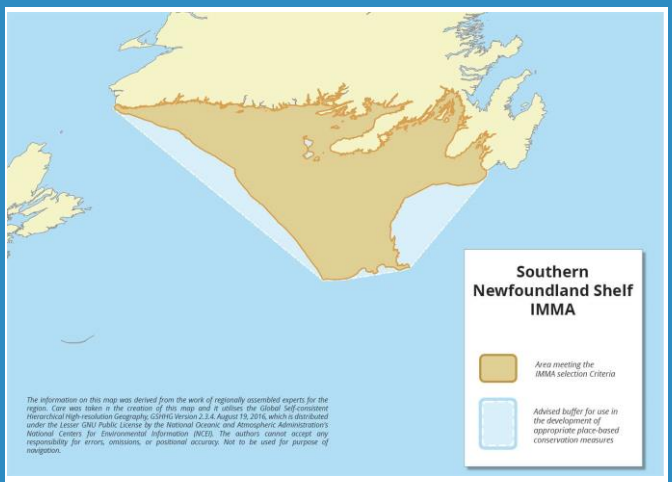

Area Size

62,758 km²

Qualifying Species and Criteria

Blue whale – *Balaenoptera musculus*

Criterion A; C (2)

Fin Whale – *Balaenoptera physalus*

Criterion A; C (2)

Humpback Whale – *Megaptera novaeangliae*

Criterion C (2)

Mink Whale – *Balaenoptera acutorostrata*

Criterion B (2); C (2)

Killer Whale – *Orcinus Orca*

Criterion C (2)

Harbour Seal – *Phoca vitulina*

Criterion B (2); C (1, 2)

Sperm Whale – *Physeter macrocephalus*

Criterion A

Criterion D(2) - Marine Mammal Diversity

Balaenoptera acutorostrata, Balaenoptera musculus, Balaenoptera physalus, Delphinus delphis, Globicephala melas, Halichoerus grypus, Leucopleurus acutus, Lagenorhynchus albirostris, Megaptera novaeangliae, Orcinus orca, Phoca vitulina, Phocoena phocoena, Physeter macrocephalus, Phoca vitulina, Halichoerus grippus, Pagophilus groenlandicus, Cystophora cristata, Erignathus barbatus

Southern Newfoundland Shelf IMMA

Summary

The Southwest Newfoundland shelf IMMA is located on the south coast of Newfoundland, Canada. It extends into the Northwest Atlantic Ocean from the Laurentian channel on the west side, to the Green banks of Newfoundland on the east side. This region benefits from the convergence of the Labrador Current and the Gulf Stream, where high productivity supports a rich array of marine species. The area supports three globally threatened whale species: blue whales (*Balaenoptera musculus*), fin whales (*Balaenoptera physalus*) and sperm whales (*Physeter macrocephalus*), and aggregations of harbour seals (*Phoca vitulina*) that use the areas for pupping. The area's high productivity makes it an important Northern Hemisphere summer feeding ground for blue whales, fin whales, humpback whales (*Megaptera novaeangliae*), and killer whales (*Orcinus orca*), and the area sustains a high diversity of marine mammals (13 species). The area includes St. Mary's Bay, Placentia Bay, and the South Coast of Newfoundland, which are three Ecologically and Biologically Significant Areas.

Description:

The Southwest Newfoundland shelf IMMA is located on the south coast of Newfoundland. Along the rugged coastline of the south coast, rocky shores, sandy beaches, and coastal wetlands create a mosaic of ecosystems. This region benefits from the convergence of the Labrador Current and the Gulf Stream, nourishing a rich array of marine species. The underwater landscape of the Newfoundland banks, including the Grand Banks, features shallow

Figure 1: Humpback whales (*Megaptera novaeangliae*) observed in this IMMA. Photo credit: DTAM975 SAAEB.

Figure 2: Carcass found on rocky shore. Photo credit: DTAM975 SAAEB.

plateaus, submarine ridges, and seamounts. This topography allows upwellings, which explains the high productivity of the area. Coral and sponge reefs dot the seabed, offering shelter to fish, crustaceans, and invertebrates. Migratory species such as whales and seabirds are drawn to these nutrient-rich waters, making the area a hotspot for marine biodiversity.

Criterion A: Species or Population Vulnerability

At least three species regularly using the IMMA are considered threatened with extinction according to the global IUCN Red List, namely the fin whale (*Balaenoptera physalus*), listed as Vulnerable (Cooke, 2018a) and the blue whale (*Balaenoptera musculus*), listed as Endangered on the Red List globally (Cooke, 2018b). The sperm whale (*Physeter macrocephalus*) listed as Vulnerable on the Red list (Taylor et al., 2019) has been documented and is also regular in the area.

