

Draft Conservation Network Design for the Scotian Shelf-Bay of Fundy Bioregion

DRAFT

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About this Document

This document presents the Draft Conservation Network Design for the Scotian Shelf-Bay of Fundy Bioregion (Draft Design), which is made up of existing MPAs and Other Effective Conservation Measures (OECMs) as well as recommended new sites, including the three proposed sites announced on March 22nd, 2018.¹ Between 2015 and 2017, Fisheries & Oceans Canada (DFO) worked with the Canadian Wildlife Service (CWS) of Environment and Climate Change Canada and the Parks Canada Agency to develop the Draft Design. Initial input was also received from other federal and provincial government agencies, First Nations, Indigenous groups, stakeholders, academia and coastal communities during this period. In 2018, the process was put on hold due to ongoing dialogue with partners and more recently by the COVID-19 pandemic. DFO is now renewing its engagement on the Draft Design, beginning with a targeted consultation phase with partners and key stakeholders. During this phase, DFO is seeking written feedback on the Draft Design by December 31, 2021. This is the first part of a two-phased consultation process (Figure 1). Following extensive consultation, the Draft Design will be developed into a Conservation Network Plan for the bioregion by 2024 that will inform the selection of future marine conservation areas. This document was created to facilitate targeted consultation on the Draft Design and is not for distribution. A broader public engagement period is planned for 2023.

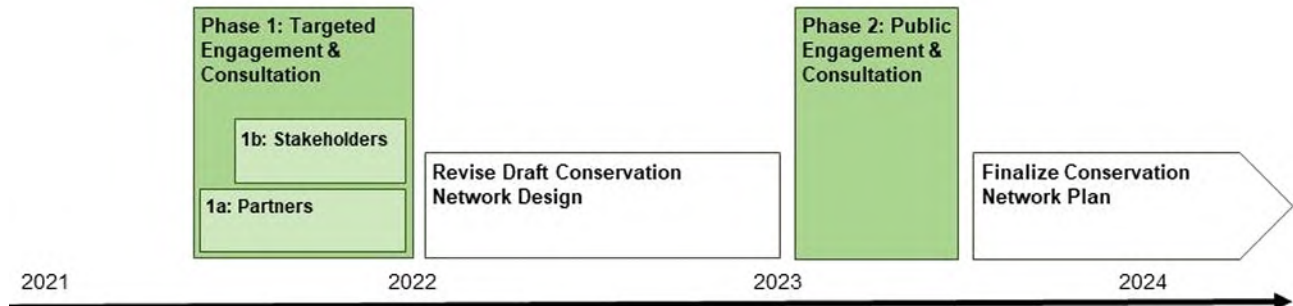


Figure 1: Timeline for developing a Conservation Network Plan for the Scotian Shelf-Bay of Fundy Bioregion. Process includes two phases of engagement and consultation. Timeline subject to change.

¹ <https://www.canada.ca/en/fisheries-oceans/news/2018/03/three-new-potential-marine-conservation-measures-announced-off-the-coast-of-nova-scotia.html>

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1.0 INTRODUCTION

Marine ecosystems are under increasing pressure from a wide range of human activities and broader environmental changes. Around the world, MPAs are recognized as a valuable tool for the protection of marine ecosystems that can help to achieve a better balance between human use and conservation in our oceans. Fisheries and Oceans Canada (DFO) is leading the development of a national conservation network² on behalf of the Government of Canada in collaboration with Environment and Climate Change Canada and Parks Canada Agency.³ The *National Framework for Canada's Network of Marine Protected Areas*⁴ outlines the vision, goals, and guiding principles for the national network. The three goals for Canada's national network of MPAs are:

1. To provide long-term protection of marine biodiversity, ecosystem function and special natural features.
2. To support the conservation and management of Canada's living marine resources and their habitats, and the socio-economic values and ecosystem services they provide; and
3. To enhance public awareness and appreciation of Canada's marine environments and rich maritime history and culture.

The development of a national conservation network is part of Canada's strategy for reaching its marine conservation targets⁵. In 2010, Canada committed to the marine conservation targets established under the United Nations Convention on Biological Diversity of conserving 10 per cent of coastal and marine areas through effectively managed networks of protected areas and other effective area-based conservation measures (OECMs) by 2020. In August 2019, Canada surpassed the 10 per cent target and is now committed to an ambitious new target of conserving 25 per cent of marine and coastal areas by 2025, working toward 30 per cent by 2030.

Building on Canada's existing protection, conservation network planning processes have been initiated in several priority bioregions across the country. DFO Maritimes Region is leading a process to develop a Conservation Network Plan for the Scotian Shelf-Bay of Fundy Bioregion.

This document presents the Draft Conservation Network Design for the Scotian Shelf-Bay of Fundy Bioregion (herein referred to as the Draft Design), which is made up of existing sites and recommended new sites. It includes a brief overview of the conservation network development process, a map of the Draft Design, and a brief description of each proposed new site, including the three proposed new sites announced on March 22nd, 2018. Following extensive consultation, the Draft Design will be developed into a Conservation Network Plan for the bioregion that will inform the selection of future marine conservation areas for DFO, Environment and Climate Change Canada, and Parks Canada. While these

² The national conservation network will ultimately be made up of various types of MPAs as well as Other Effective Area-based Conservation Measures

³ See *Oceans Act* Section 35(2), and *Canada's Federal Marine Protected Areas Strategy* <http://www.dfo-mpo.gc.ca/oceans/publications/fedmpa-zpmfed/index-eng.html>

⁴ *National Framework for Canada's Network Marine Protected Areas* <http://waves-vagues.dfo-mpo.gc.ca/Library/345207.pdf>

⁵ <https://www.dfo-mpo.gc.ca/oceans/conservation/plan/index-eng.html>

federal agencies will lead their respective site-specific establishment processes, consultation and collaboration with First Nations, Indigenous organizations, provincial governments, stakeholders, and non-governmental organizations will continue to play a key role in the designation of all new sites and implementation of the Conservation Network Plan. There is also opportunity for other site establishment and management approaches, such as Indigenous Protected and Conserved Areas (IPCAs), within the bioregional conservation network. Any such opportunities will be discussed through engagement and consultation on the draft network over the next several years and beyond.

2.0 DEVELOPING THE DRAFT CONSERVATION NETWORK DESIGN

Over the last decade, significant steps have been taken toward the development of a Conservation Network Plan for the Scotian Shelf-Bay of Fundy Bioregion, including preliminary consultations, information collection, development of science advice, and the setting of conservation objectives. This initial work, provided the foundation for developing the Draft Conservation Network Design for the Scotian Shelf-Bay of Fundy Bioregion presented in this document.

2.1 Technical Steps in Developing the Draft Conservation Network Design

The process to develop a draft conservation network design for this bioregion was consistent with recognized best practices in systematic conservation planning.⁶ The process also followed international, national, and regional scientific guidance on developing conservation networks. Most notably, the bioregional network aims to satisfy the CBD criteria for effective networks, which include: Ecologically and Biologically Significant Areas (EBSAs), representativity, connectivity, replicated ecological features and adequate and viable sites.⁷ Another important principle in developing the Draft Design was attempting to minimize potential negative economic impacts of the conservation network through the inclusion of human use information in the design process.

A technical working group of conservation planning experts from DFO, the Canadian Wildlife Service of Environment and Climate Change Canada, and the Parks Canada Agency was created to help guide the network design process through the following steps: 1. Gather available information, 2. Set conservation objectives, 3. Select conservation priorities, and 4. Conduct conservation network analysis. First Nations, Indigenous organizations, the Provinces of Nova Scotia and New Brunswick, and stakeholders were also engaged throughout the process.

⁶ Margules, C.R. and Pressey, R.L. 2000. Systematic Conservation Planning. *Nature*, 405 (6783). pp. 243-253. (<https://www.nature.com/nature/journal/v405/n6783/pdf/405243a0.pdf>)

⁷ Convention on Biological Diversity (CBD), 2008. Conference of the Parties to the Convention on Biological Diversity (CBD), ninth meeting. 19–30 May 2008. Agenda item 4.9. Decision Adopted by the Conference of the Parties (COP). Marine and coastal biodiversity. (<https://www.cbd.int/doc/decisions/cop-09/cop-09-dec-20-en.pdf>)

2.1.1 Gather available information

Available ecological and human use information was compiled for the conservation network design analysis. Ecologically and Biologically Significant Areas (EBSAs)^{8,9,10}, which have been identified using available scientific research as well as information obtained through various local and ecological knowledge gathering processes, were a key source of information, particularly in coastal areas and the Bay of Fundy where comprehensive ecological survey data are lacking. For the offshore, survey information was used to map the distribution of species, habitats, and other natural features. The reliability of all of this information was evaluated through scientific review processes. Very little biodiversity information is available for the deep-water (greater than 1500 m) portion of the bioregion. Detailed distribution information on whales, dolphins, and large pelagic fish (such as tunas and sharks) is another notable gap. The human use information gathered included fisheries landings, offshore petroleum licences, shipping traffic, aquaculture sites, submarine cables, and tourism and recreational activities. This information was used to identify important areas for each sector, where possible. An effort was made to avoid important areas for the commercial fishing, aquaculture, and offshore petroleum sectors in the development of the Draft Design. This initial attempt to minimize potential economic impacts will be refined through consultation on the Draft Design and through site-specific consultations. Other activities, such as certain types of fishing, recreational activities, and eco-tourism, are often permitted within MPAs. Information on culturally important marine species and areas was also included where available. However, this information, along with Indigenous traditional and ecological knowledge, has been identified as a significant gap in this process. DFO is committed to continue working with the Mi'kmaq of Nova Scotia, the Mi'gmaq of New Brunswick, the Wolastoqey and the Peskotomuhkati to explore ways of collecting and including this information for both the Conservation Network Plan and at the site-specific level as part of MPA site design and ongoing management.

2.1.2 Set conservation objectives

In the Scotian Shelf-Bay of Fundy Bioregion, conservation objectives are high-level statements that outline what the regional conservation network aims to achieve. These objectives stem from goal one of the national conservation network, which is “to provide long-term protection of marine biodiversity, ecosystem function and special natural features”. The conservation objectives for the Scotian Shelf-Bay of Fundy Bioregion were developed through the technical working group but also reflect input received during the early external engagement phases of this process. The conservation objectives for the Scotian Shelf-Bay of Fundy Bioregion conservation network are:

1. Protect unique, rare, or sensitive ecological features in the bioregion
2. Protect representative examples of identified ecosystem and habitat types in the bioregion
3. Help maintain ecosystem structure, functioning and resilience within the bioregion

⁸ Hastings, K., M. King, and K. Allard. 2014. Ecologically and biologically significant areas in the Atlantic coastal region of Nova Scotia. DFO Can. Tech. Rep. Fish. Aquat. Sci. 3107: xii + 174 p. (<http://waves-vagues.dfo-mpo.gc.ca/Library/355312.pdf>)

⁹ Buzeta, M-I. 2014. Identification and Review of Ecologically and Biologically Significant Areas in the Bay of Fundy. DFO Can. Sci. Advis. Sec. Res. Doc. 2013/065. vi + 59 p. (<http://waves-vagues.dfo-mpo.gc.ca/Library/359756.pdf>)

¹⁰ King, M., Fenton, D., Aker, J. and Serdynska, A. 2016. Offshore Ecologically and Biologically Significant Areas in the Scotian Shelf Bioregion. DFO Can. Sci. Advis. Sec. Res. Doc. 2016/007. viii + 92 p. (<http://waves-vagues.dfo-mpo.gc.ca/Library/363946.pdf>)

4. Contribute to the recovery and conservation of depleted species
5. Help maintain healthy populations of species of Aboriginal, commercial, and/or recreational importance

2.1.3 Select conservation priorities

The next step was to break down each of the conservation objectives into more detailed conservation priorities, which are the specific species, habitats, or other features the conservation network is designed to protect. Conservation priorities for the Scotian Shelf-Bay of Fundy Bioregion conservation network include common, coarse-scale habitat types (e.g., offshore bank habitat), fine-scale habitats that provide important functions in the ecosystem (e.g., eel grass beds), habitats that are highly sensitive to disturbance (e.g., significant concentrations of cold water coral), and species that are considered to be depleted¹¹ (e.g., northern bottlenose whale, Atlantic wolffish). A regional science review process was held in 2016 to determine roughly how much of each conservation priority should be captured in the bioregional network.¹²

2.1.4 Conduct conservation network design analysis

The final step in developing the Draft Design for the Scotian Shelf-Bay of Fundy Bioregion was to conduct an analysis using the available ecological and human use information. The aim of this analysis was to identify a potential conservation network configuration that would capture all conservation priorities while minimizing the potential negative impact on human activities (e.g., commercial fisheries – including commercial communal fisheries, oil and gas, aquaculture). This was an iterative process that involved the technical working group and other external experts and will continue to be refined following consultation.

2.2 Consultation and Engagement to Date

Input from the provinces, First Nations and Indigenous organizations, stakeholders, and the public has helped shape the conservation network development process to date. More intensive and targeted engagement began in late 2015 with discussions focused on the technical aspects of conservation network design (e.g., input data, network objectives) and how interested parties could be involved moving forward.

Indigenous communities have a longstanding traditional and spiritual connection to the marine environment and marine resources, and Indigenous Peoples in Canada have constitutionally protected Aboriginal and treaty rights. Consultations on conservation network development with First Nations in Nova Scotia were initiated through the *Mi'kmaq – Nova Scotia – Canada Terms of Reference (ToR) for a Consultation Process* and with First Nations in New Brunswick through the *Mi'gmaq, Wolastoqiyik, New Brunswick and Canada Interim Consultation Protocol*. Those First Nations and other Indigenous

¹¹ For this process, depleted species are defined as species that are listed as Endangered, Threatened or Special Concern by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). Some of these species have also been listed under the *Species at Risk Act* (SARA). For fishes, the list also includes species that are in the Critical or Cautious zone under the DFO Precautionary Approach Framework or at biomass levels that are less than forty percent of the long term mean.

¹² *Design Strategies for the Scotian Shelf Bioregional Marine Protected Area Network*: <https://waves-vagues.dfo-mpo.gc.ca/Library/40974625.pdf>

organizations in the region that are not part of these protocols are also being consulted. As this is a long-term process, consultations are still in the early stages and will not end with the completion of the Conservation Network Plan. DFO and its federal partners are committed to ongoing consultation and engagement with Indigenous Peoples in planning, establishing, and managing MPAs, and we will remain open to input from and collaboration with Indigenous partners for the long-term future.

DFO has held a series of meetings with the Provinces of Nova Scotia and New Brunswick to discuss the conservation network development process. During 2016 and 2017, regular meetings were held with key stakeholder groups, including the fishing industry, the oil and gas industry, and environmental non-governmental organizations (ENGOS). The fishing industry is the most active stakeholder group in the bioregion and is essential to the health of most coastal communities. A special fishing industry working group was established in 2013 to facilitate participation in this process. Public open house meetings were held throughout Nova Scotia and New Brunswick in 2016 and 2017 to engage the general public. To support this effort, a feedback form was made available at that time on the DFO website to collect more information on important coastal areas in the region.

Consultation and engagement on conservation network development in the Scotian Shelf-Bay of Fundy Bioregion was put on hold in 2018. DFO Maritimes Region is now re-engaging on the network and is following a two-phased engagement approach (Figure 1). Phase 1 includes targeted consultation with partners and key stakeholders throughout 2021. Following targeted consultation, revisions will be made to the Draft Design throughout 2022. Phase 2 of engagement is planned to begin in 2023 and will include broader public engagement. A finalized Conservation Network Plan will be completed by 2024, though the plan will remain evergreen and will be adapted over time to incorporate new input and information.

3.0 DRAFT CONSERVATION NETWORK DESIGN

This section presents the Draft Conservation Network Design for the Scotian Shelf-Bay of Fundy Bioregion (Figure 2), which is made up of existing MPAs and OECMs and 34 proposed new sites, including the three proposed sites announced on March 22nd, 2018 (Eastern Shore Islands, Fundian Channel-Browns Bank and Eastern Canyons). Site-specific establishment and consultation processes have been initiated for each of these three sites so they are not the focus of this document. The remaining 31 sites are proposed for protection by DFO or its partners at some point in the future as part of a long-term Conservation Network Plan for the bioregion. Timelines for the designation of these sites have not been determined and ultimately will be guided by future policy direction and available resources. As well, the type of protected area to be established at each site is not described in the Draft Design. This will be determined over time through further analysis and continued discussion with federal partners, provinces, First Nations, Indigenous groups, stakeholders and coastal communities. Before each new site is established, a thorough consultation process will occur to determine site boundaries and allowed activities. A concise description of each proposed new site is also provided following the Draft Design map.

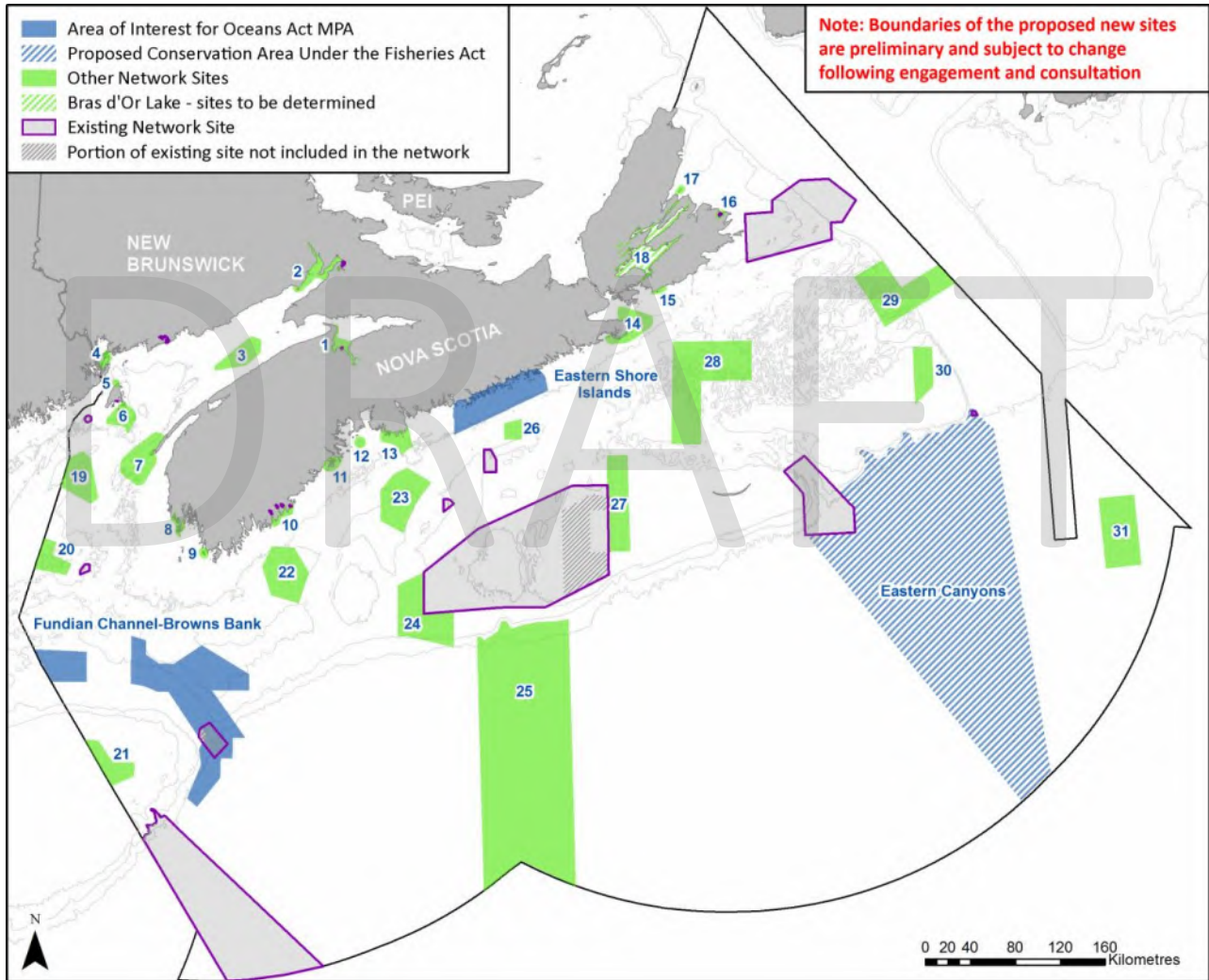


Figure 2: Map of the Draft Conservation Network Design for the Scotian Shelf-Bay of Fundy Bioregion.

Table 1: Sites proposed for inclusion in the Draft Conservation Network for the Scotian Shelf-Bay of Fundy Bioregion.

Site #	Site Name	Size (km ²)
1	Southern Bight	217
2	Chignecto Bay	408
3	Horse Mussel Reefs	626
4	West Isles and Passages	103
5	Long Eddy	34
6	South Grand Manan	413
7	Brier Island	999
8	Chebogue	111
9	Bon Portage Island	14
10	Port Joli and Surrounding Area	145
11	LaHave Islands	143
12	Pearl Island	82

13	Sambro Ledges-Prospect	370
14	Canso Ledges-Sugar Harbour Islands	655
15	Point Michaud and Basque Islands	54
16	Big Glace Bay	5
17	Bird Islands	11
18	Bras d'Or Lake	1457
19	Southwest Bank	976
20	Western Jordan Basin	558
21	Georges Bank	717
22	Roseway Bank	1496
23	LaHave Basin	1564
24	Scotian Gulf	1952
25	Central Slope, Rise, and Abyss	18200
26	Inner Shelf Sea Pen Field	260
27	Sable Island Bank	1648
28	Canso and Middle Banks	3939
29	Misaine Bank and Laurentian Channel	2452
30	Eastern Shoal	732
31	Cold Seeps	1990
-	Eastern Shore Islands Area of Interest	2133
-	Fundian Channel-Browns Bank Area of Interest	7253
-	Eastern Canyons	36284

1. SOUTHERN BIGHT

Southern Bight is located within the southwest portion of Minas Basin and includes the tidally influenced portions of the Avon, Cornwallis, Gaspereau and St. Croix rivers.

Why is this area special?

The extensive and characteristic mudflats of this area attract thousands of shorebirds that feed on the small crustaceans and other invertebrates exposed at low tide. The area also has spawning, juvenile, nursery, and feeding grounds for various fish species. A threatened population of Atlantic mud-piddock clams is found in the red mudstone of Minas Basin (including in Southern Bight) and nowhere else in Canada. Although the extent of salt marsh in the area has decreased due to agriculture, salt marshes are still found in high density compared with other parts of the region, providing important habitat for a variety of species. This area also contains important marine habitat for the endangered inner Bay of Fundy Atlantic salmon.

