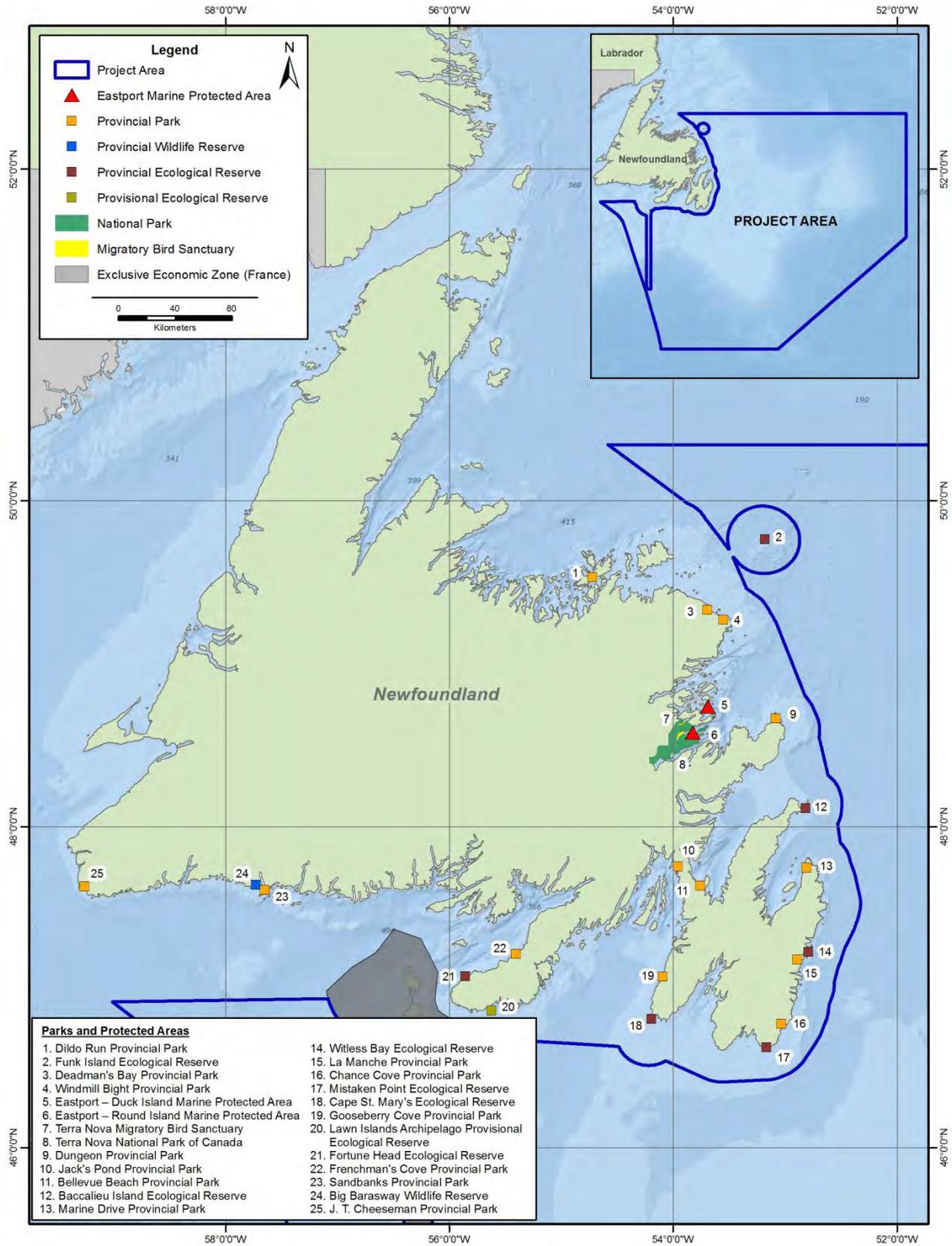


Table 4.27 National Parks and National Historic Sites

Park	Location
Terra Nova National Park	Central, coastal Newfoundland
Ryan Premises National Historic Site	Bonavista Peninsula
Hawthorne Cottage National Historic Site	Brigus
Signal Hill National Historic Site	St. John's Harbour
Cape Spear Lighthouse National Historic Site	South of St. John's
Castle Hill National Historic Site	Placentia Bay

Source: Parks Canada (2014)

4.2.4.2 Provincial Parks and Protected Areas

Existing provincial parks and protected areas in Eastern and Southern Newfoundland are listed in Table 4.28 (NLDEC 2013a). These include the marine and coastal parks and protected areas illustrated in Figure 4.62.