Criterion B: Distribution and Abundance Sub-criterion B2: Aggregations

The Grand Barachois lagoon on St. Pierre and Miquelon and the Placentia Bay in the Southeast of Newfoundland are the two areas with the largest harbour seal (*Phoca vitulina*) populations of Newfoundland (Vincent & Ridoux, 2015; Hamilton et al., 2023). Hamilton et al. (2023) counted 951 individuals in the Placentia Bay and 674 individuals on Saint-Pierre-and-Miquelon during an aerial survey conducted during the summer of 2021 on the southern and eastern coast of Newfoundland up to Sandwich Bay in Labrador. During the same survey, the Southwest Newfoundland shelf harbour seal population accounted for 2,466 of the 2,791 (88%) total harbour seals observations. A seal censuses over the whole archipelago of St. Pierre and Miquelon (Vincent, 2022; Vincent et al., 2022) showed that harbour seals and grey seals (*Halichoerus grypus*) are encountered all year round, but the harbour seal was the main species counted on the haul-out sites in the area, with up to 1,652 individuals counted, versus 218 grey seals in 2020 (Poncet et al., 2023). Tracking of 10 harbour seals showed that they use the habitat around the archipelago (Wynn-Simmonds et al., 2024), while the two grey seals tracked explored further afield to the southwestern areas on the Nova Scotia shelf (Vincent et al., 2022).

The most frequently observed baleen whale species in the waters south of Newfoundland is the minke whale (*Balaenoptera acutorostrata*). Densities can vary during the summer months, when they use these waters as feeding grounds. However, surveys conducted in the Summers of 2019 and 2021 suggest mean encounter rates of 2.61 groups/km (mean group size=1.75), particularly in coastal waters (within 2 km from shore). These encounter rates are higher than in other neighbouring areas (Kiszka et al., in prep.). High densities of minke whales have also been recorded in the region, particularly along the southern coast of Newfoundland, where they forage on sand lance (*Ammonytes* spp.), particularly during the summer months (Kiszka et al., 2024).

Criterion C: Key Life Cycle Activities Sub-criterion C1: Reproductive Areas

The Grand Barachois is a known pupping site for harbour seals, with observed births reaching up to 200 pups annually between 1970 and 1980 (Association SPM Frag'îles & Duhautois, 2011). Since then, the pup counts were not recorded again until June 8th, 2022, when a single census of births was conducted by the Directorate of Territories, Food, and Sea of St. Pierre and Miquelon. The count revealed a minimum of 169 newborns (Vincent et al., 2022).

Sub-criterion C2: Feeding Areas

The south of Newfoundland and particularly the St. Pierre and Miquelon archipelago seems to be a preferred feeding area for baleen whales, including fin whales, minke whales, blue whales, and humpback whales (*Megaptera novaeangliae*) that converge in the area in the Northern Hemisphere summer months to feed on high densities of prey such as krill (*Euphausiids* sp.) and capelin (*Mallotus villosus*). The shelf waters south of Newfoundland have been identified as important foraging/feeding and socialising areas for blue whales (Lesage et al., 2018). This conclusion is also supported by opportunistic observations, vessel surveys, aerial surveys and acoustic recordings (Association SPM frag'îles & Lawson, 2010; Lesage et al., 2018; Wells et al., 2019; Gomez et al., 2020; Nguyen Hong Duc et al., 2021; Vincent et al., 2022).

Vincent et al. (2022) reported 138 sightings of individual fin whales between 2008 and 2016 and remarked that these individuals were often observed feeding. The 520 sightings of this species reported between 2016 and 2023 from opportunistic observations around the St. Pierre and Miquelon archipelago also included many observations of feeding behaviour (Urtizberea et al., Unpublished data). Using stable isotope mixing models on samples collected from 24 individual fin whales in the waters of southern Newfoundland, over 75% of their diet is dominated by sand lance and to a lesser extent capelin (Kiszka et al., 2024).

Humpback and minke whales are also mostly observed foraging in this region (Stevick et al., 2006; Vincent et al., 2022; Kiszka et al., 2024). Bayesian stable isotope mixing models based on 40 individual humpback whale samples collected in the waters south of Newfoundland suggest that this species primarily forages on capelins, which compose 81% in relative contribution (Kiszka et al., 2024). Minke whales have a more specialized diet, almost exclusively feeding on sand lance (92% relative contribution; Kiszka et al., 2024).