Key ecological features

- High productivity due to extensive mudflats
- Significant concentrations of salt marsh and presence of kelp beds
- Important foraging area for herons, dabbling ducks, geese, red knot (Endangered – SARA), and piping plover (Endangered – SARA)
- Significant foraging area for shorebirds and large gulls
- Spawning area for windowpane flounder, winter flounder, alewife, Atlantic silverside, Atlantic herring, and lumpfish
- Juvenile/nursery area for many fish species, including stickleback, Atlantic tomcod, Atlantic herring, Atlantic silverside, and American shad
- Important habitat for Atlantic salmon¹³ (Endangered – SARA)
- Feeding area for Atlantic sturgeon¹⁴ (Threatened – COSEWIC) and American eel (Threatened – COSEWIC)
- Habitat for Atlantic mud-piddock (Threatened – SARA)

How is this area used?

Fishing, tourism, and clam and bloodworm harvesting are the key activities occurring in the area. Current fisheries include groundfish (mobile gear), lobster, scallop, and other nearshore, small-scale fisheries for herring, eel, gaspereau and other species. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. Seabird watching and recreational fishing are popular activities in the area. There is a nearby tidal energy development project in the Minas Channel, and agriculture, including dyking, on adjacent lands is extensive.

¹³ Inner Bay of Fundy population

¹⁴ Maritimes population

Conservation measures or other special designations

Within Southern Bight, the Boot Island National Wildlife Area protects 107 hectares of intertidal salt marsh and terrestrial upland habitat. The marine component of this site is included in the conservation network. The Province of Nova Scotia has identified the Southern Bight area as a proposed Wildlife Management Area. Nearby land conservation includes Blomidon Provincial Park and the Minas Basin Wildlife Management Area. Southern Bight is recognized as an Important Bird Area, a Western Hemisphere Shorebird Reserve, and a Ramsar Wetland of International Importance. The Grand Pré National Historic Site commemorates the Grand Pré area as a centre of historic Acadian settlement. Critical habitat for endangered inner Bay of Fundy Atlantic salmon has been identified under the *Species at Risk Act* in the freshwater portion of the Gaspereau River watershed, and the Avon River embayment is being considered for identification as marine critical habitat.

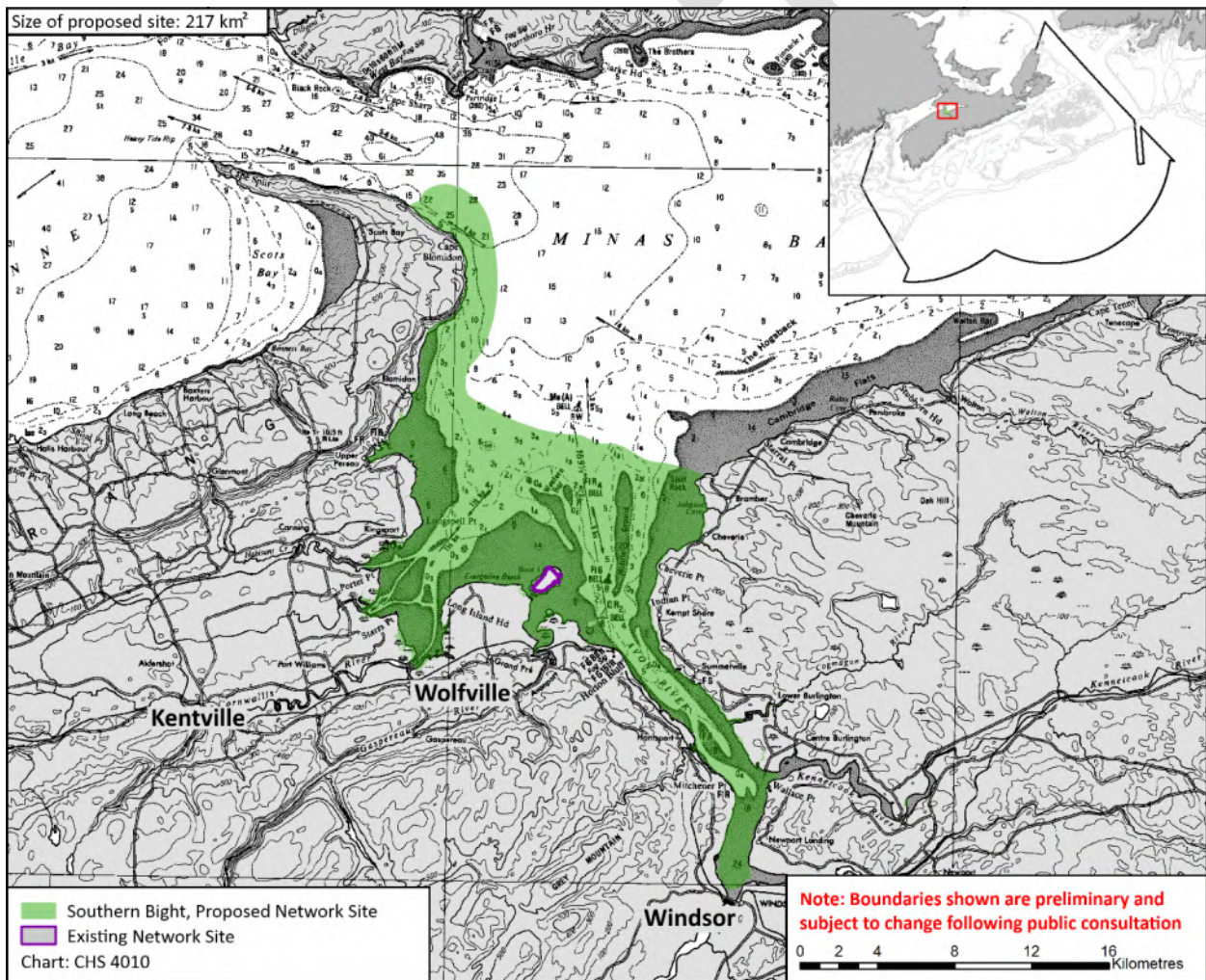


Figure 3: Map of Southern Bight, proposed network sight.

2. CHIGNECTO BAY

Chignecto Bay forms the northeastern arm of the inner Bay of Fundy and is located between the provinces of New Brunswick and Nova Scotia.

Why is this area special?

Extensive mudflats and tidal marshes in Chignecto Bay support a high biomass of invertebrates (mainly mud shrimp) that serve as a food source for large groups of migrating shorebirds. The area is the most important migration site for semipalmated sandpipers in eastern North America and is regionally important for dabbling ducks and sea ducks. This area also contains important marine and estuarine habitat for the endangered inner Bay of Fundy Atlantic salmon.

Key ecological features:

- High productivity due to extensive mudflats
- Significant concentrations of salt marsh
- Important habitat for Atlantic salmon¹⁵ (Endangered – SARA)
- Important foraging area for herons, geese, dabbling ducks, sea ducks (scoters), cormorants, and piping plover (Endangered – SARA)
- Significant foraging area for shorebirds (including red knot [Endangered – SARA])
- Spawning area for lobster

How is this area used?

Fishing for lobster and gaspereau occurs here as does clam and bloodworm harvesting. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. The high number of shorebirds creates an attractive spot for bird watching, and beach goers and cottagers are known to frequent the area. Agricultural development, including dyking, on certain adjacent lands is extensive. Chignecto Bay is identified as an area of high tidal energy potential.

Conservation measures or other special designations

Adjacent land conservation in New Brunswick includes Shepody National Wildlife Area, Johnson's Mills Protected Natural Area, The Rocks Provincial Park, and the Grindstone Island Nature Preserve. In Nova Scotia, adjacent land conservation includes the Fossil Cove Nature Reserve and the John Lusby Marsh National Wildlife Area, which also has a small marine component that is included in the conservation network. The Chignecto Bay site encompasses three Important Bird Areas, a Western Hemisphere Shorebird Reserve, and a Ramsar Wetland of International Importance. The tidal portions of the Petitcodiac River system and Cumberland basin are being considered for identification as marine and estuarine critical habitat under the *Species at Risk Act* for the endangered inner Bay of Fundy Atlantic salmon.

¹⁵ Inner Bay of Fundy population

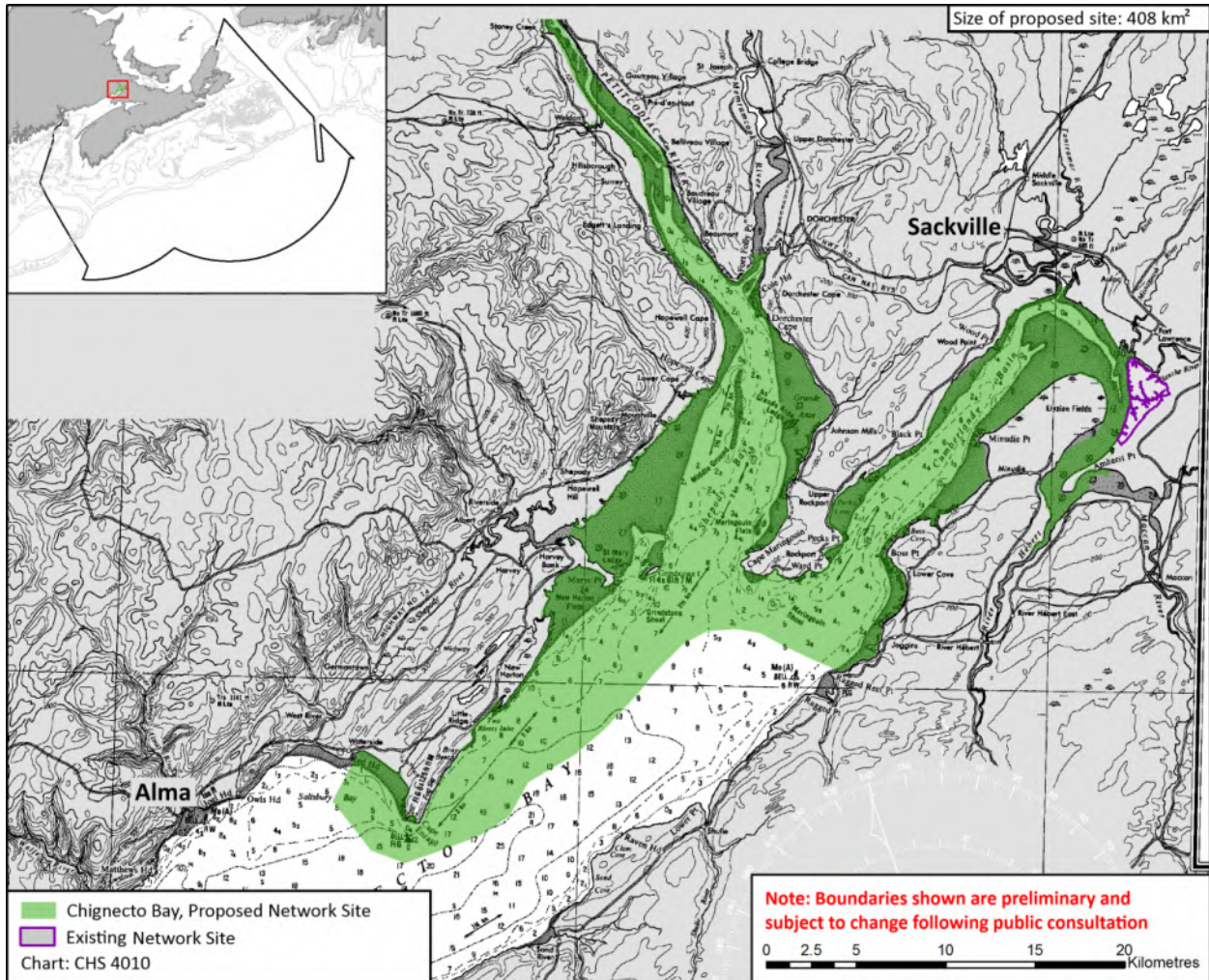


Figure 4: Map of Chignecto Bay, proposed network site.

3. BAY OF FUNDY BIOHERMS

This site is located in the central portion of the Bay of Fundy, off of Annapolis County, Nova Scotia.

Why is this area special?

This site contains structures on the seafloor called bioherms. These bioherms are large ridges mainly composed of sand that were formed over time through the interaction of horse mussel shells and tidal currents. This is the only known example of this type of physical structure in the region. These ridges can reach up to three meters high and 16 kilometers long, providing habitat on the seafloor for other species to shelter. They support diverse communities of small animals such as sponges, soft corals, and brittle stars. Horse mussels, a long-lived and habitat-providing species, occur in beds in association with the bioherms and are vulnerable to physical disturbance.

Key ecological features:

- Unique benthic feature (bioherms)
- High invertebrate diversity

- Significant concentrations of horse mussels
- Significant concentrations of lemon weed (*Flustra foliacea*)

Work is ongoing to better characterize this area. Recent studies by Fisheries and Oceans Canada (DFO) have re-confirmed the presence of live horse mussels throughout this site.

How is this area used?

Current fishing activities in the area include groundfish (mobile gear), scallop, lobster, and herring. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. An active submarine power cable crosses through the northeast portion of this area.

Conservation measures or special designations

There are no current spatial protection measures specific to the Bay of Fundy Bioherms site.

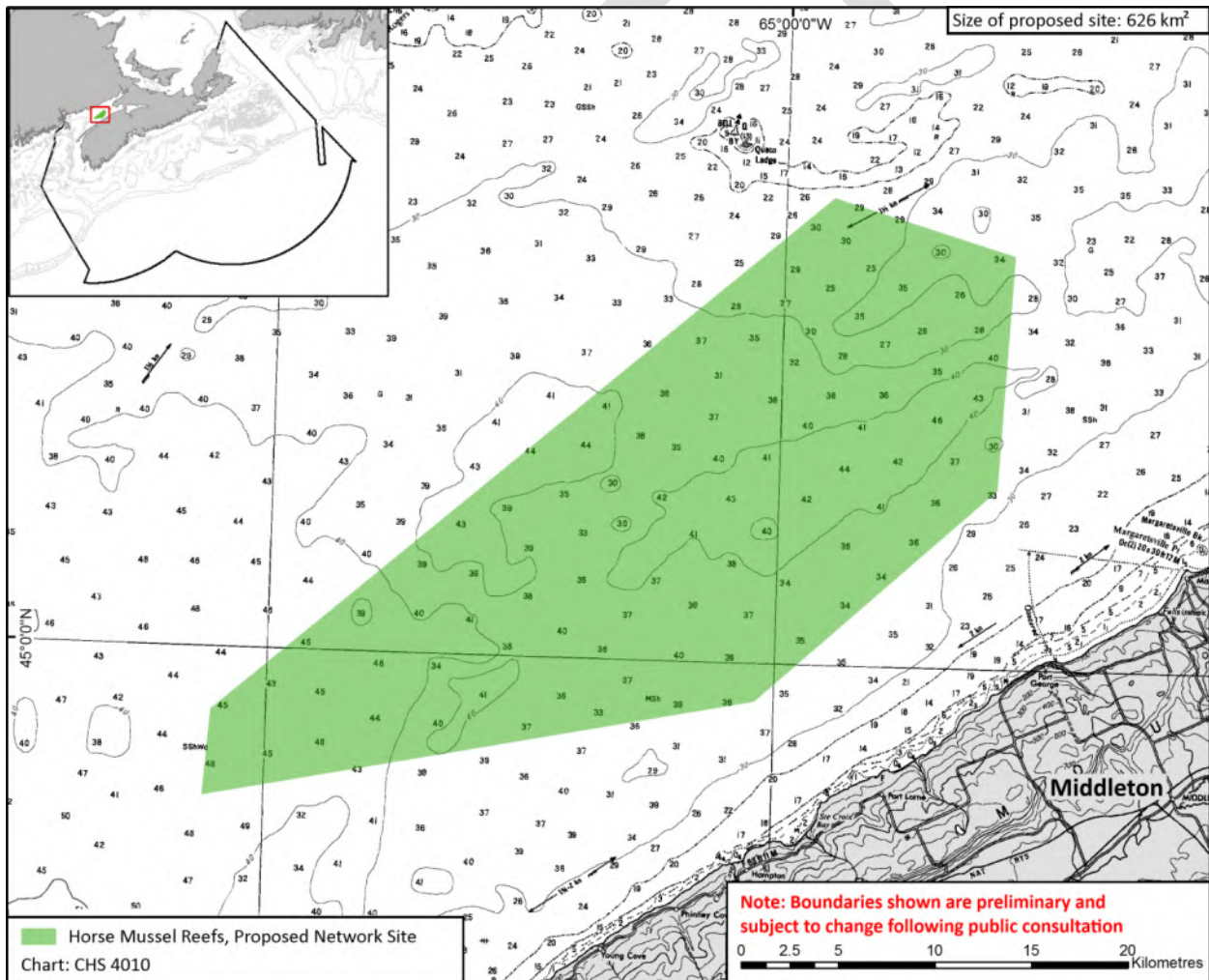


Figure 5: Map of Bay of Fundy bioherms, proposed network site.

4. WEST ISLES AND PASSAGES

The West Isles and Passages area off southwest New Brunswick—also known as the Quoddy Region, Quoddy Isles, or Fundy Isles—includes the waters around McMaster, Pendleton, Deer, Campobello, and other nearby islands. This includes Big Letete and Little Letete Passages, which are narrow, high velocity channels north of Deer Island, as well as Western Passage between Deer Island and Maine.

Why is this area special?

This area has high benthic biodiversity and high overall productivity. On the ocean floor, dense concentrations of habitat-forming sponges, kelp beds, rockweed, and stalked tunicates—a marine animal commonly known as the “sea potato”—provide habitat for a variety of other species. Complex oceanographic features, such as tidal rips and upwellings, concentrate plankton such as copepods and krill, which are important food sources for many species of marine mammals and birds. The Old Sow Whirlpool, the largest natural whirlpool in the Western Hemisphere, can be found in the southwest portion of the site and demonstrates the powerful tides in this region. There is a long history of coastal use by both Indigenous Peoples and European settlers with many archaeological finds in the area.

Key ecological features:

- High productivity due to areas of persistent upwelling
- High secondary productivity with large concentrations of copepods and krill
- High benthic invertebrate, marine mammal, seabird, and shorebird diversity
- Complex bottom topography
- Strong tidal currents
- Significant concentrations of kelp beds, rockweed, stalked tunicates and habitat-forming sponges (including one species known only to this area and three rare species)
- Spawning area for lumpfish
- Aggregation area for Atlantic wolffish (Special Concern - SARA)
- Juvenile/nursery area for redfish and Atlantic cod¹⁶ (Endangered - COSEWIC)
- Feeding area for fin (Special Concern – SARA), humpback, and minke whales and feeding and nursery area for harbour porpoises (Special Concern - COSEWIC)
- Important foraging area for northern gannet, herons, dabbling ducks, sea ducks (eiders, goldeneyes, mergansers, and scoters), phalaropes (including red-necked phalarope [Special Concern – SARA]), storm-petrels, loons, grebes, cormorants, gulls, and terns

The biological richness of the area has been known for decades, with studies in the 1970s documenting very high productivity and benthic diversity and concluding it was one of the centres of productivity in the Bay of Fundy. Recent studies by Fisheries and Oceans Canada (DFO) have confirmed that the area hosts a diversity and abundance of benthic species. There will be a Canadian Science Advisory process to help delineate the prominent benthic species in this area (specific date to-be-determined).

¹⁶ Maritimes population

How is this area used?

A variety of marine activities occur in the area, including fishing, finfish aquaculture, tourism activities, and marine transportation. Current fisheries include lobster, sea urchin, groundfish (fixed and mobile gear), sea cucumber, scallop, and herring. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is a seasonal scallop fishing closure in this area known as the New Brunswick Mainland Conservation Zone from April 1st to the second Tuesday in January. Clam digging, winkling, and seaweed harvesting also occur here; however, there are several areas where rockweed harvesting is limited or not permitted for either the purpose of long-term reference/study or to protect rearing seabirds. This area has been identified as having tidal energy potential. An underwater power cable runs between Deer Island and Campobello Island.

A year-round ferry connects Deer Island with L'Etete, New Brunswick, while a seasonal ferry connects Deer Island with Campobello Island. Large cargo vessels travel to and from the Port of Bayside through Head Harbour Passage and along the western side of Deer Island. The area is popular for many recreational and tourism activities (e.g., seabird and whale watching, scuba diving, and recreational fishing).

Conservation measures or other special designations

The Clark Gregory Nature Reserve (southern Deer Island) and the Western Isles Nature Reserve (Little Mowat Island) are owned by the New Brunswick Nature Trust. The West Isles Nature Reserve includes conservation easements held on Barnes, Mowat and Nubble Islands which belong to private owners. Pendleton and Simpson islands are owned by the Nature Conservancy of Canada. All of these areas are managed for conservation.