Table 4.28 Provincial Marine and Coastal Parks and Protected Areas

Park	Location
Dildo Run Provincial Park	Near Twillingate and Moreton's Harbour
Deadman's Bay Provincial Park	Northeast coast of Lumsden
Windmill Bight Provincial Park Reserve	Near Lumsden
The Dungeon Provincial Park	Near Bonavista
Bellevue Beach Provincial Park Reserve	Isthmus of the Avalon
Chance Cove Provincial Park	East of Trepassey
Marine Drive Provincial Park Reserve	Pouch Cove
Gooseberry Cove Provincial Park	South of Placentia
Frenchman's Cove Provincial Park	West side of the Burin Peninsula
Sandbanks Provincial Park	Near Burgeo
J.T. Cheeseman Provincial Park	Cape Ray Barrens, near Channel – Port aux Basques

Source: Parks Canada (2014)

Provincial Wildlife and Ecological Reserves

Ecological Reserves are created to protect and conserve ecosystems or ecoregions and/or to protect rare, unique or endangered species of plants, animals and other identifiable components of natural heritage. A number of Ecological Reserves are found in marine and coastal areas within or adjacent to the Study Area (Table 4.29) (NLDEC 2013b). For more information on seabirds, shorebirds and their protection, please refer to Section 4.2.2.

Table 4.29 Marine and Coastal Ecological Reserves

Name / Location	Description / Special Features
Lawn Islands Archipelago Provisional Ecological Reserve	<ul style="list-style-type: none"> Consists of three islands: Middle, Offer and Columbiar Home to thousands of nesting seabirds of 8 breeding species Largest colony of common murres in the Western North Atlantic Other species include Northern gannet, Northern fulmar, Atlantic puffin, razorbill, thick-billed murre, black-legged kittiwake, and herring and great black-backed gulls Middle Island is the only colony of Max shearwater in North America

Name / Location	Description / Special Features
	<ul style="list-style-type: none"> • Area has been granted provisional status while a full site assessment is completed by Provincial Government
Big Barasway Wildlife Reserve	<ul style="list-style-type: none"> • Habitat protection for the endangered piping plover • Habitat of a number of other shorebirds
Fortune Head Ecological Reserve	<ul style="list-style-type: none"> • Rocks exhibit geological boundary between Precambrian era and Cambrian period • Fossils mark a historical change in marine organisms
Funk Island Ecological Reserve	<ul style="list-style-type: none"> • Historic nesting place of the extinct great auk • Smallest seabird ecological reserve in NL • Access limited to scientific researchers
Baccalieu Island Ecological Reserve	<ul style="list-style-type: none"> • Largest protected seabird island in the province • More breeding seabirds than any other area of the province • Largest Leach's storm petrel colony in the world • Second largest puffin colony in North America • Access limited to researchers with valid permits during breeding season (April 1-October 30)
Witless Bay Ecological Reserve	<ul style="list-style-type: none"> • Contains four islands: Gull, Green, Great and Pee Pee • Home to a large number of bird species • North America's largest puffin colony • Second largest Leach's storm-petrel colony in the world
Mistaken Point Ecological Reserve	<ul style="list-style-type: none"> • One of the world's most significant fossil sites • Variety of fossils as more than 30 species have been identified • Fossils include Ediacara biota, organisms that lived 575-542 million years ago • On the Canadian Tentative List of potential UNESCO World Heritage sites
Cape St. Mary's Ecological Reserve	<ul style="list-style-type: none"> • Numerous species of seabirds, all of which can be seen from land • Bird Rock, a sandstone stack, is inhabited by gannets • 24,000 Northern gannet, 20,000 black-legged kittiwake, 20,000 common murre, and 2,000 thick-billed murre • Razorbill, black guillemot, double-crested and great cormorant and Northern fulmar nesting areas • Offshore waters are important wintering areas for numerous species of ducks
Sources: NLDEC (2013b); AMEC (2014)	