Documented sightings of Killer whales (*Orcinus orca*) in the coastal waters of St. Pierre and Miquelon and further south on the Saint-Pierre Bank go back as far as 1758, but few studies have been conducted on this population that is believed to be resident in the Terre-Neuve Coastal area (Stevens & Lawson, 2008; Lawson & Stevens, 2014; Gomez et al., 2020). These individuals have been observed on numerous occasions attacking or feeding on baleen whales, particularly minke whales, fin whales and humpback whales. Analysis of the fatty acids in samples collected from five killer whale individuals in the waters south of Newfoundland determined that they primarily feed on baleen whales (80%), and to a lesser extent on harbour porpoises (*Phocoena phocoena*) and seals (Remili et al., 2023). The presence of other large marine mammals in the area makes the southern Newfoundland shelf an important feeding area for killer whales. Harbour seals tracked from Saint-Pierre et Miquelon also foraged in the vicinity of the archipelago, spending an average of 88% of their time at sea with 23% of dives considered foraging dives (Wynn-Simmonds et al., 2024). Similar foraging activities are documented along the south coast of Newfoundland and the Saint-Pierre Bank (Hammill et al., 2010).

Criterion D: Special Attributes
Sub-criterion D2: Diversity

Eighteen cetacean and five pinnipeds species are regularly observed, particularly in the Northern Hemisphere summer months in the area of the south coast of Newfoundland surrounding the St. Pierre and Miquelon archipelago (Urtizberea et al., unpublished data from observations and acoustic

surveys; Association SPM Frag'îles & Lawson, 2010; Lawson & Stevens, 2014; Vincent & Ridoux, 2015; Wells et al., 2019; Gomez et al., 2020; Nguyen Hong Duc et al., 2021; Hamilton et al., 2023; Vincent et al., 2023).

A large number of fin whales have been recorded in the waters south of Newfoundland through opportunistic sightings or marine and aerial surveys. Vincent et al. (2022) reported 138 sightings of multiple individual fin whales (4.06±8.95) between 2008 and 2016. 520 sightings of individuals were also reported between 2016 and 2023 from opportunistic observations around the St. Pierre and Miquelon archipelago (Urtizberea et al., Unpublished data).

Using information on blue whale distribution in combination with krill aggregations, the shelf waters south of Newfoundland have been identified as important foraging/feeding and socialising areas for blue whales (Lesage et al., 2018). This conclusion is also supported by opportunistic observations, vessel surveys, aerial surveys and acoustic recordings (Association SPM frag'îles & Lawson, 2010; Lesage et al., 2018; Wells et al., 2019; Gomez et al., 2020; Nguyen Hong Duc et al., 2021; Vincent et al., 2022).

Humpback whales account for 2,232 out of 6,933 opportunistic cetacean sightings between 2008 and 2023 in the waters of St. Pierre and Miquelon (Urtizberea et al., Unpublished data). Humpback whales migrate along the northeast coast of Newfoundland and Labrador and are encountered in the IMMA area (Halpin et al., 2009; Nguyen Hong Duc et al., 2021) all year round, but with greater abundance in summer on feeding grounds identified in the area (Katona & Beard, 1990).

Densities of minke whales can vary during the summer months, when they use these waters as feeding grounds. However, surveys conducted in the Summers of 2019 and 2021 suggest mean encounter rates of 2.61 groups/km (mean group size=1.75), particularly in coastal waters (within 2 km from shore). High densities of minke whales have also been recorded in the region, particularly along the southern coast of Newfoundland, where they forage on sand lance (*Ammonytes* spp.), particularly during the summer months (Kiszka et al., 2024).

Sperm whales have been documented by visual and acoustic detections around St. Pierre and Miquelon (F. Urtizberea, pers. comm. *Direction des Territoires, de l'Alimentation et de la Mer* of St. Pierre and Miquelon). Also, the stranding of nine individuals were reported on the archipelago of St. Pierre and Miquelon between 2000 and 2019 (*Réseau National Échouage*, French stranding network, http://pelagis.in2p3.fr/public/histo-carto/index.php).

821 individual killer whales were reported around the Saint-Pierre-et-Miquelon archipelago between 2009 and 2023 by opportunistic observers (Urtizberea et al., Unpublished data).

546 individual long-finned pilot whales were reported around the Saint-Pierre-et-Miquelon archipelago between 2010 and 2023 by opportunistic observers (Urtizberea et al., Unpublished data).

During the summer months, there are high abundances of common (*Delphinus delphis*), white-beaked (*Lagenorhynchus albirostris*) and Atlantic white-sided dolphins (*Lagenorhynchus acutus*) in the area, with a mean encounter rate of 6.89 sightings/10km for all species combined (Kiszka et al., 2024).

During a seal census held on the southern and eastern coast of Newfoundland up to Sandwich Bay in Labrador in the summer of 2021, Southwest Newfoundland shelf harbour seal population

Figure 3: Sperm whale (*Physeter macrocephalus*) carcass washed ashore in the IMMA. Photo credit: J-P. Apesteguy.

accounted for 2,466 of the 2,791 (88%) total harbour seals observations. 362 grey seals were reported on the Southwest Newfoundland shelf during the same survey (Vincent et al., 2022).

Supporting Information

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