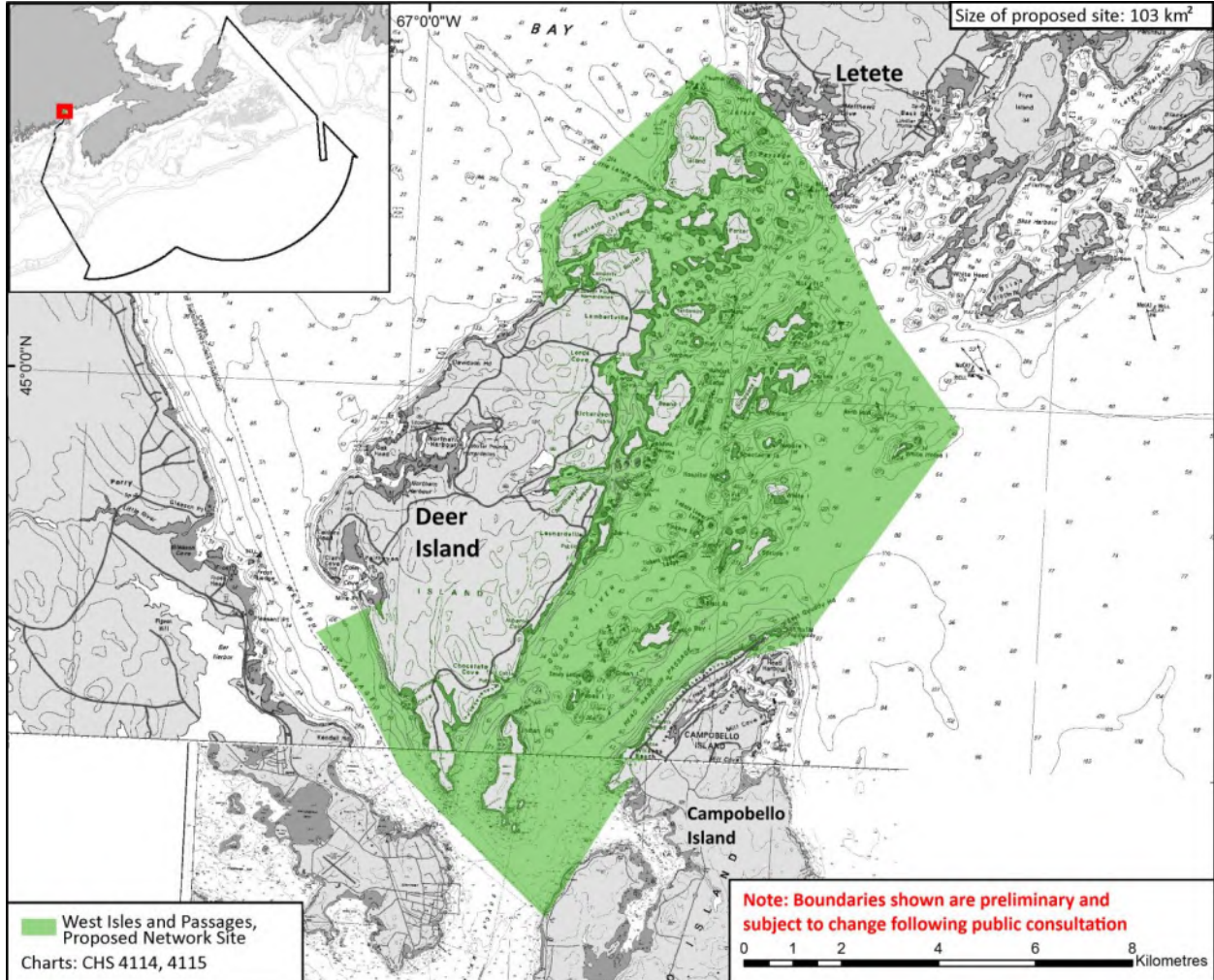


Figure 6: Map of West Isles and Passages, proposed network site.

5. LONG EDDY

Long Eddy is located off the northern tip of Grand Manan Island in the Bay of Fundy.

Why is this area special?

Long Eddy is a predictable oceanographic system of tidal currents and upwelling that is so prominent it can be seen from space. The persistent upwelling causes fish and plankton to concentrate here, which in turn attracts feeding aggregations of marine mammal and seabirds. The Long Eddy Point Lighthouse, a combined lighthouse and fog alarm building on the northern tip of Grand Manan Island, was recently designated and protected under the *Heritage Lighthouse Protection Act*.

Key ecological features:

- High fish and invertebrate diversity
- High productivity due to an area of persistent upwelling

- Spawning area for Atlantic herring
- Feeding area for harbour porpoises (Special Concern - COSEWIC), minke whales, fin whales (Special Concern – SARA), and North Atlantic right whales (Endangered – SARA)
- Important foraging area for northern gannet, dovekies, shearwaters, phalaropes, storm-petrels, loons, grebes, cormorants, gulls, and terns
- Significant foraging area for large auks

How is this area used?

Current fisheries include lobster, sea urchin, groundfish (fixed and mobile gear), and scallop. Seaweed harvesting also occurs in the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. A submarine power cable passes through this site.

Long Eddy is a popular area for whale and bird watching tours, seaside camping, and kayaking. The ferry route between Blacks Harbour, New Brunswick, and North Head, Grand Manan passes to the east of Long Eddy.

Conservation measures or other special designations

The adjacent Seven Days Work Cliff and Thomas B. Munro Nature Preserves on northern Grand Manan Island are managed for conservation by the New Brunswick Nature Trust.

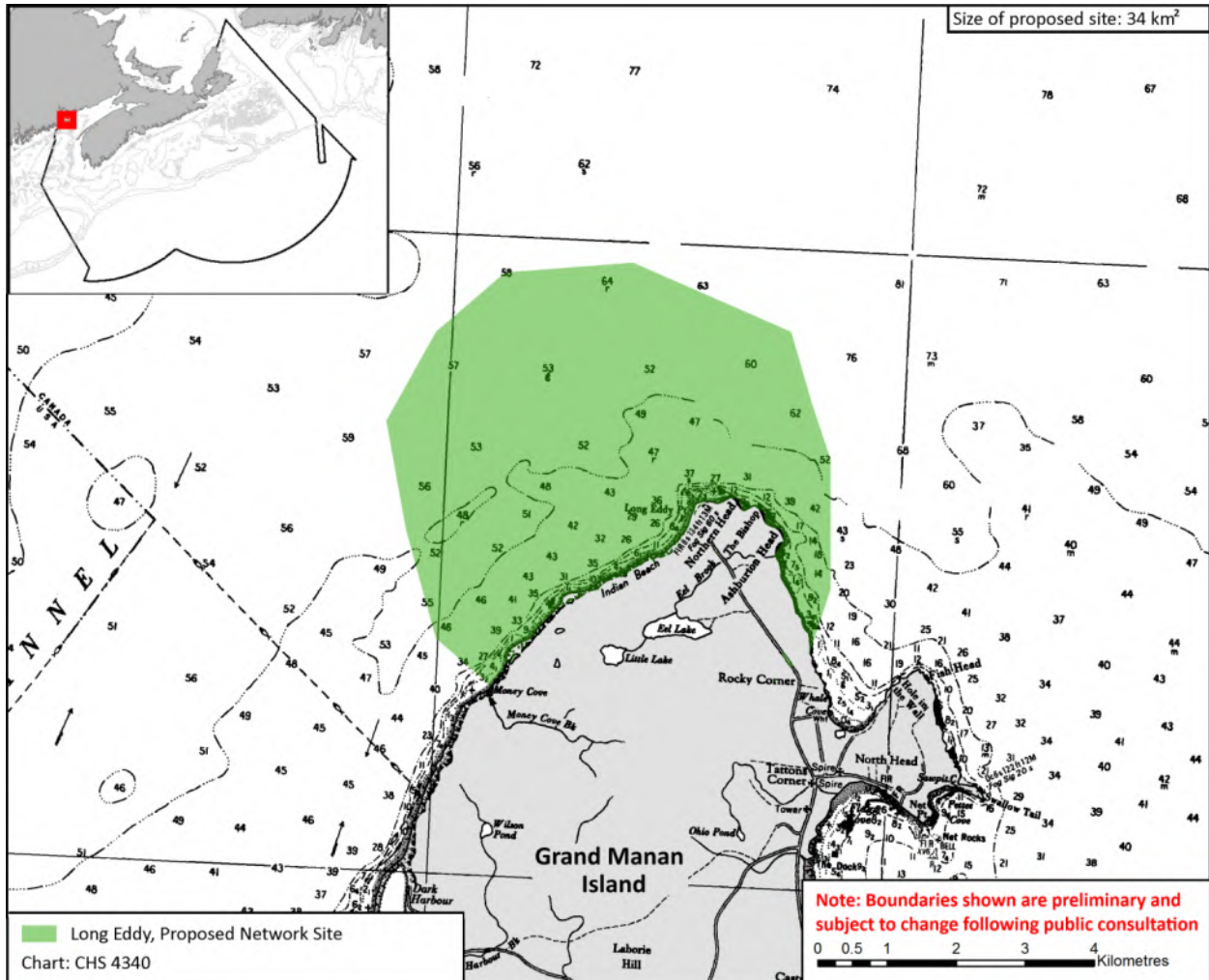


Figure 7: Map of Long Eddy, proposed network site.

6. SOUTH GRAND MANAN

South Grand Manan is located off southeastern Grand Manan Island in the Bay of Fundy, and encompasses White Head Island, Three Islands, Old Proprietor Shoals, the Murr Ledges, Gannet Rock, and Clarks Ground.

Why is this area special?

South Grand Manan has complex and diverse bottom features, including ledges and shoals, with persistent upwellings and tidal rips. This concentrates nutrients in the water and creates a hotspot of marine wildlife. Large aggregations of seabirds and marine mammals can be found in this area along with an abundance of seaweed. South Grand Manan has the highest bird species richness in Atlantic Canada, the highest densities of bird colonies in the Bay of Fundy, and is considered a significant area for seabirds.

Key ecological features

- High fish, seabird, and shorebird biodiversity
- Significant concentrations of kelp and rockweed
- Complex bottom topography
- Important foraging area for dabbling ducks, bay ducks, sea ducks (goldeneyes, scoters, and eiders), piping plover (Endangered – SARA), red knot (Endangered – SARA), large auks, dovebies, shearwaters, red-necked phalarope (Special Concern – SARA), storm-petrels, gulls and terns
- Significant foraging area for geese, shorebirds (including purple sandpiper), razorbills, large gulls, and harlequin duck (Special Concern – SARA)
- Feeding area for harbour porpoises (Special Concern - COSEWIC), humpback whales, minke whales, fin whales (Special Concern – SARA), and North Atlantic right whales (Endangered – SARA) (the 50 m depth line is noted to be particularly important as a whale and porpoise feeding area)
- Spawning area for haddock and Atlantic cod¹⁷ (Endangered – COSEWIC)

The area contains a diversity of marine species, including coastal species as well as fish, birds, and marine mammals more typically found in the offshore. Fisheries and Oceans Canada (DFO) is conducting research to further document the marine features of the area. There will be a Canadian Science Advisory process to better delineate the sensitive benthic features of the area (specific date to-be-determined).

How is this area used?

Current fisheries include groundfish (fixed and mobile gear), herring, lobster, crab, and scallop, and there are several finfish aquaculture leases within the site. Seaweed harvesting also occurs in the area, though a rockweed harvesting exclusion area is in place around Three Islands (Kent, Hay, and Sheep Islands). Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. A year-round ferry runs between Ingalls Head on Grand Manan to White Head Island. Sea kayaking and seabird and whale watching are popular activities.

Conservation measures or other special designations

South Grand Manan overlaps with a portion of the North Atlantic right whale critical habitat in Grand Manan Basin identified under the *Species at Risk Act*. North and South Green Islands Protected Natural Areas are managed for conservation, and the nearby Grand Manan Migratory Bird Sanctuary on the southeast coast of Grand Manan has a small marine component that is included in the conservation network. Part of this area overlaps with the Grand Manan Archipelago Important Bird Area.

¹⁷ Maritimes population

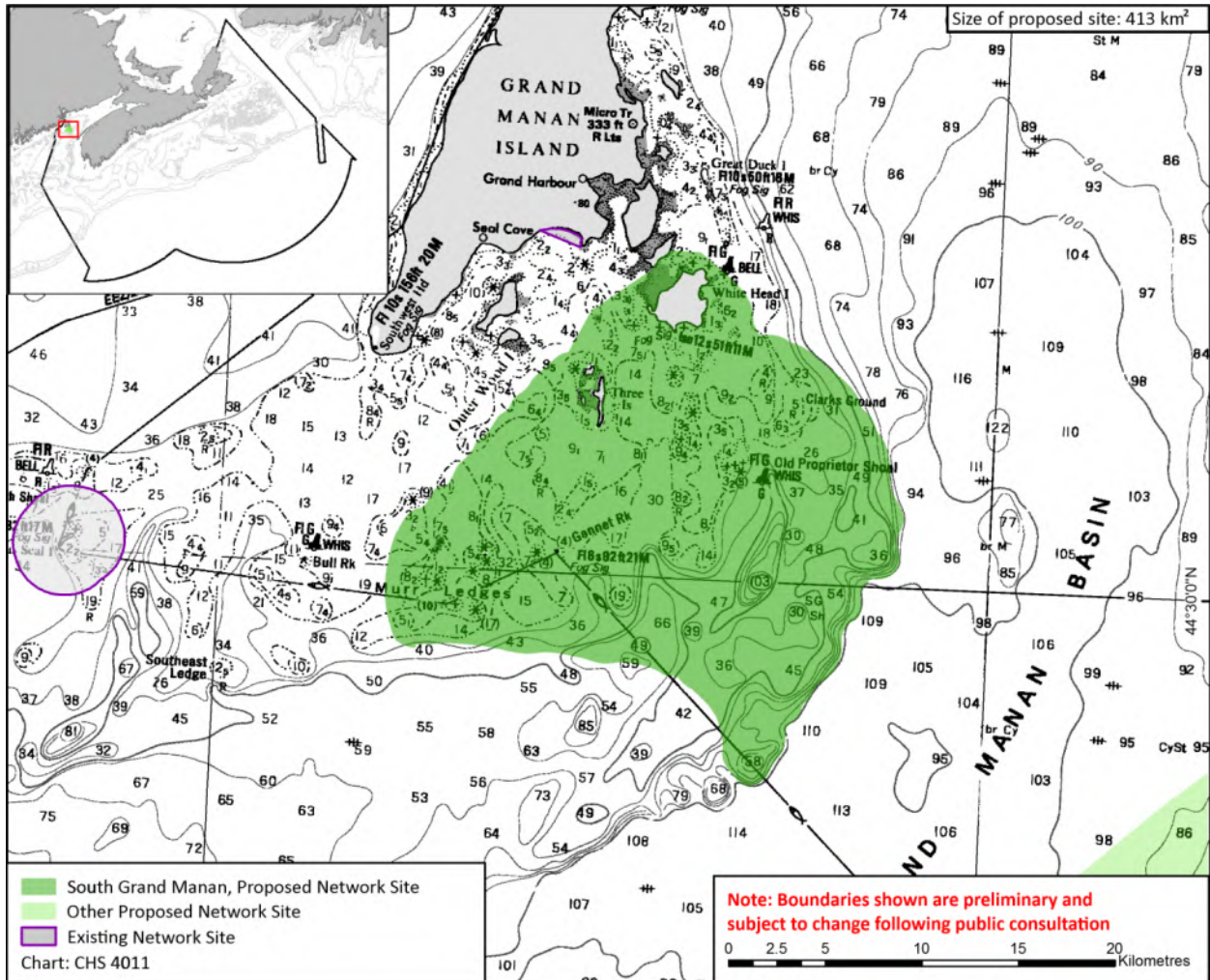


Figure 8: Map of South Grand Manan, proposed network site.

7. BRIER ISLAND

The Brier Island site extends to the south and west of Long Island and Brier Island into the Gulf of Maine, and encompasses the Northwest Ledge and Brier Island Southwest Ledge.

Why is this area special?

The waters around Brier Island are highly productive and rich with zooplankton, which attracts many animals to the area to feed, including several depleted species. In particular, a diversity of whales, seabirds, and fish aggregate here. The area hosts an abundance of marine algae including three seaweed species (*Eudesme virescens*, *Desmotrichium undulatum*, and *Myrionema strangulans*) that are not found elsewhere in the Bay of Fundy.

Key ecological features:

- High benthic, invertebrate, fish, marine mammal, seabird, and shorebird diversity
- High secondary productivity with large concentrations of copepods and krill

- Significant concentrations of kelp beds, rockweed, and other seaweed
- Significant concentrations of sponges
- Important foraging area for sea ducks (eiders), shorebirds, dovekies, shearwaters, phalaropes (including red-necked phalarope [Special Concern – SARA]), storm-petrels, cormorants, gulls, and terns (including roseate tern [Endangered – SARA])
- Significant foraging area for geese, purple sandpiper, harlequin duck (Special Concern – SARA), large auks, and large gulls
- Spawning area for pollock, haddock, and Atlantic cod¹⁸ (Endangered – COSEWIC)
- Aggregation area for Atlantic wolffish (Special Concern – SARA), white hake¹⁹ (Threatened – COSEWIC), and thorny skate (Special Concern – COSEWIC)
- Feeding area for Atlantic white-sided dolphin, harbour porpoise (Special Concern – COSEWIC), fin whale (Special Concern – SARA), North Atlantic right whale (Endangered – SARA), and minke, humpback, and sei whales.
- Strong tidal currents

As a result of its location at the mouth of the Bay of Fundy where it is exposed to oceanic conditions and strong currents that sweep across shoals, many subtidal species are found intertidally in this area. This area was also confirmed as a Significant Benthic Area for sponges in 2016²⁰. More research is being conducted on sponge biodiversity in waters surrounding Brier Island and further offshore.

How is this area used?

Fishing and tourism are the most important marine activities occurring in the area. Current fisheries include lobster, groundfish (fixed and mobile gear), scallop, herring, sea urchin and bluefin tuna. Seaweed harvesting also occurs in the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. Whale and seabird watching, sea kayaking, and recreational fishing (including clam harvesting) are popular activities.

Conservation measures or other special designations

A nearby private land easement on the southwestern portion of Brier Island is managed for conservation.

¹⁸ Maritimes population

¹⁹ Atlantic and Northern Gulf of St. Lawrence population

²⁰ Kenchington, E., L. Beazley, C. Lirette, F.J. Murillo, J. Guijarro, V. Wareham, K. Gilkinson, M. Koen Alonso, H. Benoît, H. Bourdages, B. Sainte-Marie, M. Treble, and T. Siferd. 2016. Delineation of Coral and Sponge Significant Benthic Areas in Eastern Canada Using Kernel Density Analyses and Species Distribution Models. DFO Can. Sci. Advis. Sec. Res. Doc. 2016/093. vi + 178 p. <http://waves-vagues.dfo-mpo.gc.ca/Library/40577806.pdf>

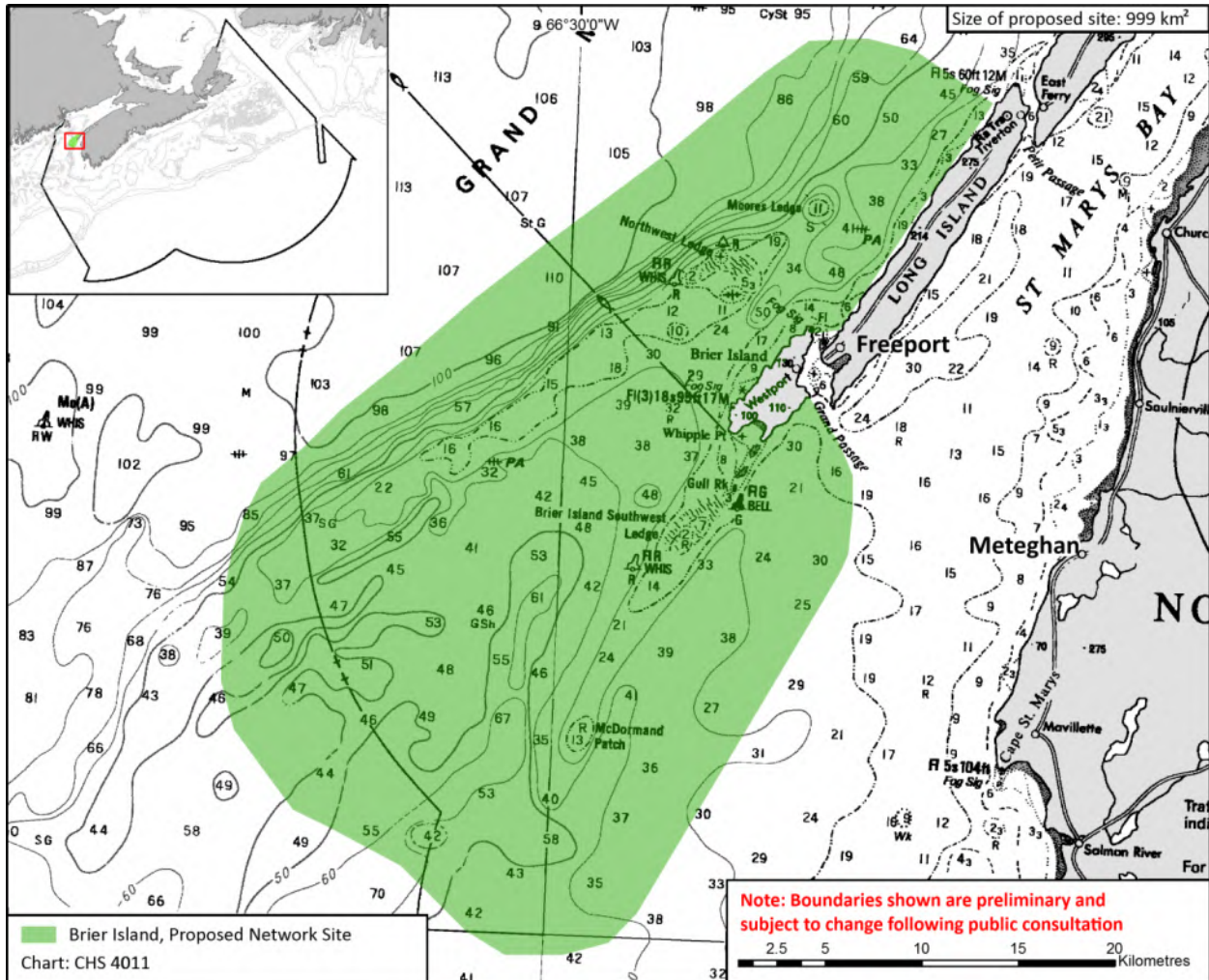


Figure 9: Map of Brier Island, proposed network site.

8. CHEBOGUE

Chebogue includes the waters from Chebogue Point to Wedge Point on the eastern side of Goose Bay, as well as the Tusket Islands off the coast of southwestern Nova Scotia.

Why is this area special?

The islands, shoals, and protected bays encompassed by this site support a diversity of coastal habitats, including eelgrass beds, rockweed, and extensive salt marsh. These habitats in turn provide refuge for many species of juvenile fish and invertebrates, including lobster, which occur here in particularly high numbers. Chebogue was known to be important for the Mi'kmaq due to its abundance of natural resources, and it was the site of one of the earliest Acadian settlements in Canada.

Key ecological features:

- Significant concentrations of salt marsh, eelgrass, and rockweed

- Important foraging area for geese, bay ducks, sea ducks (eiders and goldeneyes), loons, grebes, cormorants, gulls, and terns
- Significant foraging area for dabbling ducks, shorebirds, and Atlantic brant
- Migration stopover for piping plover (Endangered – SARA)
- Juvenile/nursery area for windowpane flounder, cunner, three-spined stickleback, winter flounder, and lobster
- Spawning area for Atlantic herring

How is this area used?

The main activity in this area is fishing. Current fisheries include lobster, mackerel and groundfish (fixed gear), and marine plant harvesting occurs along the shoreline. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is a softshell clam aquaculture lease in the Chebogue River and agricultural lands adjacent to the site. Common recreational activities in the area are sea kayaking and waterfowl hunting.

Conservation measures or other special designations

Nearby land conservation includes the Tusket Islands Wilderness Area and the Melbourne Lake Game Sanctuary.

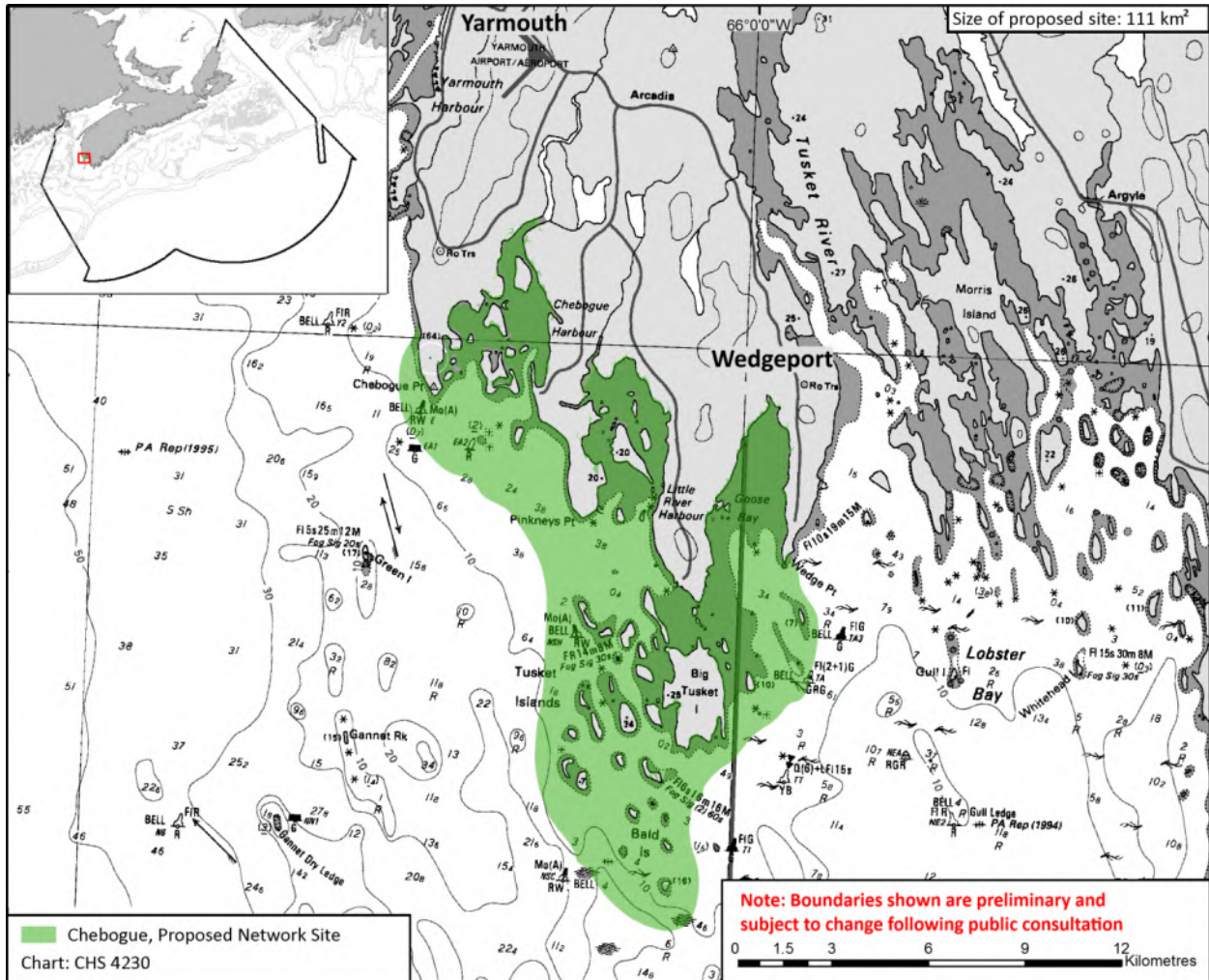


Figure 10: Map of Chebogue, proposed network site.

9. BON PORTAGE ISLAND

Bon Portage Island is located about 3 km off the southwest coast of Nova Scotia near Shag Harbour and includes the waters immediately surrounding the island.

Why is this area special?

Bon Portage is important for a variety of bird species including significant colonies of gulls and herons as well as Leach’s storm-petrels, which are found there in globally significant numbers. Many other bird species use the island as a migratory stopover site. The island offers a diversity of coastal habitat types, including barrier beaches, salt marshes, lagoons, fens, barrens, coastal forest, and swamps, and is surrounded by some of the richest algae beds in Nova Scotia. The original Bon Portage lighthouse was erected in 1874 and was inhabited for 35 years before the island was given to Acadia University.

Key ecological features:

- High coastal habitat diversity
- Significant concentrations of kelp beds and rockweed
- Important foraging area for herons, sea ducks (eiders, including harlequin duck [Special Concern – SARA]), purple sandpiper, cormorants, loons, grebes, gulls, and terns
- Significant foraging area for Leach’s storm-petrel

The island hosts the largest known colony of Leach’s storm-petrel (50,000 pairs) in the Maritimes. It is also home to the only black-crowned night heron colony in Nova Scotia. Snowy egrets have been observed on the island during breeding season, which is a nationally rare occurrence.

How is this area used?

Active fisheries in the area include lobster, mackerel, groundfish (fixed gear), and rockweed harvesting. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There are two finfish aquaculture leases in the vicinity, including one within the site boundaries.

Bon Portage is a popular destination for bird tourism, and the Nova Scotia Bird Society organizes trips there in the spring and fall. Acadia University runs a summer field course on the island each year and carries out ongoing bird research.

Conservation measures or other special designations

The island is protected through a conservation easement between Acadia University, which owns and maintains the island, and the Nova Scotia Nature Trust. The agreement permanently protects the island from development while allowing for ongoing research by the university.

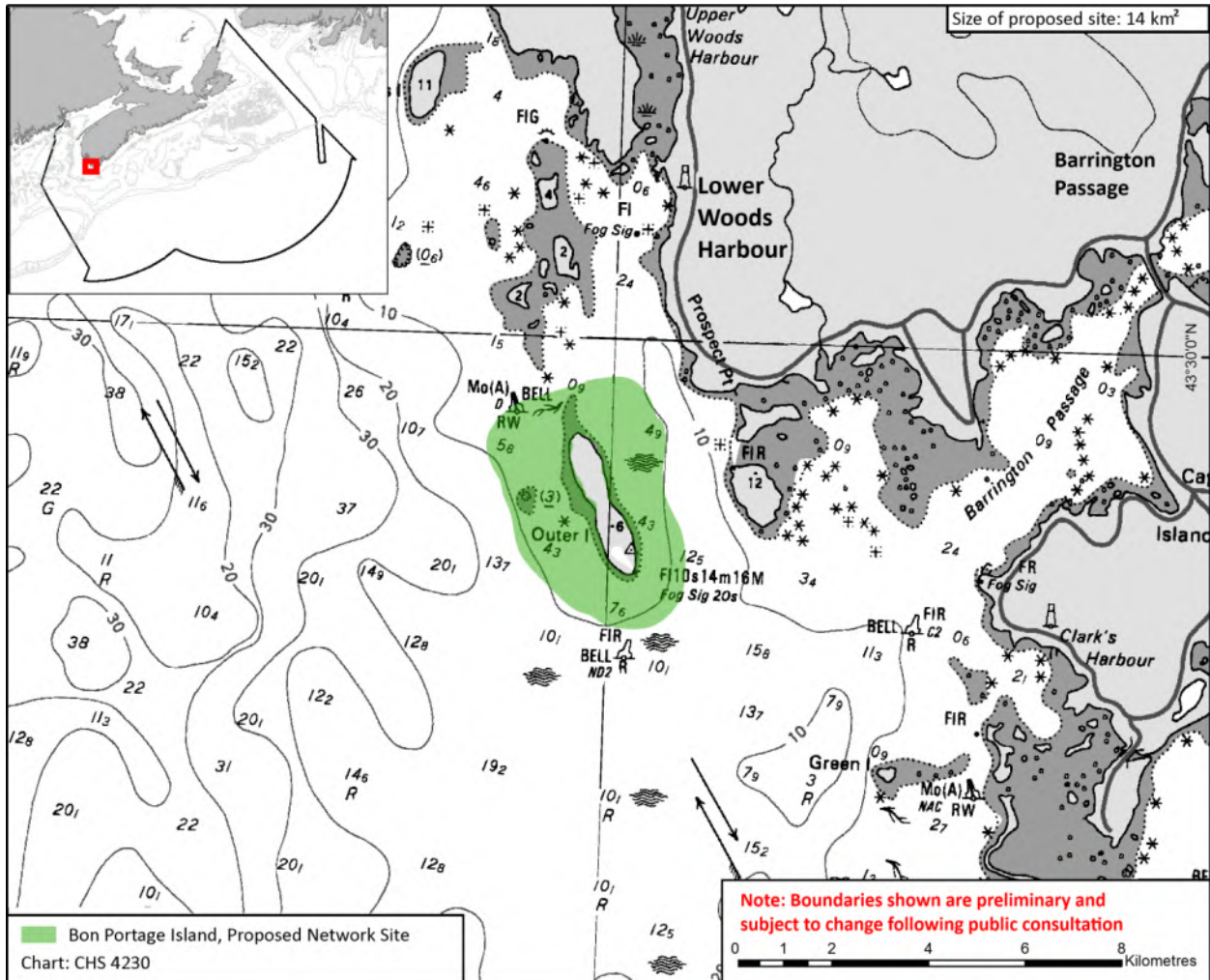


Figure 11: Map of Bon Portage Island, proposed network site.

10. PORT JOLI AND SURROUNDING AREA

This site is located along the south shore of Nova Scotia and encompasses the Sable River, Port L'Hebert, and Port Joli inlets, and the waters adjacent to the Kejimikujik National Park Seaside.

Why is this area special?

This highly natural area has dense eelgrass and salt marsh that provide important habitat for a wide variety of species. The inner portions of the inlets are especially important for migratory waterfowl, and the beaches host continentally significant numbers of endangered piping plover. This area also has special archaeological and cultural significance, as Port Joli has the highest known concentration of shell middens in Nova Scotia. These archaeological finds have provided insight into Mi'kmaq culture and use of the area stretching back in time over one and a half millennia.

Key ecological features:

- High naturalness
- Significant concentrations of eelgrass and salt marsh
- Spawning area for Atlantic herring
- Important foraging area for herons, dabbling ducks, bay ducks, sea ducks (goldeneyes and mergansers), northern gannet, gulls, and terns
- Significant foraging area for geese, sea ducks (eiders, including harlequin ducks [Special Concern – SARA]), and shorebirds (including piping plover [Endangered – SARA])
- Barrow’s goldeneye (Special Concern – SARA) are known to occur in the area

How is this area used?

Shell middens in the Port Joli area are some of the densest in the province, and provide evidence of a Mi’kmaq presence as far back as 1500 years ago.²¹ The area has very limited coastal development and a low population density. Active fisheries include lobster, herring roe (gillnet), bluefin tuna, and blood worm and shellfish harvesting. Rockweed and Irish moss are also harvested in the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes.

Kejimikujik National Park Seaside and several provincial protected areas provide a draw for tourism and recreational opportunities, including surfing, beach use, kayaking, and camping. In recent years, Parks Canada Agency has worked with local fishermen and community volunteers to develop a green crab trapping program to remove this invasive species and restore the rich eelgrass beds within the National Park boundaries. This green crab trapping experience is now offered to the public as a “citizen science seaside adventure”.²²

Conservation measures or other special designations

Existing conservation measures include three Migratory Bird Sanctuaries located at the heads of Sable River, Port L’Hebert, and Port Joli inlets. The marine components of these sanctuaries are included in the conservation network. These sanctuaries include small intertidal components and protect significant salt marsh areas. Kejimikujik National Park Seaside is also in the area and has a marine component that is included in the conservation network, as well as adjacent terrestrial conservation. Included within the marine component are some of the largest eelgrass beds in Atlantic Nova Scotia in two highly productive lagoons at St. Catherine’s River Beach and Little Port Joli Beach. Other adjacent terrestrial protection includes the Thomas Raddall Provincial Park, the Port L’Hebert Nature Reserve and Provincial Park, and private conservation lands held by the Nature Conservancy of Canada and the Nova Scotia Nature Trust. Local beaches include Johnstons Pond, Sandy Bay, and St. Catherine’s; these, and three other beaches within the area have been designated as critical habitat for piping plover under the *Species at Risk Act*. As well, the entire site falls within an Important Bird Area that spans the coast from Hunts Point to Osborne Harbour.

²¹ <https://coastalarchaeology.wordpress.com/>

²² <https://www.pc.gc.ca/en/pn-np/ns/kejimikujik/activ/expedi-crabes-gone-crabbin>

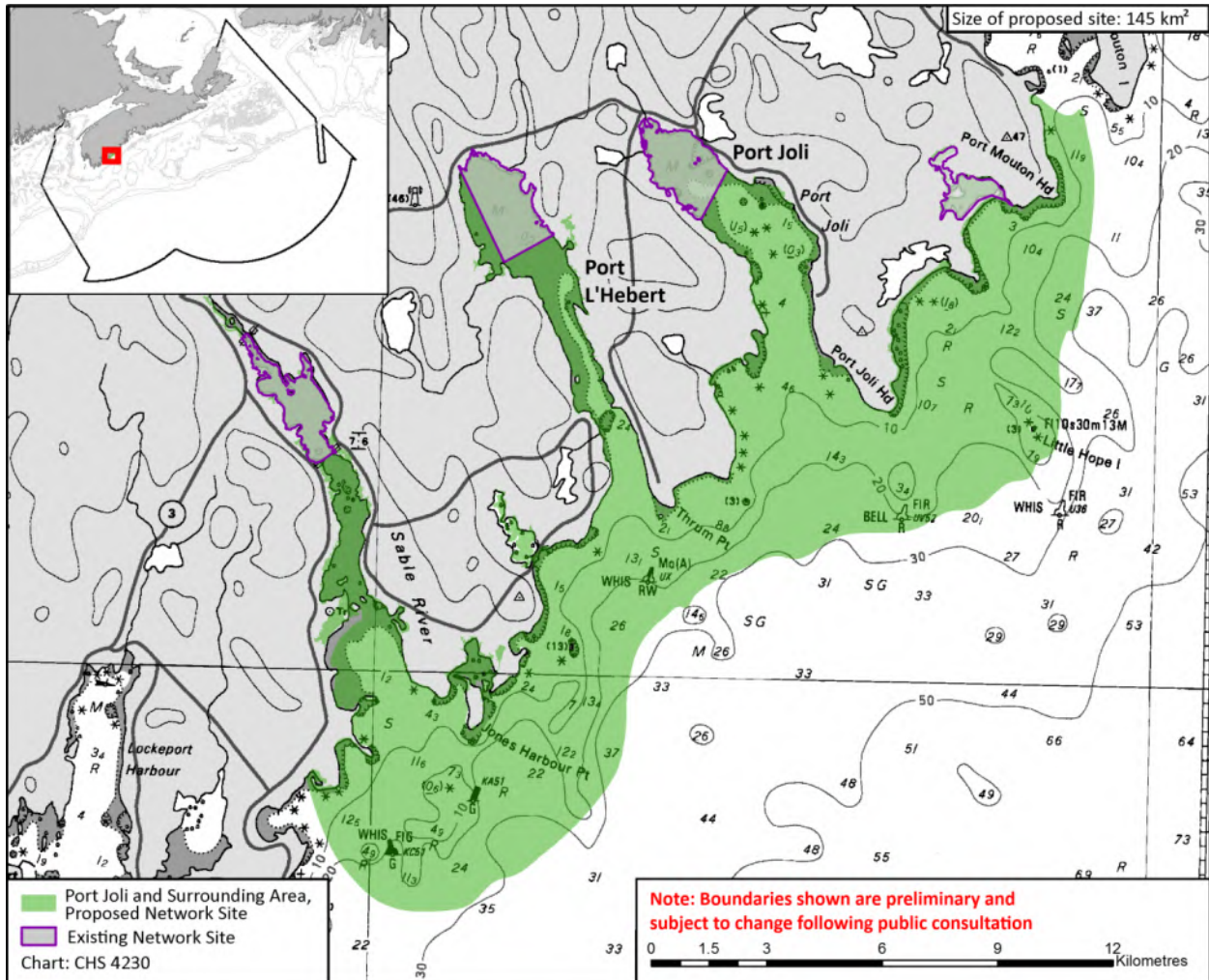


Figure 12: Map of Port Joli and Surrounding Area, proposed network site.

11. LAHAVE ISLANDS

The LaHave Islands area includes the waters around a cluster of coastal islands at the mouth of the Petite Rivière and LaHave River on the Atlantic coast of Nova Scotia, from Broad Cove in the west to the Kingsburg Peninsula in the east.

Why is this area special?

The waters around the islands are a feeding area for many species of sea ducks, seabirds and shorebirds. Cape Bay Beach on Cape LaHave Island is a nesting site for endangered piping plover; the plovers also use many other beaches in the immediate area to feed. Both the LaHave River and Petite Rivière have suitable spawning habitat for endangered Atlantic salmon and the mouths of those rivers are considered salmon migratory and feeding areas. The Petite Rivière watershed is home to the last remaining population of Atlantic whitefish in the world. Rich salt marsh, eelgrass, and seaweed beds along the coast add to the ecological importance of the area.

Key ecological features:

- Significant concentrations of eelgrass, salt marsh, and kelp beds
- Important foraging area for herons, bay ducks, sea ducks (eiders, goldeneyes, and mergansers), piping plover (Endangered – SARA), red knot (Endangered – SARA), northern gannet, cormorants, gulls, and terns (including roseate tern [Endangered – SARA])
- Significant foraging area for shorebirds
- Barrow’s goldeneye (Special Concern – SARA) are also known to occur in the area
- Important habitat for Atlantic salmon²³ (Endangered – SARA)

The Atlantic whitefish (Endangered – SARA), a species that historically moved between fresh water and the ocean, can be found in the Petite Rivière watershed. The recovery strategy for this endangered species calls for restoring a route to the ocean, and work is underway to restore fish passage in the watershed. There are indications that blue whales (Endangered – SARA) and other whales use the area just south of the islands as a feeding area. More research is needed to better understand the whales’ use of the area.

How is this area used?

Active fisheries in the area include mackerel, groundfish (fixed gear), lobster, and scallop, along with some marine plant harvesting for Irish moss and rockweed. Recreational clamming may also occur here. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. Currently, tourism and recreation are important to the local economy, with several popular beaches in the area, extensive cottage development, and a well-used provincial park at Risser’s Beach. The waters around the LaHave Islands are a well-known kayaking route and the general area is popular with recreational boaters. The channel to the LaHave River goes through the site; there is a marina, yacht club and shipyard on the river. The Fort Sainte Marie de Grace National Historic Site, located at the mouth of the LaHave River, marks the location of an early Acadian Settlement and the first capital of New France.²⁴ A small museum on site²⁵ provides information on local history, including the importance of the area to the Mi’kmaq and early French and European settlers.

²³ Southern Uplands population

²⁴ <http://www.historicplaces.ca/en/rep-reg/place-lieu.aspx?id=13572&pid=0>

²⁵ <http://www.novascotia.com/see-do/attractions/fort-point-museum/1299>

Conservation measures or other special designations

There is some land conservation in the area, with several provincially protected beaches as well as Hirtle’s Beach Municipal Park and Risser’s Beach Provincial Park. Gaff Point and some other sites on the Kingsburg Peninsula are protected by Kingsburg Coastal Conservancy, and Indian Island is protected by the Nova Scotia Nature Trust. Cape LaHave Island is “common land” held by the municipality, which contains a beach identified as critical habitat for piping plover under the *Species at Risk Act*. The coastal area between Dublin Shore and Cherry Hill has also been recognized as an Important Bird Area.

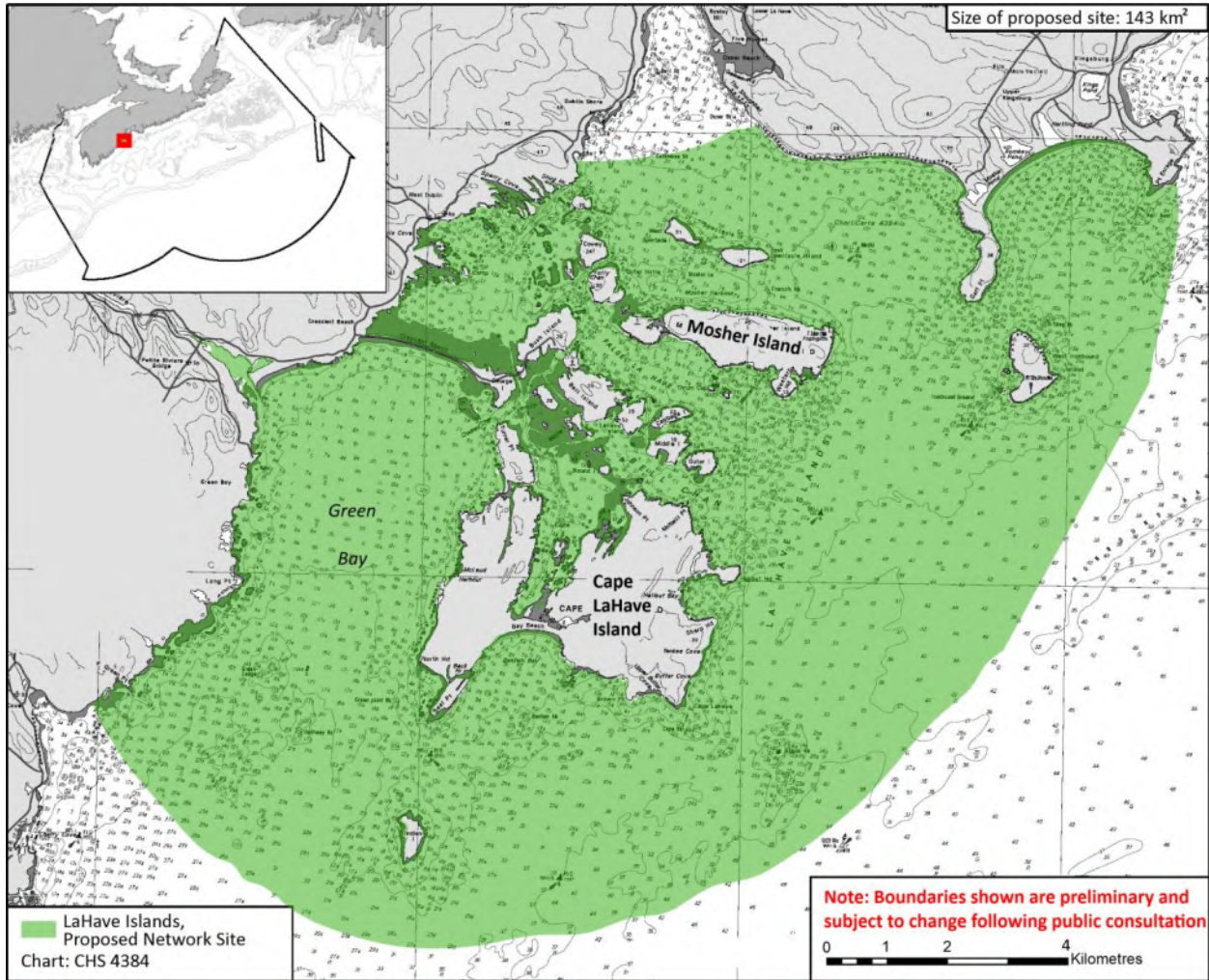


Figure 13: Map of LaHave Islands, proposed network site.

12. PEARL ISLAND

This site is located just outside the mouth of Mahone Bay and includes the waters within a 5 km radius of Pearl Island.

Why is this area special?

Because of its isolation, Pearl Island offers important habitat for a variety of seabirds including the northern gannet, Atlantic puffin, razorbill, black-legged kittiwake, and the endangered roseate tern.

Key ecological features:

- Isolated island
- Important foraging area for sea ducks (eiders), northern gannet, large auks (including Atlantic puffin and razorbill), cormorants, loons, grebes, gulls, and terns (including black-legged kittiwake and roseate tern [Endangered – SARA])

How is this area used?

Current fisheries in the area include lobster, groundfish (fixed gear), and mackerel. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. Tourism and recreational activities in the area include boat tours for bird watching and recreational boating and sailing.

Conservation measures or other special designations

Pearl Island is a Provincial Wildlife Management Area and a newly designated Provincial Nature Reserve. The Wildlife Management Area includes a 0.5 mile seaward “no hunting” buffer that prevents the killing of mammals and birds.

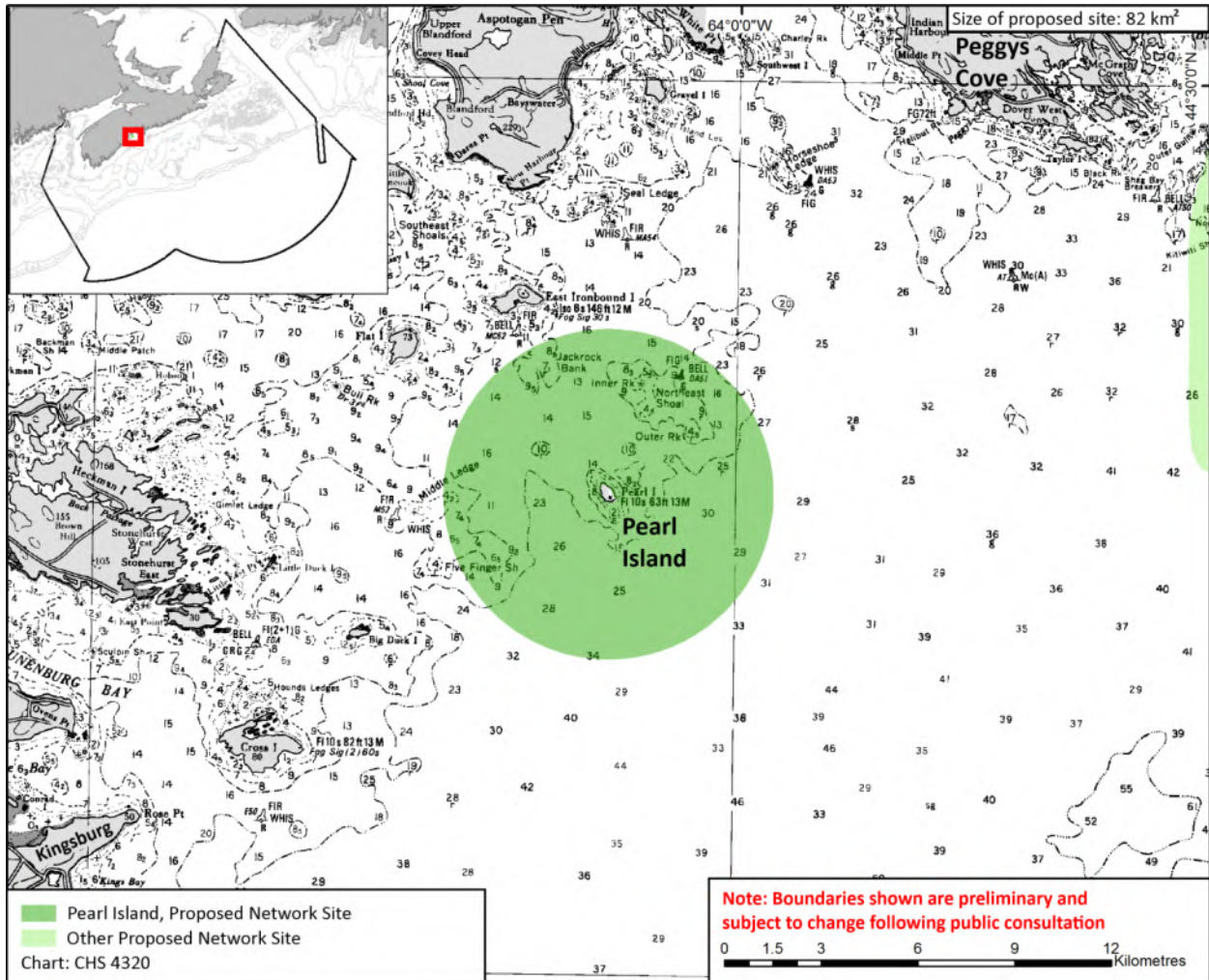


Figure 14: Map of Pearl Island, proposed network site.

13. SAMBRO LEDGES-PROSPECT

Sambro Ledges-Prospect, located just southwest of Halifax Harbour, includes the inshore waters between Prospect and Chebucto Head.

Why is this area special?

This highly productive area is an important feeding ground for whales, dolphins, fish, and many species of seabirds and shorebirds. Fin whales gather here during winter and spring to feed on schools of herring that come near shore. On the ocean floor, dense concentrations of kelp, eelgrass, and stalked tunicates—a marine animal commonly known as the “sea potato”—provide a home for a variety of other species. Sambro Island Lighthouse, the oldest operating lighthouse in North America, and several shipwrecks including the RMS Atlantic are located in this site, underscoring the area’s rich maritime history.

Key ecological features:

- High naturalness (Terence Bay and Pennant Bay)
- High productivity due to enhanced upwelling in the area
- Complex bottom topography
- Significant concentrations of stalked tunicate fields, eelgrass, and kelp beds
- Overwintering area for Atlantic herring
- Juvenile/nursery area for pollock
- Feeding area for white-beaked dolphin, Atlantic white-sided dolphin, and fin whales (Special Concern – SARA)
- Important foraging area for northern gannet, sea ducks (eiders), gulls, terns (including roseate tern [Endangered – SARA]), loons, grebes, and cormorants
- Significant foraging area for harlequin duck (Special Concern – SARA)
- Barrow’s goldeneye (Special Concern – SARA) are also known to occur in the area

The approaches to Halifax are some of the most important inshore feeding areas for bluefin tuna.

How is this area used?

The proximity to the city of Halifax makes this area accessible for a variety of activities, including fishing, recreation, and shipping. Current fisheries include lobster, herring (fixed gear), mackerel, sea urchin, groundfish (fixed gear), some snow crab, and marine plant harvesting for Irish moss and rockweed. A fishery for bluefin tuna occurs nearby. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes.

Sambro Ledges-Prospect is a popular recreation area used by kayakers, boaters, beach goers, bird and whale watchers, and SCUBA divers. The main shipping lanes to and from Halifax harbour are nearby, resulting in high shipping traffic.

Conservation measures or other special designations

Nearby land conservation is extensive, and includes the Terence Bay and Rogues Roost Provincial Wilderness Areas, Duncan’s Cove Provincial Nature Reserve, Crystal Crescent Beach Provincial Park, and the Nature Conservancy of Canada’s Prospect Head Conservation Lands.

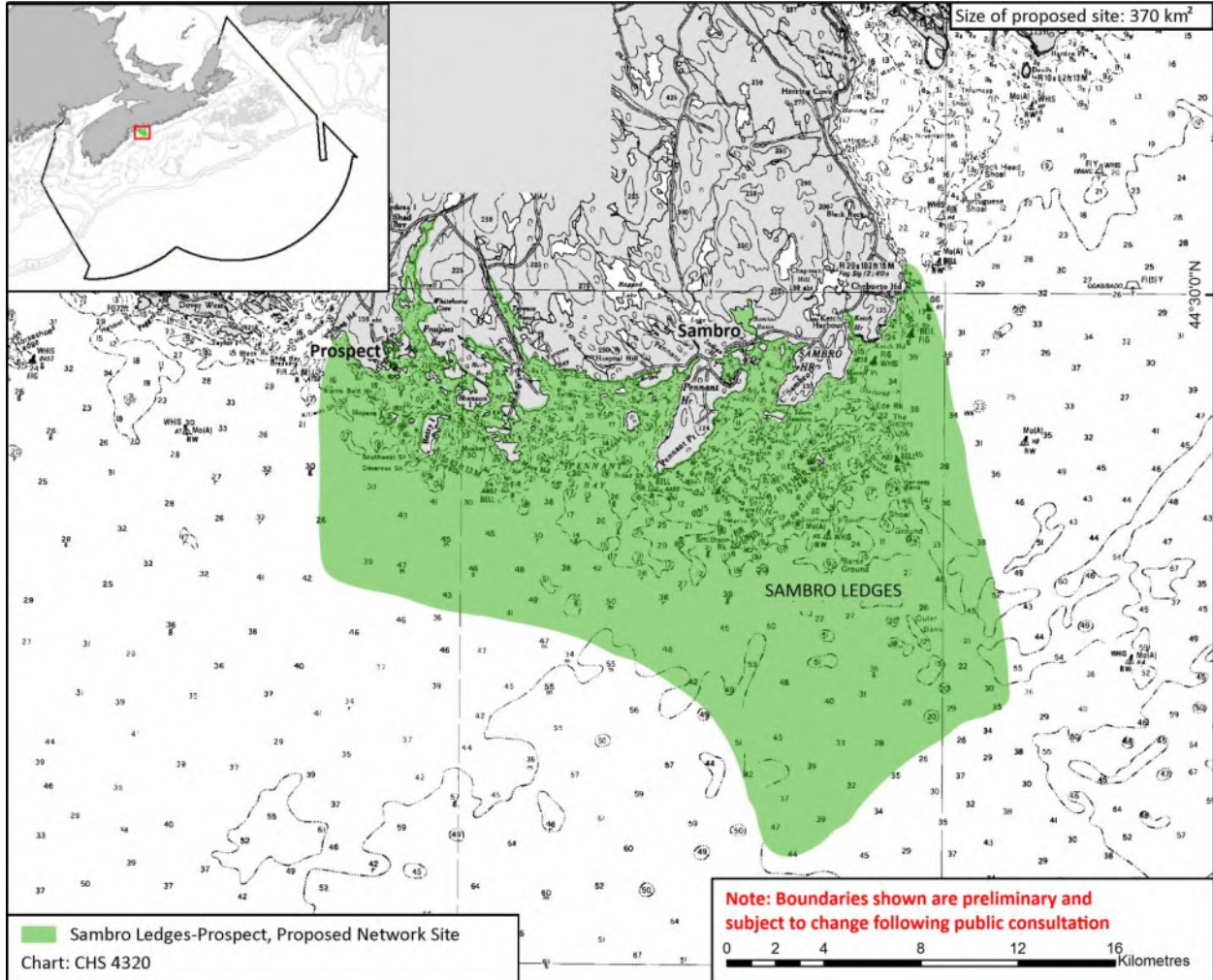


Figure 15: Map of Sambro Ledges-Prospect, proposed network site.

14. CANSO LEDGES-SUGAR HARBOUR ISLANDS

This site includes the waters around the Canso Peninsula, from Sugar Harbour Islands south of the peninsula to Fox Bay on the northern portion of the peninsula, and extends into Chedabucto Bay.

Why is this area special?

The large, deep bay and the adjacent shallow ledges of this site provide a diversity of habitats supporting many different species. Fish and invertebrates are abundant and diverse in the area, and rich seaweed beds can be found nearshore. The isolated islands and coastline provide important nesting and feeding areas for sea ducks, seabirds, and shorebirds, including the endangered roseate tern. The deep, cool waters of Chedabucto Bay are home to species normally found offshore, such as snow crab and northern shrimp. Fin whales, minke whales, white-sided dolphins, and white-beaked dolphins are commonly observed in the area.

Key ecological features

- Area of high fish and invertebrate diversity
- Area of high productivity
- Bay that is unique in size and depth
- Significant concentrations of rockweed
- Important foraging area for sea ducks (mergansers, scoters, and harlequin duck [Special Concern – SARA]), purple sandpiper, large auks, cormorants, gulls, and terns (including roseate tern [Endangered – SARA])
- Significant foraging area for sea ducks (eiders)
- Feeding area for minke whales, fin whales (Special Concern – SARA), Atlantic white-sided dolphin, white-beaked dolphin, and harbour porpoise (Special Concern - COSEWIC)
- Juvenile/nursery area for sand lance and grubby
- Overwintering area for Atlantic herring
- Aggregation area for Atlantic cod²⁶ (Endangered – COSEWIC), winter skate²⁷ (Endangered – COSEWIC), Atlantic wolffish (Special Concern - SARA), and thorny skate (Special Concern – COSEWIC)

Canso Ledges was historically one of the most important inshore herring spawning areas in Nova Scotia, with both spring and fall spawning populations. In the past, an important nearshore cod spawning ground could be found here.

How is this area used?

Currently, fisheries for lobster, bluefin tuna, shrimp (trap), groundfish (fixed gear), snow crab, and scallop are active. There was an important winter purse seine fishery for herring in the past that has not been active in recent years. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes.

The main shipping lane leading to the Strait of Canso Port runs through the area. A new marine terminal is planned nearby at the proposed quarry at Black Point. In addition, new Liquefied Natural Gas terminals and a marine cargo terminal have been proposed for the Strait of Canso.

The Canso Islands National Historic Site is a tourist attraction that details early use of the area by Europeans. Hiking, swimming, and kayaking are other popular coastal activities in the area.

Conservation measures or other special designations

There are a number of coastal land conservation areas, including the Canso Coastal Barrens Wilderness Area, several protected beaches, Black Duck Cove and Andrews Island Provincial Parks, and the Canso Islands National Historic Site. The Sugar Harbour Islands have also been recently designated as a Provincial Nature Reserve.

²⁶ Maritimes population

²⁷ Eastern Scotian Shelf - Newfoundland population

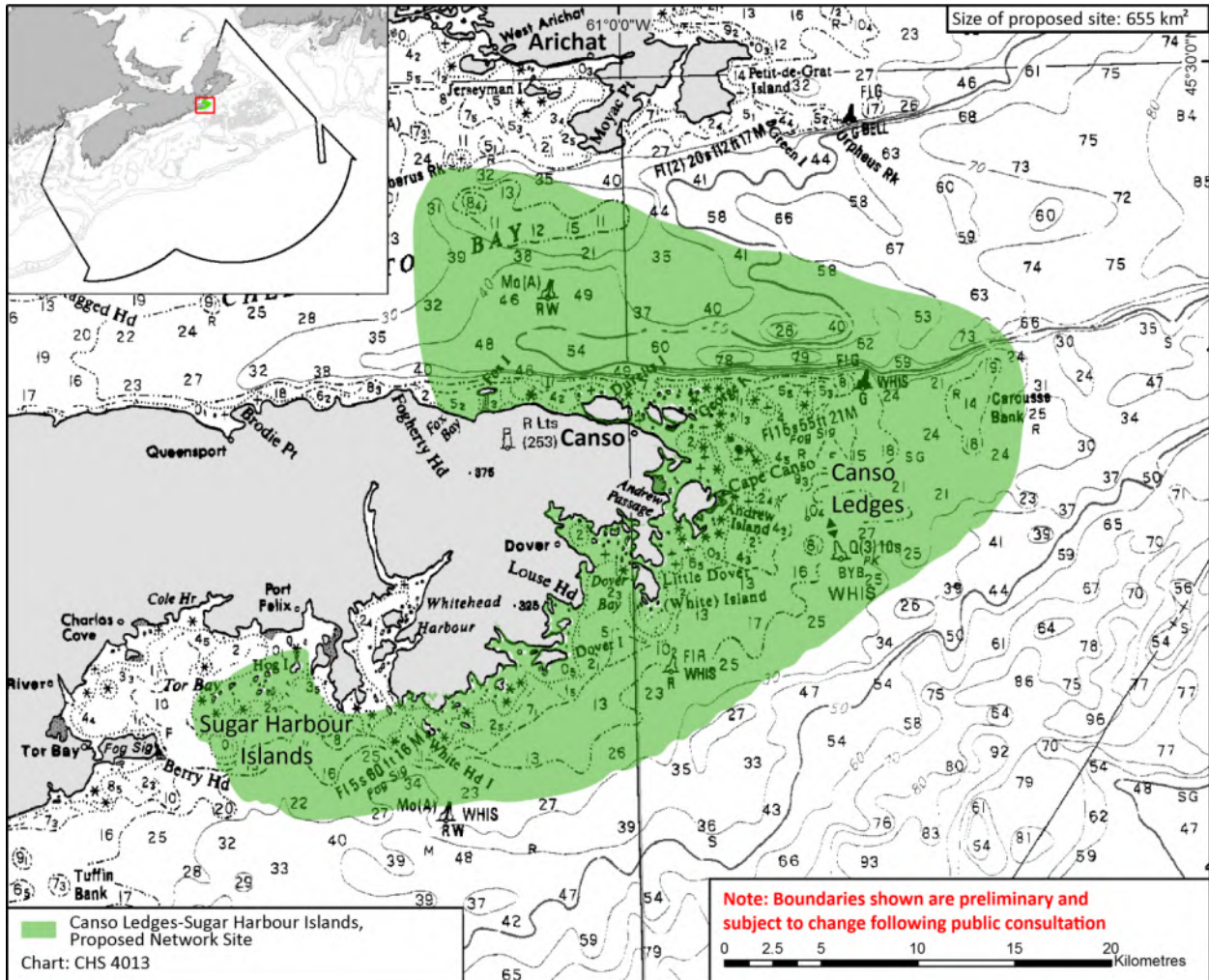


Figure 16: Map of Canso Ledges-Sugar Harbour Islands, proposed network site.

15. POINT MICHAUD AND BASQUE ISLANDS

Located along the east coast of Cape Breton, this area stretches from L'Archeveque Cove to just south of Little Harbour, and includes the group of small rocky islets called the Basque Islands.

Why is this area special?

The Basque Islands are important to a variety of seabirds, and serve as nesting grounds for globally significant numbers of Great Cormorant. Point Michaud is also one of the most important areas for shorebirds in Cape Breton. Barrier beaches and coastal saline ponds are a common feature on this stretch of coast, and dense concentrations of eelgrass and some salt marsh can be found in the Grand River estuary.

Key ecological features:

- High shorebird diversity

- Significant concentrations of eelgrass
- Salt marsh habitat (Grand River Estuary)
- Important foraging area for eiders, purple sandpiper, northern gannet, cormorants, gulls, and terns
- Significant foraging area for great cormorant

How is this area used?

The main fishery in the area is lobster, but some shrimp and snow crab fishing occurs nearby. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. The long, sandy beaches, including Point Michaud Beach, attract some tourism and recreation activities in the warmer months, including swimming and surfing.

Conservation measures or other special designations

The Basque Islands Nature Reserve is a provincial designation that prohibits hunting on the islands. Additional provincial conservation measures pending for adjacent lands include the Point Michaud Beach Provincial Park and Point Michaud Nature Reserve. The Basque Islands and the coastline encompassing Point Michaud have been designated as an Important Bird Area, and Point Michaud was identified as a Site of Ecological Significance by the International Biological Program (1964-74).

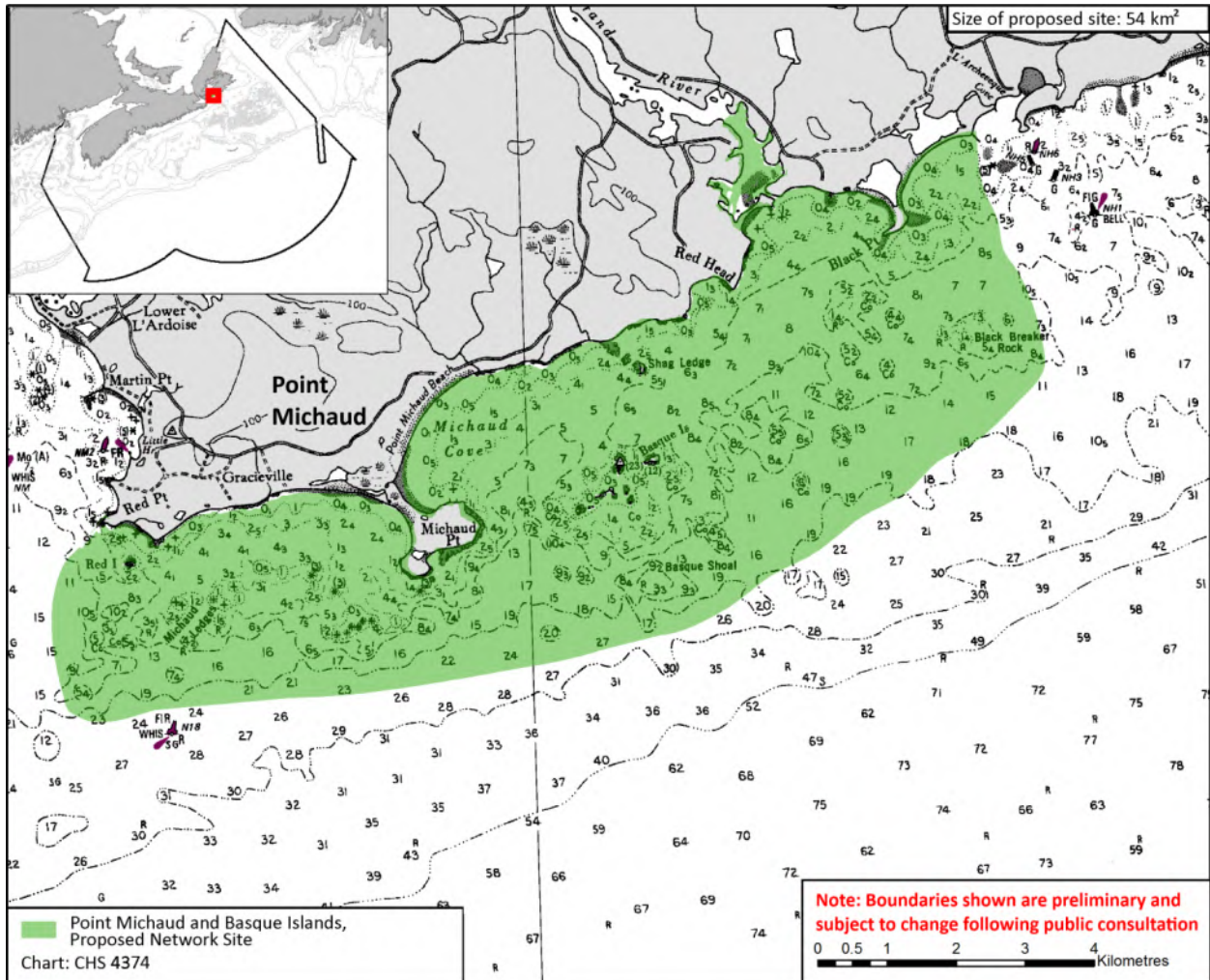


Figure 17; Map of Point Michaud and Basque Islands, proposed network site.

16. BIG GLACE BAY

Big Glace Bay is located just east of the town of Glace Bay in northeastern Cape Breton.

Why is this area special?

The inner part of this bay contains a highly productive coastal lagoon that was designated as a Migratory Bird Sanctuary in 1939. The dense salt marsh and eelgrass beds found here provide an ideal foraging area for large populations of migrating waterfowl. The area also includes Glace Bay Bar, a critical habitat beach for the endangered piping plover, which is one of just four critical habitat beaches in Cape Breton. The MacAskill's Brook watershed, which drains into Big Glace Bay Lake, has been known to support spawning Atlantic salmon.

Key ecological features:

- Highly productive coastal lagoon

- High primary productivity with large concentrations of macro-algae and phytoplankton, and high secondary productivity
- Significant concentrations of salt marsh and eelgrass
- Important foraging area for dabbling ducks, geese, bay ducks, sea ducks (mergansers), northern gannet, cormorants, terns, and piping plover (Endangered – SARA)
- Important habitat for Atlantic salmon²⁸ (Endangered – COSEWIC)

How is this area used?

Current fishing activity in this area includes lobster, herring (fixed gear), and mackerel. Nearby fisheries include groundfish (fixed gear) and snow crab. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. Swimming and other recreational activities occur at Glace Bay Beach.

Conservation measures or other special designations

A considerable portion of this site, including the coastal lagoon and important eelgrass and salt marsh areas, is already protected within the Big Glace Bay Lake Migratory Bird Sanctuary, and the Glace Bay sandbar has been identified as critical habitat for piping plover under the *Species at Risk Act*. Big Glace Bay Lake has also been recognized as an Important Bird Area.

²⁸ Eastern Cape Breton population

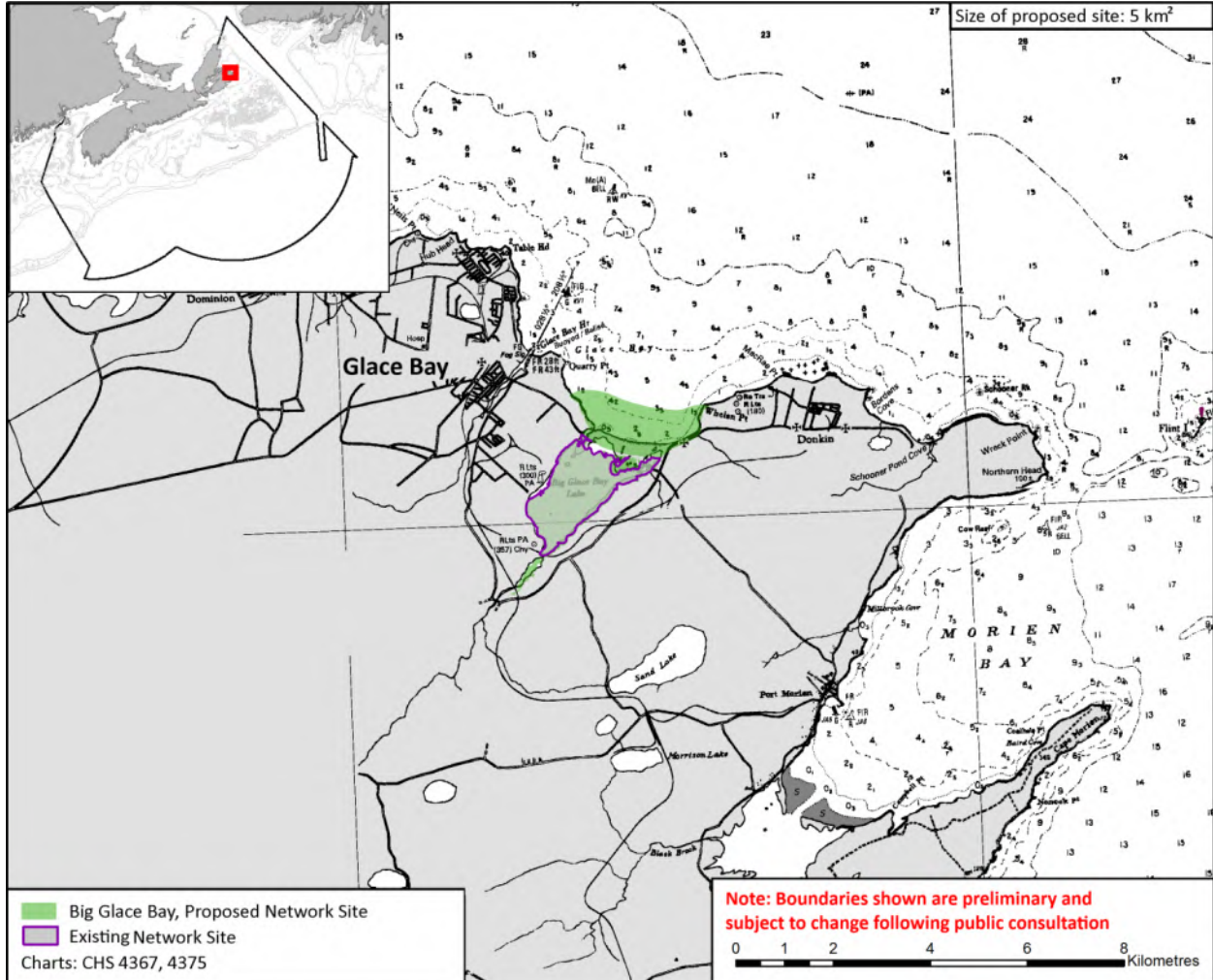


Figure 18; Map of Big Glace Bay, proposed network site.

17. BIRD ISLANDS

The Bird Islands area includes the waters surrounding Ciboux and Hertford Islands, which are located off of the northern coast of Cape Breton near Cape Dauphin.

Why is this area special?

These rocky, isolated islands are one of the most important habitats for colonial marine birds in Nova Scotia. They support the highest concentrations of some provincially rare bird species, including the black-legged kittiwake, Atlantic puffin, and razorbill. The waters around the islands are also important for several fish species, including Atlantic herring, Atlantic cod, and winter skate.

Key ecological features:

- Isolated islands (a unique geomorphological feature)
- Area of high seabird diversity

- Important foraging area for northern gannet, razorbill, Atlantic puffin, loons, grebes, cormorants, terns, and gulls (including black-legged kittiwake)
- Significant foraging area for great cormorant and large gulls
- Overwintering area for Atlantic herring and possible overwintering area for American lobster
- Aggregation area for winter skate²⁹ (Endangered – COSEWIC)
- High abundance of scallop
- Juvenile/nursery area for Atlantic cod³⁰ (Endangered – COSEWIC) and white hake³¹ (Threatened – COSEWIC)

The unique Atlantic herring population of the Bras d'Or Lake, another proposed site in the conservation network design, has been found to overwinter around the Bird Islands.

How is this area used?

Commercial fishing occurs in the waters surrounding the islands as well as some ecotourism operations. Current fisheries in the area include scallop, lobster, mackerel, groundfish (fixed gear), and rock crab. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. Boat and kayak tours operate around the islands, mainly for bird and whale watching.

Conservation measures or other special designations

The importance of this area to seabirds resulted in the designation of Bird Islands as a provincial Wildlife Management Area, which includes Ciboux and Hertford Islands, and the surrounding waters within approximately 500 m of the high water mark. The Bird Islands have also been identified as an Important Bird Area, and Hertford Island is owned and managed by the Nova Scotia Nature Trust as a bird sanctuary.

²⁹ Eastern Scotian Shelf - Newfoundland population

³⁰ Maritimes population

³¹ Southern Gulf of St. Lawrence population

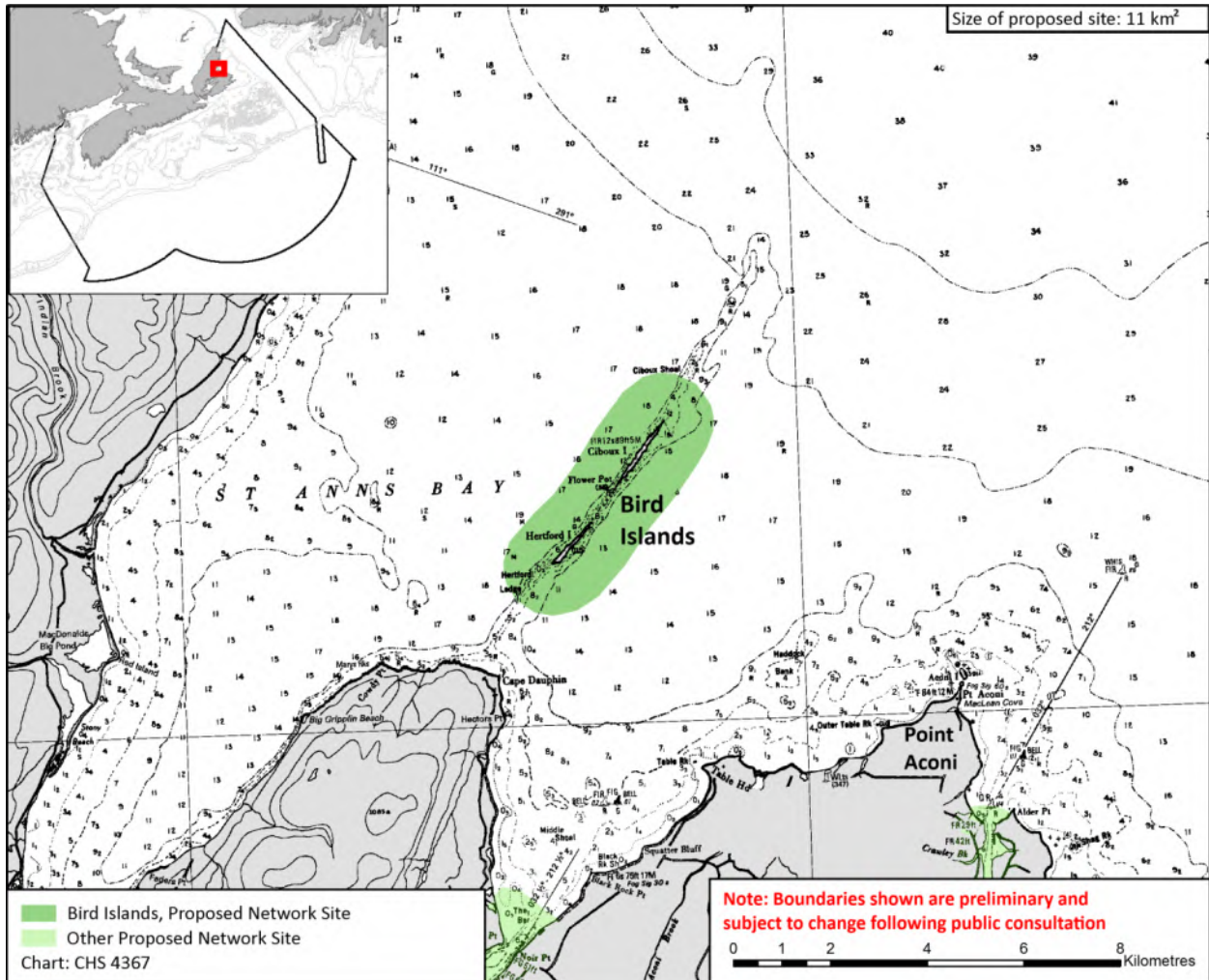


Figure 19: Map of Bird Islands, proposed network site.

18. BRAS D'OR LAKE

*****Specific sites within Bras d'Or Lake for inclusion in the conservation network to be determined.***

The Bras d'Or Lake is a large inland sea on Cape Breton Island. Though the entire Bras d'Or Lake was identified as an Ecologically and Biologically Significant Area (EBSA), more work is needed to identify areas within the Lake for inclusion in the conservation network design. Identification of these areas will proceed through engagement with the Mi'kmaq of Nova Scotia, other levels of government, stakeholders, and community groups.

Why is this area special?

The Bras d'Or Lake has spiritual and cultural significance for the Mi'kmaq communities of Unama'ki (Cape Breton). The Mi'kmaq word for the Bras d'Or Lake is Pitu'paq, meaning "to which all things flow". Traditional Ecological Knowledge has highlighted the ecological importance of this area as well as the

extent of environmental degradation that has occurred in recent times. This area is considered a unique inland estuarine ecosystem. Limited exchange of water with the open ocean creates distinct circulation, temperature, and salinity gradients and results in very little mixing of water within the system. Surface temperatures can reach in excess of 20°C, while bottom temperatures in the deepest areas are near freezing, resulting in remnant populations of both Arctic and warm water species residing in the Lake. The Lake is also home to many resident fish populations and contains extensive eelgrass beds, salt marshes, and distinct assemblages of marine algae including regionally rare species. The Bras d'Or watershed provides spawning habitat for the endangered Eastern Cape Breton Atlantic salmon, and supports provincially significant numbers of nesting bald eagles.

Key ecological features:

- Unique estuarine ecosystem
- Unique oceanographic characteristics, including steep temperature gradients, strong stratification, and limited exchange with the open ocean
- Significant concentrations of salt marsh and eelgrass
- Distinct assemblages of marine algae
- American oyster beds
- Resident fish populations
- Spawning area for Atlantic herring
- Important habitat for Atlantic salmon³² (Endangered – COSEWIC)
- Important foraging area for herons, sea ducks (mergansers), cormorants, gulls, and terns
- Barrow's goldeneye (Special Concern – SARA) are known to occur in the area

Herring from Bras d'Or Lake are known to overwinter in the waters around the Bird Islands, which is another site included in the draft conservation network design.

How is this area used?

The Bras d'Or Lake watershed is home to five First Nations. A Traditional Ecological Knowledge workshop sponsored by the Bras d'Or Lake Collaborative Environmental Planning Initiative (CEPI) identified 40 sites of cultural, social, and recreational significance within the watershed. These include Chapel Island, a National Historic Site that holds particular spiritual value and is a traditional gathering place, and Malagawatch, which is a sacred burial ground, gathering place, former trading place, modern-day retreat, and an important site for medicinal plants.³³

Other human activities in the Bras d'Or Lake area include coastal development and mining. Current fisheries include lobster, rock crab, and shellfish harvesting, and there are leases for finfish and shellfish aquaculture. Recreational fisheries include American eel, mackerel, smelt, and Atlantic salmon (catch and release only). There are Aboriginal food, social, and ceremonial (FSC) fisheries for salmon and eel, and other FSC fisheries may also occur here. Some shipping occurs in association with the mining

³² Eastern Cape Breton population

³³ CEPI. 2006. Bras d'Or Lake Traditional Ecological Knowledge Workshop Proceedings, May 3-4, 2006. Available at: <http://www.dfo-mpo.gc.ca/Library/327652-AppA.pdf>

operations, and a small cable ferry transports vehicles across Little Narrows. Recreational activities include boating, sailing, swimming and beach going. Other tourism draws include the St. Peter's Canal and Alexander Graham Bell National Historic Sites.

Conservation measures or other special designations

Provincially managed areas adjacent to Bras d'Or Lake include the Spectacle Island Game Sanctuary, Washabuck River Nature Reserve, Mary Harper Nature Reserve, MacDonalds Pond Nature Reserve, Seal Cove Nature Reserve, Humes River Wilderness Area, Kluscap Wilderness Area, Whycomomagh Provincial Park, Groves Point Provincial Park, Barrachois Provincial Park, Ben Eoin Provincial Park, and Battery Provincial Park. Provincial beaches include Iona Beach, Shenacadie Beach, Christies Beach and Malcolm Cove Beach. There are also several private conservation lands adjacent to the Lake. The entire Bras d'Or Lake watershed was designated as a UNESCO Biosphere Reserve in 2011.³⁴

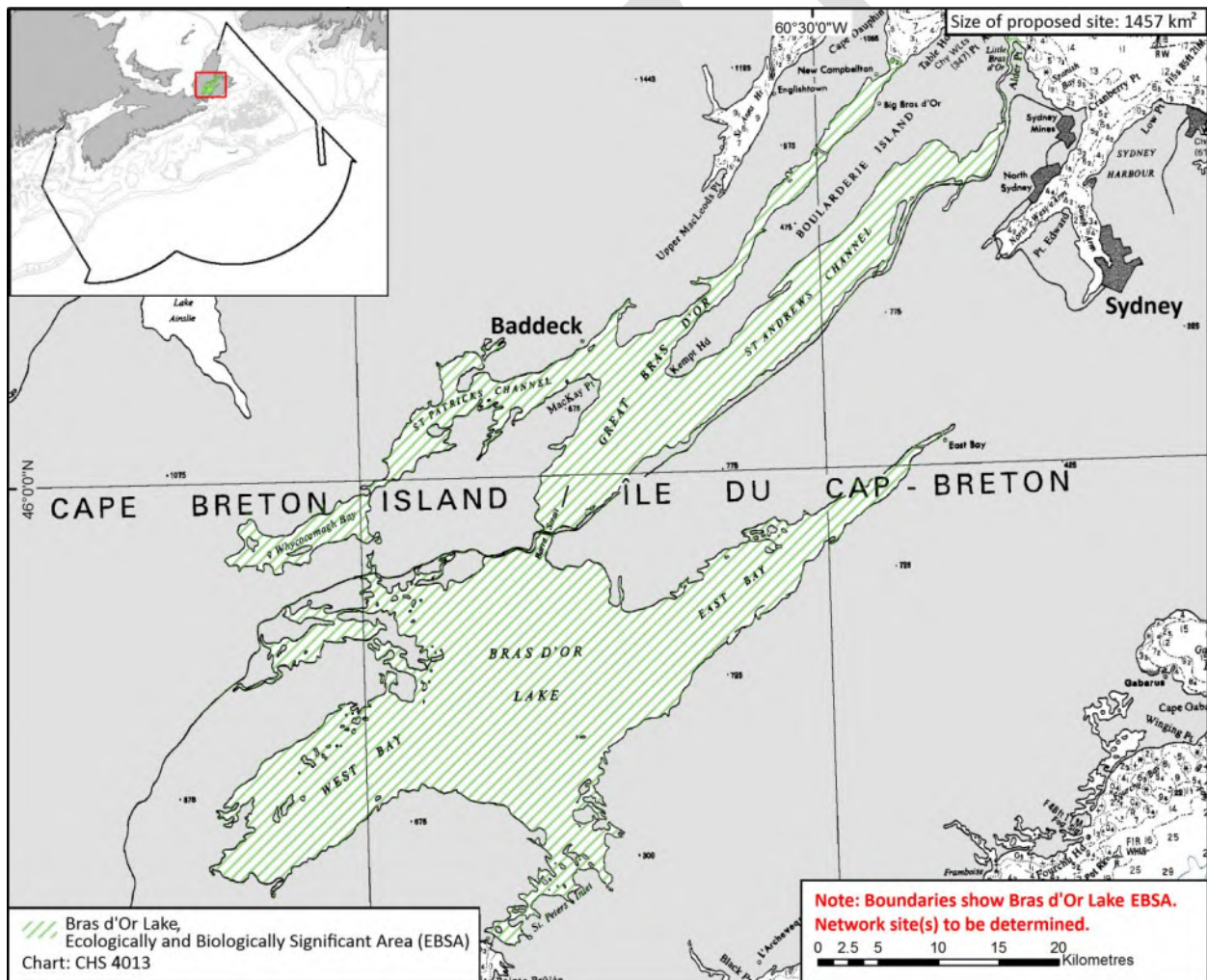


Figure 20: Map of Bras d'Or Lake, proposed network site.

³⁴ <http://blbra.ca/>

19. SOUTHWEST BANK

The Southwest Bank site is located just outside the mouth of the Bay of Fundy, approximately 45 km southwest of Grand Manan Island, New Brunswick, along the border between Canadian and U.S. waters.

Why is this area special?

This site serves as a representative example of the Gulf of Maine region, and shelf flat and basin habitats. The tidal currents of the Bay of Fundy fuel the high primary productivity in this area, which supports a diversity of fish, invertebrate, and seabird species. The area also contains important habitat for several depleted groundfish species.

Key ecological features:

- Representative examples of basin and shelf flat habitats and associated biological communities
- Area of persistent high primary productivity
- Area of high fish and invertebrate species diversity
- Important habitat for depleted groundfish species, including spiny dogfish (Special Concern – COSEWIC), white hake³⁵ (Threatened – COSEWIC), Atlantic cod³⁶ (Endangered – COSEWIC), American plaice³⁷ (Threatened – COSEWIC), cusk (Endangered – COSEWIC), and thorny skate (Special Concern – COSEWIC)
- Important habitat for ocean pout, another species known to be depleted but has not been assessed by COSEWIC
- Foraging habitat for various seabird species

The Southwest Bank site also contains sea pens (a type of coral) and is likely to support significant numbers of whales, dolphins, and porpoises at certain times of the year due to its proximity to the outer Bay of Fundy.

How is this area used?

The Southwest Bank site contains important fishing grounds for herring, and also supports relatively high catches of redfish, pollock, cod and haddock, flounders, and hagfish. Inshore lobster fishing also occurs in the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. This site is within the Canada Nova Scotia Offshore Petroleum Board's (CNSOPB) non-prospectivity area and is unlikely to be subject to oil and gas exploration. It is an area of high shipping traffic due to its proximity to the shipping lanes in the Bay of Fundy (15 km to the east).

³⁵ Atlantic and Northern Gulf of St. Lawrence population

³⁶ Maritimes population

³⁷ Maritime population

Conservation measures or other special designations

There are no current spatial protection measures specific to the Southwest Bank site.

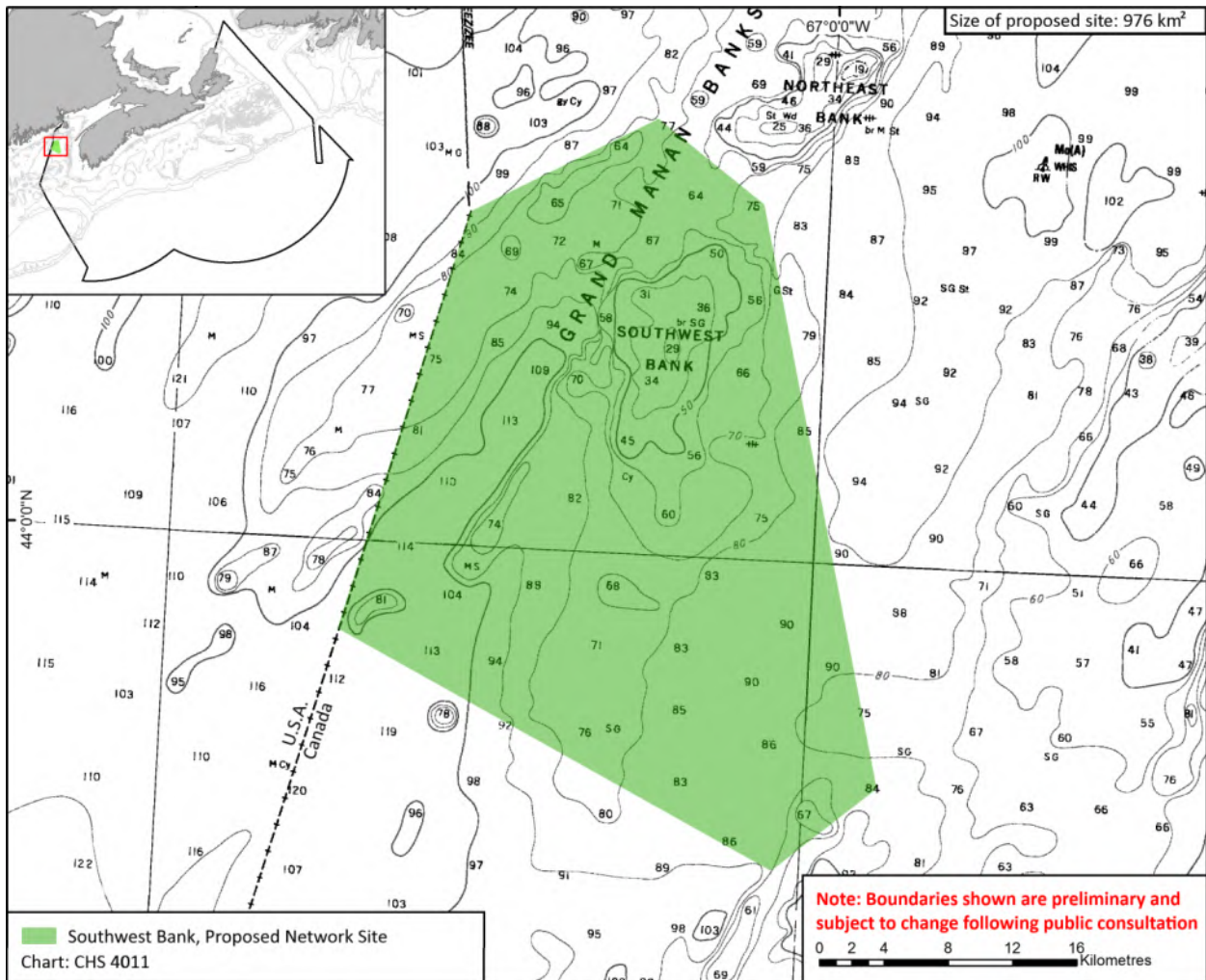


Figure 21: Map of Southwest Bank, proposed network site.

20. WESTERN JORDAN BASIN

The Western Jordan Basin site is located in the Gulf of Maine along the Canada-U.S. border, approximately 120 km southwest of Yarmouth, Nova Scotia. This site occurs in the southwestern portion of Jordan Basin within Canadian waters; however, the basin itself is a large feature that extends further west into U.S. waters.

Why is this area special?

The seabed in Jordan Basin includes large bedrock outcrops not often found in what are typically flat, muddy basin habitats. This bedrock supports communities of corals, anemones, and other bottom-

dwelling species. The Western Jordan Basin site is also an area of high biodiversity and high primary productivity, and it contains important habitat for several depleted groundfish species.

Key ecological features:

- Representative examples of Gulf of Maine, basin, and shelf flat habitats and associated biological communities
- Area of high structural complexity due to bedrock outcrops that extend up from basin floor
- Area of persistent high primary productivity
- Area of high fish species diversity
- Important habitat for depleted groundfish species, including spiny dogfish (Special Concern – COSEWIC), white hake³⁸ (Threatened – COSEWIC), American plaice³⁹ (Threatened – COSEWIC), and cusk (Endangered – COSEWIC)
- Presence of gorgonian corals, sea pens, sponges, and other invertebrates that provide habitat for other species
- Foraging habitat for various seabird species

How is this area used?

Western Jordan Basin is an important area for a number of commercial fisheries, including redfish, pollock, and flounders. There is also inshore lobster fishing in the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. This site is within the Canada Nova Scotia Offshore Petroleum Board's (CNSOPB) non-prospectivity area, and is unlikely to be subject to oil and gas exploration. It is an area of low shipping traffic.

Conservation measures or other special designations

There are no current spatial protection measures specific to Western Jordan Basin; however, there is a Marine Refuge⁴⁰ to protect corals and sponges approximately 10 km to the east of this site. The majority of the U.S. Gulf of Maine, including the U.S. portion of Jordan Basin immediately west of this site, has been identified as North Atlantic right whale critical habitat under U.S. legislation.

³⁸ Atlantic and Northern Gulf of St. Lawrence population

³⁹ Maritime population

⁴⁰ <http://www.dfo-mpo.gc.ca/oceans/oeabcm-amcepz/refuges/jordan-eng.html>

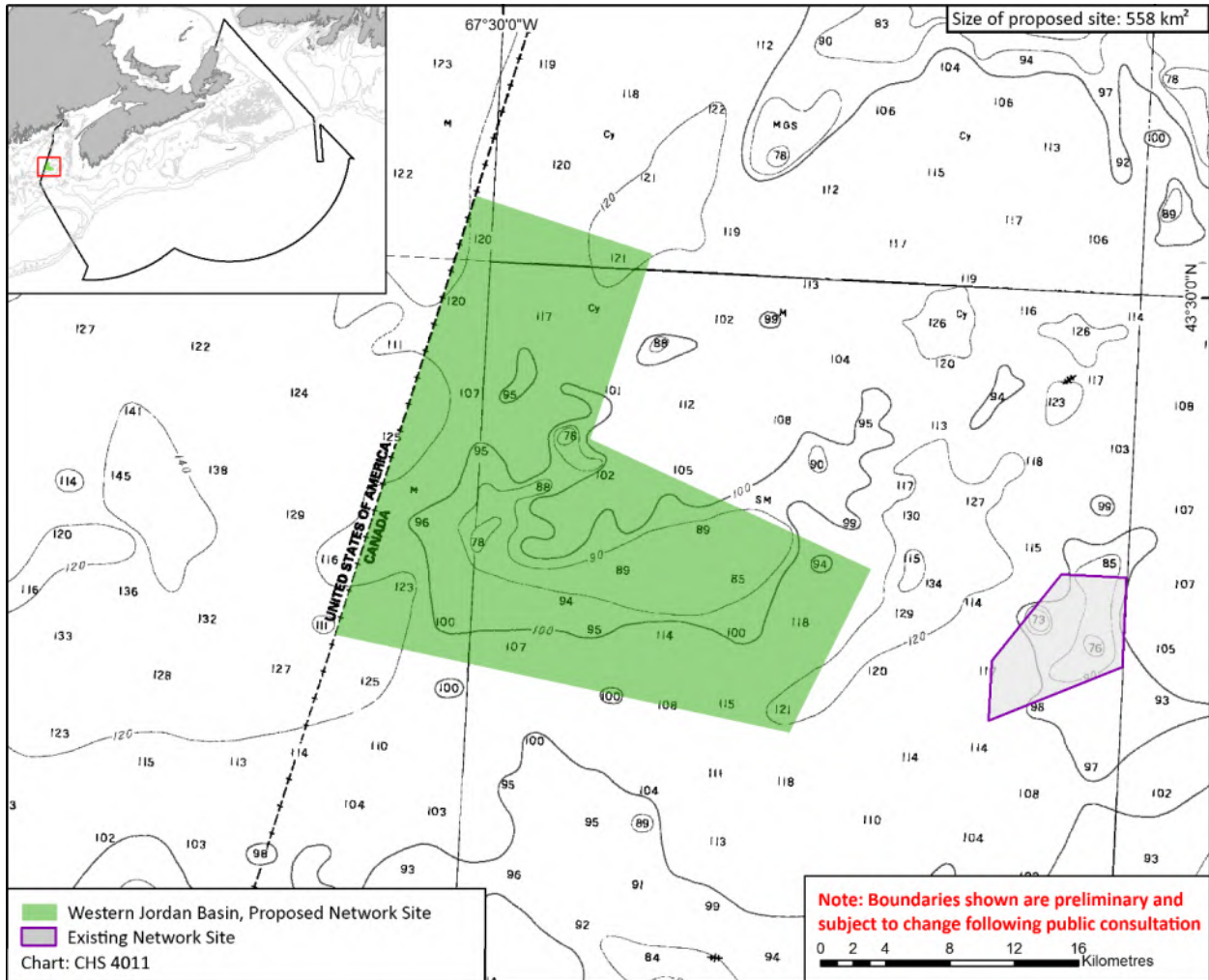


Figure 22: Map of Western Jordan Basin, proposed network site.

21. GEORGES BANK

The Georges Bank site is located near the middle of the Canadian portion of the bank along the U.S. border, approximately 230 km southwest of Yarmouth, Nova Scotia.

Why is this area special?

This site serves as a representative example of Georges Bank, which is recognized as one of the most productive marine ecosystems in the world. It is also an area of high biodiversity and is important habitat for American plaice, a depleted groundfish species.

Key ecological features:

- Representative example of Georges Bank habitats and associated biological communities
- Area of high primary productivity
- Area of high fish and larval fish species diversity

- Important habitat for American plaice⁴¹ (Threatened – COSEWIC)

How is this area used?

The Canadian portion of Georges Bank contains some of the most important fishing grounds in Canada. Some of the fisheries taking place within this site include flounder, cod, haddock, and scallop. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is currently a moratorium on oil and gas exploration on Georges Bank. This site is an area of relatively high shipping traffic.

Conservation measures or other special designations

The Georges Bank site occurs within a seasonal haddock fisheries closure. This site also falls within the Georges Bank moratorium area on oil and gas exploration.

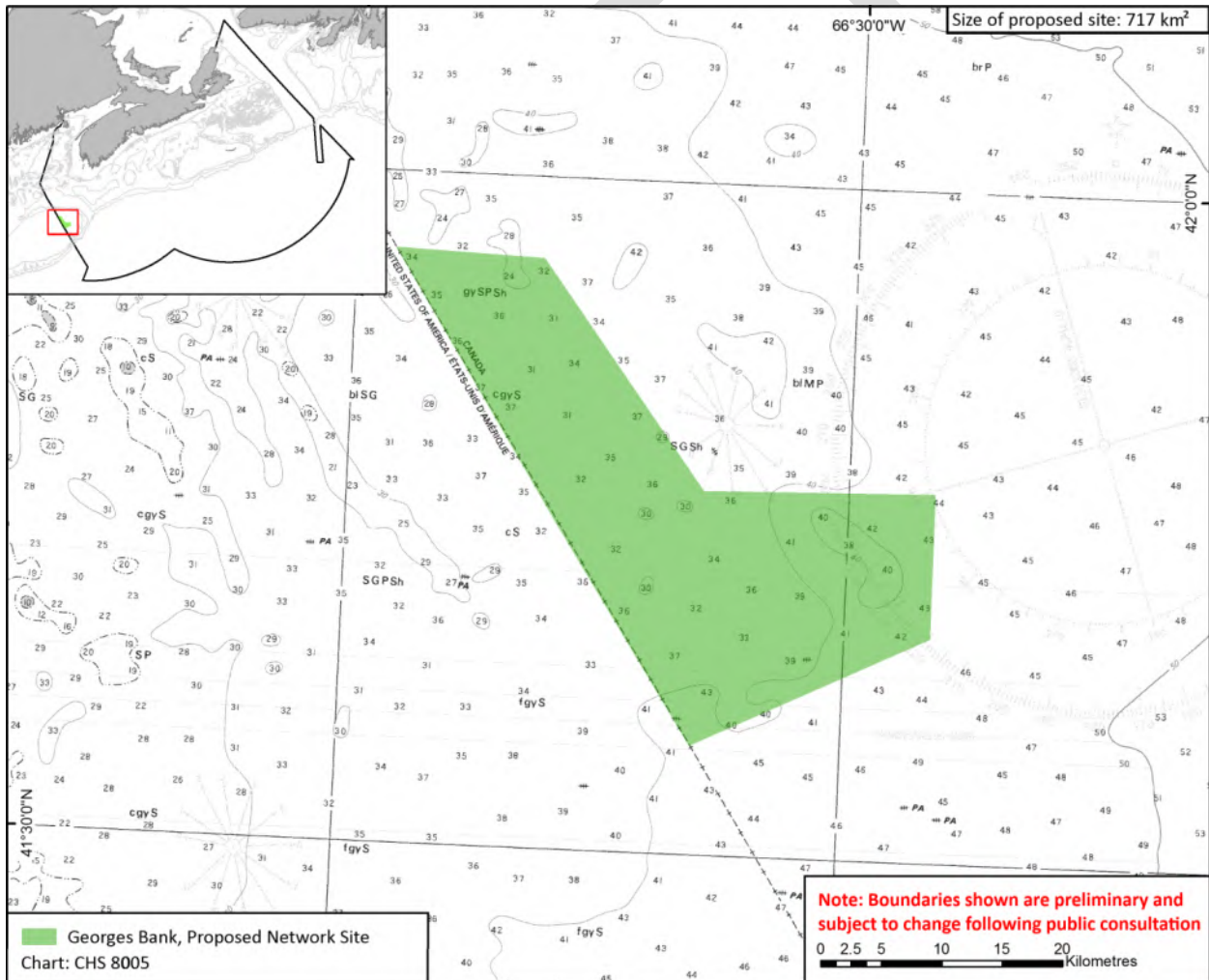


Figure 23: Map of Georges Bank, proposed network site.

⁴¹ Maritime population

22. ROSEWAY BANK

Roseway Bank is located approximately 40 km southeast of Shelburne, Nova Scotia, and encompasses portions of Roseway Bank and Roseway Basin.

Why is this area special?

This site serves as a representative example of the shelf basin, bank, and flat habitats found on the Western Scotian Shelf. The Roseway Basin portion of the site partially overlaps with critical habitat identified under the *Species at Risk Act* for the endangered North Atlantic right whale. It is an area of high fish and invertebrate species diversity and contains important habitat for several depleted groundfish species.

Key ecological features:

- Representative examples of shelf basin, bank, and flat habitats and associated biological communities
- Area of high fish and invertebrate species diversity
- Important habitat for depleted groundfish species, including Atlantic cod⁴² (Endangered – COSEWIC), Atlantic wolffish (Special Concern – COSEWIC), American plaice⁴³ (Threatened – COSEWIC), smooth skate⁴⁴ (Special Concern – COSEWIC), thorny skate (Special Concern – COSEWIC), and cusk (Endangered – COSEWIC)
- Foraging habitat for various seabird species

How is this area used?

Roseway Bank contains important fishing grounds for snow crab, halibut, cod, haddock, and hagfish. Herring and inshore lobster fishing also take place in the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. This site is within the Canada Nova Scotia Offshore Petroleum Board's (CNSOPB) non-prospectivity area and is unlikely to be subject to oil and gas exploration. It is an area of moderate shipping traffic.

Conservation measures or other special designations

The Roseway Basin portion of this site partially overlaps with the North Atlantic right whale critical habitat area designated under the *Species at Risk Act*. Roseway Basin has also been named an *Area to be Avoided* by the International Maritime Organization (IMO) to minimize the risk of vessels colliding with right whales in the area.

⁴² Maritimes population

⁴³ Maritimes population

⁴⁴ Laurentian-Scotian population

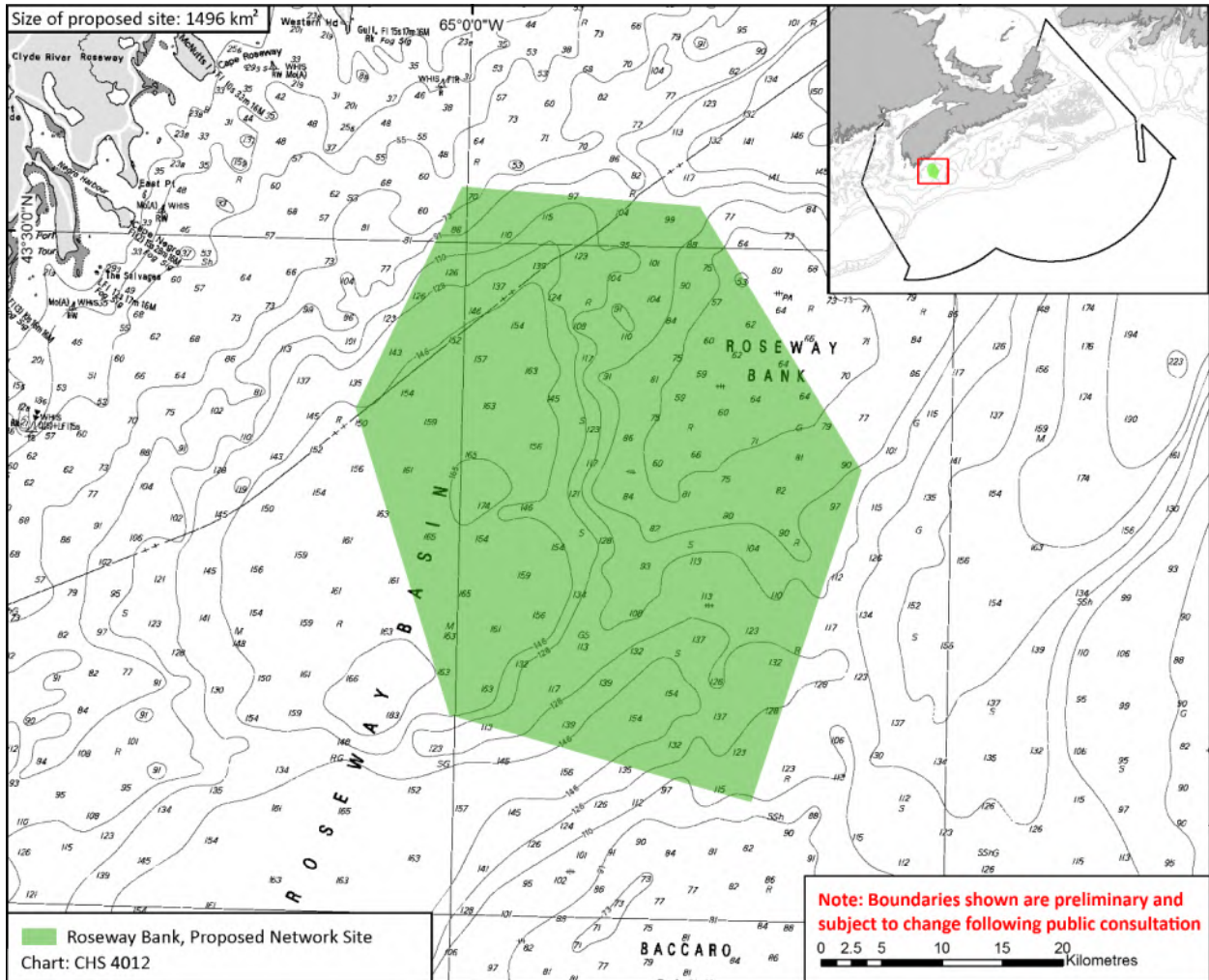


Figure 24: Map of Roseway Bank, proposed network site.

23. LAHAVE BASIN

The LaHave Basin site is located approximately 50 km south of Halifax, Nova Scotia, and encompasses the northeastern portion of LaHave Basin along with some inner shelf habitat just to the north of the basin.

Why is this area special?

LaHave Basin contains significant concentrations of “Russian Hat” sponges, which are large, barrel-shaped glass sponges that provide habitat for other species and are sensitive to disturbance. This site also serves as a representative example of the shelf basin and shelf flat habitat found on the Western Scotian Shelf. It is an area of high biodiversity and contains important habitat for several depleted groundfish species.

Key ecological features:

- Representative examples of basin and shelf flat habitats and associated biological communities
- Area of high invertebrate and fish species diversity
- Important habitat for depleted groundfish species, including cusk (Endangered – COSEWIC), white hake⁴⁵ (Threatened – COSEWIC), and spiny dogfish (Special Concern – COSEWIC)
- Significant concentrations of “Russian Hat” sponges (*Vazella pourtalesi*)
- High densities of krill and other zooplankton

How is this area used?

LaHave Basin contains important fishing grounds for herring, silver hake, and hagfish. Snow crab, pollock, flounders, swordfish, and bluefin tuna are also caught in the area. Inshore lobster fishing and Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. This site is within the Canada Nova Scotia Offshore Petroleum Board’s (CNSOPB) non-prospectivity area and is unlikely to be subject to oil and gas exploration. It is an area of high shipping traffic due to its proximity to Halifax Harbour.

Conservation measures or other special designations

There are no current spatial protection measures specific to LaHave Basin. There is a Marine Refuge approximately 25 km to the east (on Sambro Bank) to protect glass sponges (*Vazella pourtalesi*).⁴⁶

⁴⁵ Atlantic and Northern Gulf of St. Lawrence population

⁴⁶ <http://www.dfo-mpo.gc.ca/oceans/oeabcm-amcepz/refuges/emerald-emeraude-eng.html>

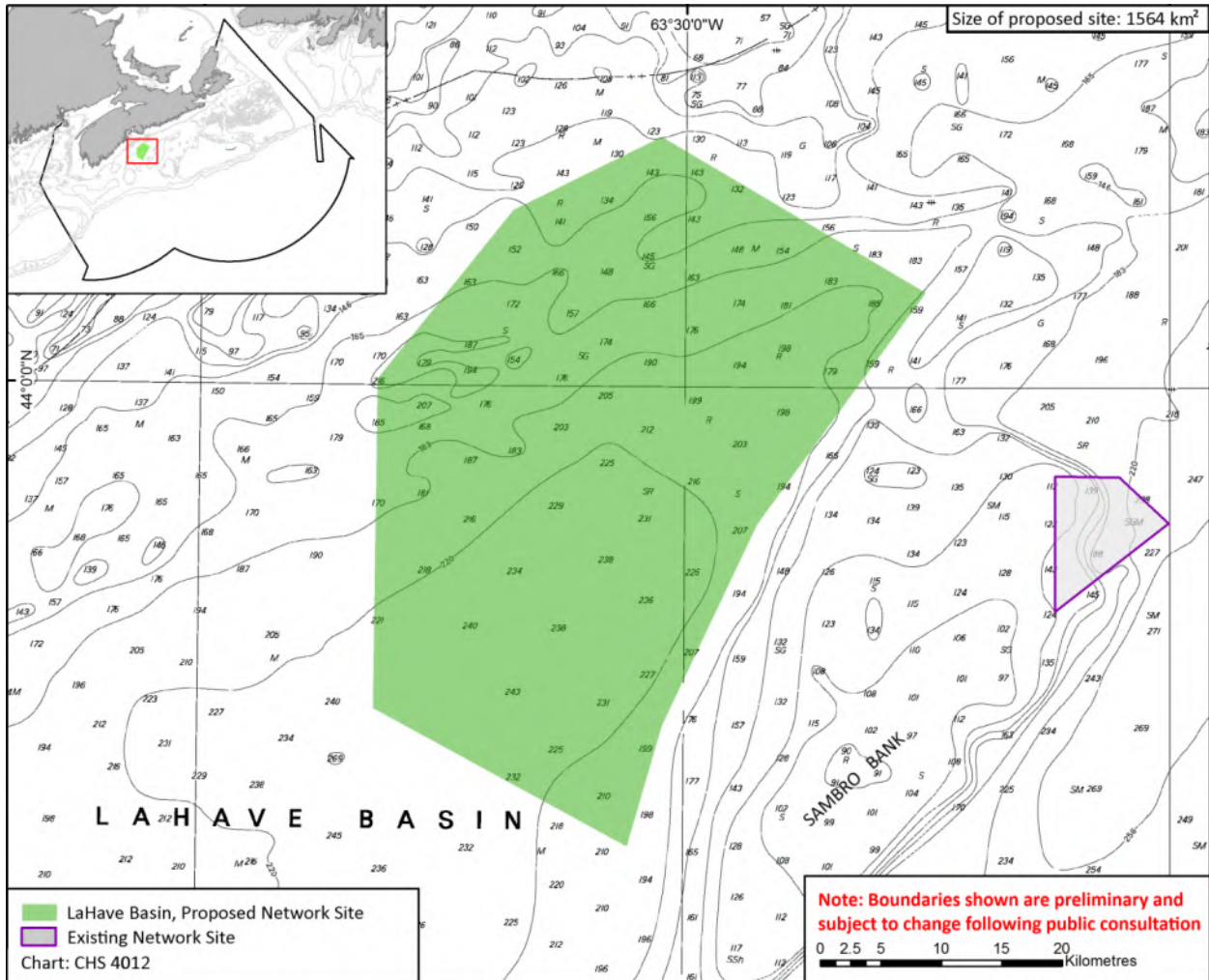


Figure 25: Map of LaHave Basin, proposed network site.

24. SCOTIAN GULF

The Scotian Gulf site is located approximately 150 km south of Halifax, Nova Scotia, on the edge of the Scotian Shelf. It is situated between LaHave Bank and Emerald Bank and shares a border with the western limit of the Emerald and Western Banks Conservation Area, a Marine Refuge.⁴⁷

Why is this area special?

This site contains significant concentrations of “Russian Hat” sponges, which are large, barrel-shaped glass sponges that provide habitat for other species and are sensitive to disturbance. The Scotian Gulf also serves as a representative example of the shelf flat habitat that divides the Eastern and Western Scotian Shelf. It is an area of high biodiversity and contains important habitat for several depleted groundfish species.

⁴⁷ <http://www.dfo-mpo.gc.ca/oceans/oeabcm-amcepz/refuges/westernemerald-emeraudewestern-eng.html>

Key ecological features:

- Representative examples of shelf flat habitat and associated biological communities
- Area of high fish species diversity
- Important habitat for depleted groundfish species, including cusk (Endangered – COSEWIC), white hake⁴⁸ (Threatened – COSEWIC), and roundnose grenadier (Endangered – COSEWIC)
- Significant concentrations of glass sponges (*Vazella pourtalesi*)

How is this area used?

The main fisheries in the Scotian Gulf site are swordfish, halibut, and pollock. There is also a small amount of hagfish fishing in the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is currently a moratorium on fishing Atlantic cod and haddock on the Eastern Scotian Shelf. The Scotian Gulf site is immediately north of some recent oil and gas exploration activity, including the drilling of an exploratory well along the southwest Scotian Slope. However, the exploration licences were relinquished in 2018. This site is also in an area of high shipping traffic.

Conservation measures or other special designations

There are no current spatial protection measures specific to the Scotian Gulf site; however, the Emerald and Western Banks Conservation Area is immediately east of this site.

⁴⁸ Atlantic and Northern Gulf of St. Lawrence population

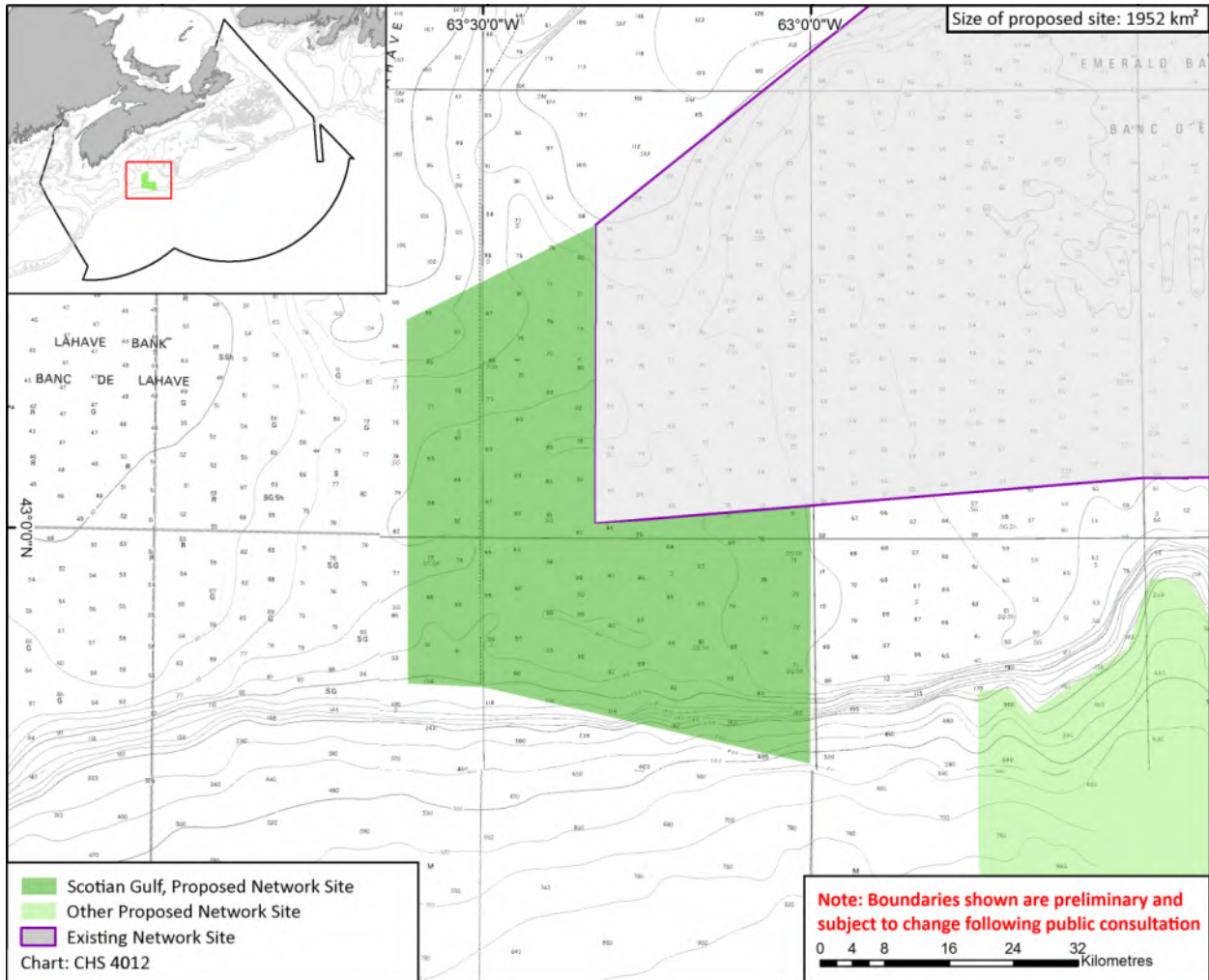


Figure 26: Map of Scotian Gulf, proposed network site.

25. CENTRAL SCOTIAN SLOPE, RISE, AND ABYSS

The Central Scotian Slope, Rise, and Abyss site is located approximately 200 km south of Halifax, Nova Scotia, starting on the edge of the Scotian Shelf and extending down the Scotian Slope into the deep water of the abyssal plain out to the extent of Canada’s Exclusive Economic Zone (EEZ).

Why is this area special?

This site serves as a representative example of the Eastern and Western Scotian slope, continental rise, and abyssal plain habitats found in the region. The shelf edge and upper slope portions of the site are known to support high biodiversity. The area also encompasses important habitat for several depleted groundfish species. In addition, the site includes a canyon that contains a feature known as the “Feather Peak” due to the abundance of sea pens in the area.

Key ecological features:

- Representative example of the Eastern and Western Scotian slope, continental rise, and abyssal plain habitats and associated biological communities
- Area of high fish and invertebrate species diversity
- Important habitat for depleted groundfish species, including cusk (Endangered – COSEWIC), roundnose grenadier (Endangered – COSEWIC), and roughhead grenadier (Special Concern – COSEWIC)
- Dense sea pen fields (Feather Peak)

How is this area used?

The Central Scotian Slope, Rise, and Abyss contains important fishing grounds for halibut, tunas (bluefin and other species), and swordfish. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is currently a moratorium on fishing Atlantic cod and haddock on the Eastern Scotian Shelf. This area is adjacent to two oil and gas exploration licences immediately to the east. One exploratory well was drilled in this area in 2018. An exploratory well was also recently drilled to the west of this site, along the southwest Scotian Slope, but these licences have since been relinquished. The northern portion of the site also contains two plugged/abandoned oil and gas wells. This site is an area of moderate shipping traffic.

Conservation measures or other special designations

There are no current spatial conservation measures specific to the Central Scotian Slope, Rise, and Abyss. The Emerald and Western Banks Conservation Area is located approximately 10 km north of this site.

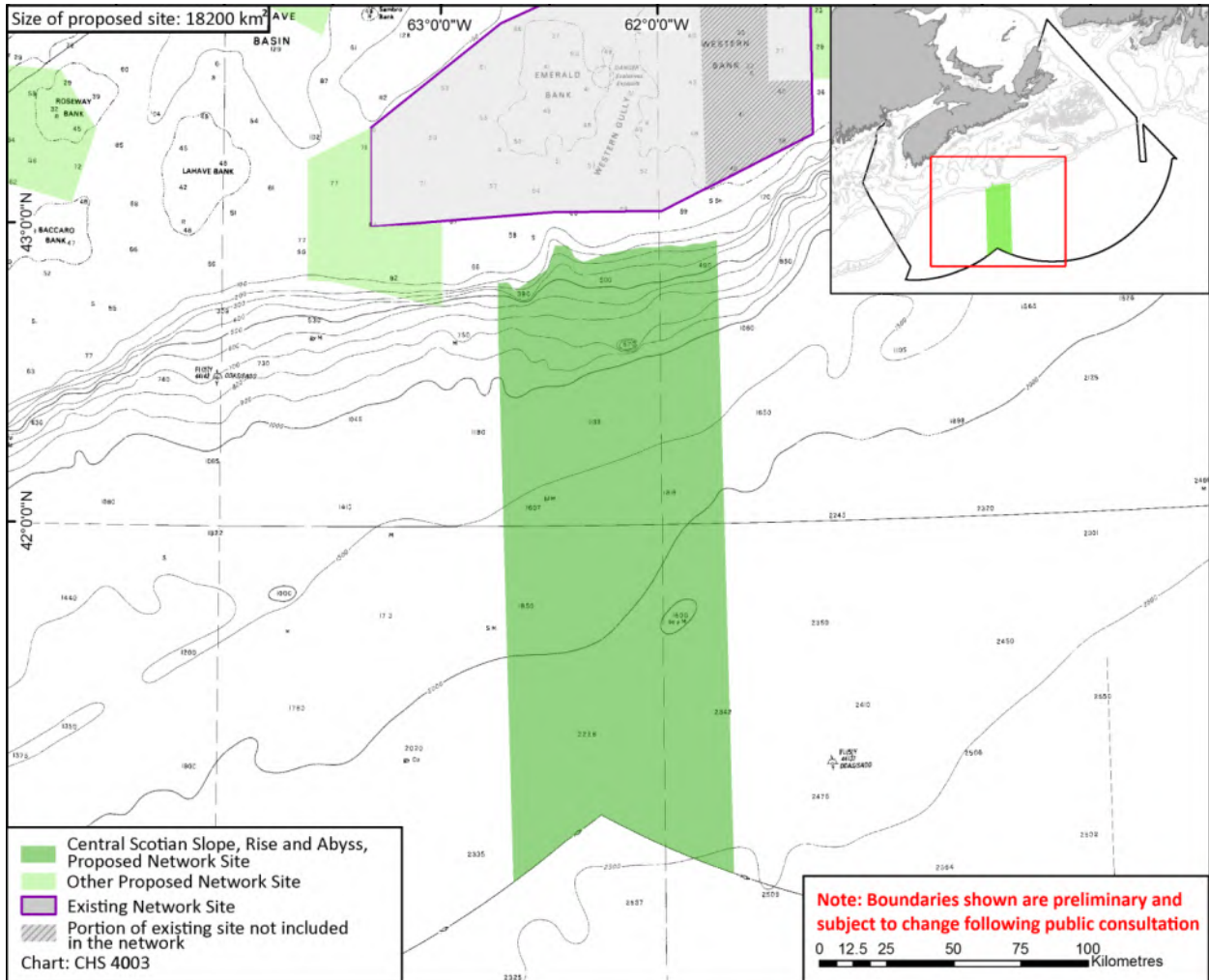


Figure 27: Map of Central Scotian Slope, Rise and Abyss, proposed network site.

26. INNER SHELF SEA PEN FIELD

The Inner Shelf Sea Pen Field site is located immediately northeast of Emerald Basin on the Scotian Shelf, approximately 90 km east of Halifax, Nova Scotia.

Why is this area special?

This site encompasses significant concentrations of sea pens, a type of coral that can provide shelter for fish and invertebrates on the seafloor in an otherwise a low-relief sand or mud environment. This site is also an area of high fish and invertebrate diversity and is important habitat for white hake, a depleted groundfish species.

Key ecological features:

- Significant concentrations of sea pens
- Representative example of shelf flat habitat and associated biological communities

- Area of high fish and invertebrate species diversity
- Important habitat for white hake⁴⁹ (Threatened – COSEWIC)

How is this area used?

The Inner Shelf Sea Pen Field site overlaps with fishing grounds for silver hake, herring, and hagfish. Small amounts of halibut and pollock are also fished here, and inshore lobster fishing may be occurring. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is currently a moratorium on fishing Atlantic cod and haddock on the Eastern Scotian Shelf. This site is within the Canada Nova Scotia Offshore Petroleum Board's (CNSOPB) non-prospectivity area, and is unlikely to be subject to oil and gas exploration. It is an area of high shipping traffic due to its proximity to Halifax Harbour.

Conservation measures or other special designations

There are no current spatial conservation measures specific to the Inner Shelf Sea Pen Field. There is a Marine Refuge in Emerald Basin approximately 15 km southwest of the site to protect glass sponges (*Vazella pourtalesi*).⁵⁰

⁴⁹ Atlantic and Northern Gulf of St. Lawrence population

⁵⁰ <http://www.dfo-mpo.gc.ca/oceans/oeabcm-amcepz/refuges/emerald-embraude-eng.html>

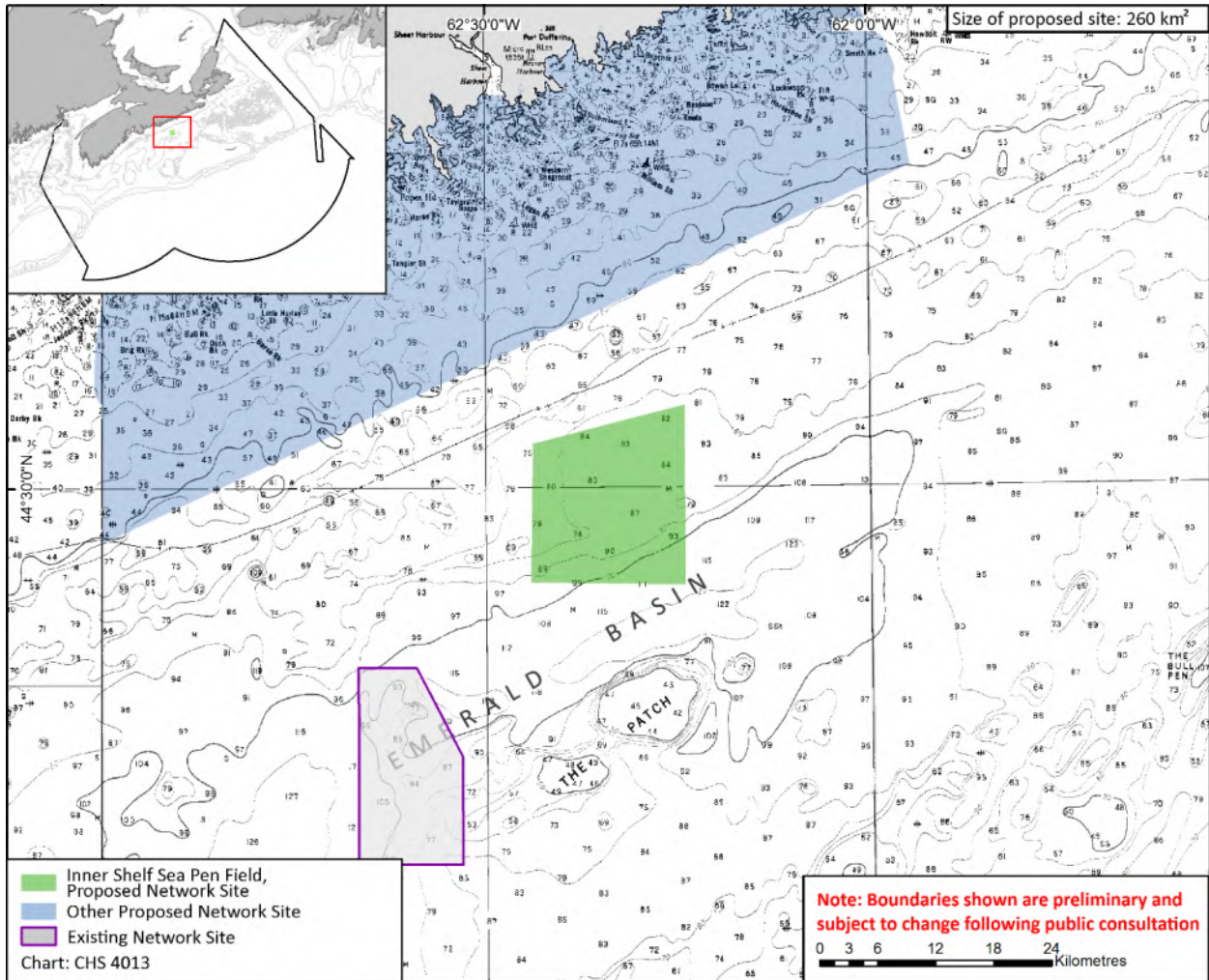


Figure 28: Map of Inner Shelf Sea Pen Field, proposed network site.

27. SABLE ISLAND BANK

The Sable Island Bank site is located approximately 75 km west of Sable Island and encompasses a small portion of both Sable Island Bank and Western Bank. This site is immediately east of the Emerald and Western Banks Conservation Area⁵¹.

Why is this area special?

This site serves as a representative example of the bank habitat found on the outer Scotian Shelf. It is also an area of high biodiversity and a groundfish spawning and nursery area. Persistent ocean currents circulate around Sable Island Bank in a clockwise direction forming a partial gyre that helps keep eggs and larvae on the bank.

⁵¹ <http://www.dfo-mpo.gc.ca/oceans/oeabcm-amcepz/refuges/westernemerald-emeraudewestern-eng.html>

Key ecological features:

- Representative example of bank habitat and associated biological communities
- Area of high invertebrate, fish, and larval fish species biodiversity
- Ocean currents form a partial gyre around the bank that helps retain eggs and larvae in the area
- Important habitat for depleted groundfish species, including Atlantic cod⁵² (Endangered – COSEWIC), winter skate⁵³ (Endangered – COSEWIC), and smooth skate⁵⁴ (Special Concern – COSEWIC)
- Important habitat for ocean pout, another species known to be depleted but that has not been assessed by COSEWIC

How is this area used?

The main fisheries in the Sable Island Bank site are currently hagfish and scallop. Small amounts of snow crab and sea cucumber are also caught in the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is currently a moratorium on fishing Atlantic cod and haddock on the Eastern Scotian Shelf. The area does not overlap with any oil and gas activity; however, there are several oil and gas exploration licences approximately 20 km to the south of the site and multiple significant discovery licences approximately 20 km to the east. There are also a number of wells and two pipelines to the east of the site near Sable Island.

Conservation measures or other special designations

There are no current spatial protection measures specific to the Sable Island Bank site, however, the Emerald and Western Banks Conservation Area is located immediately west of this site.

⁵² Maritimes population

⁵³ Eastern Scotian Shelf - Newfoundland population

⁵⁴ Laurentian-Scotian population

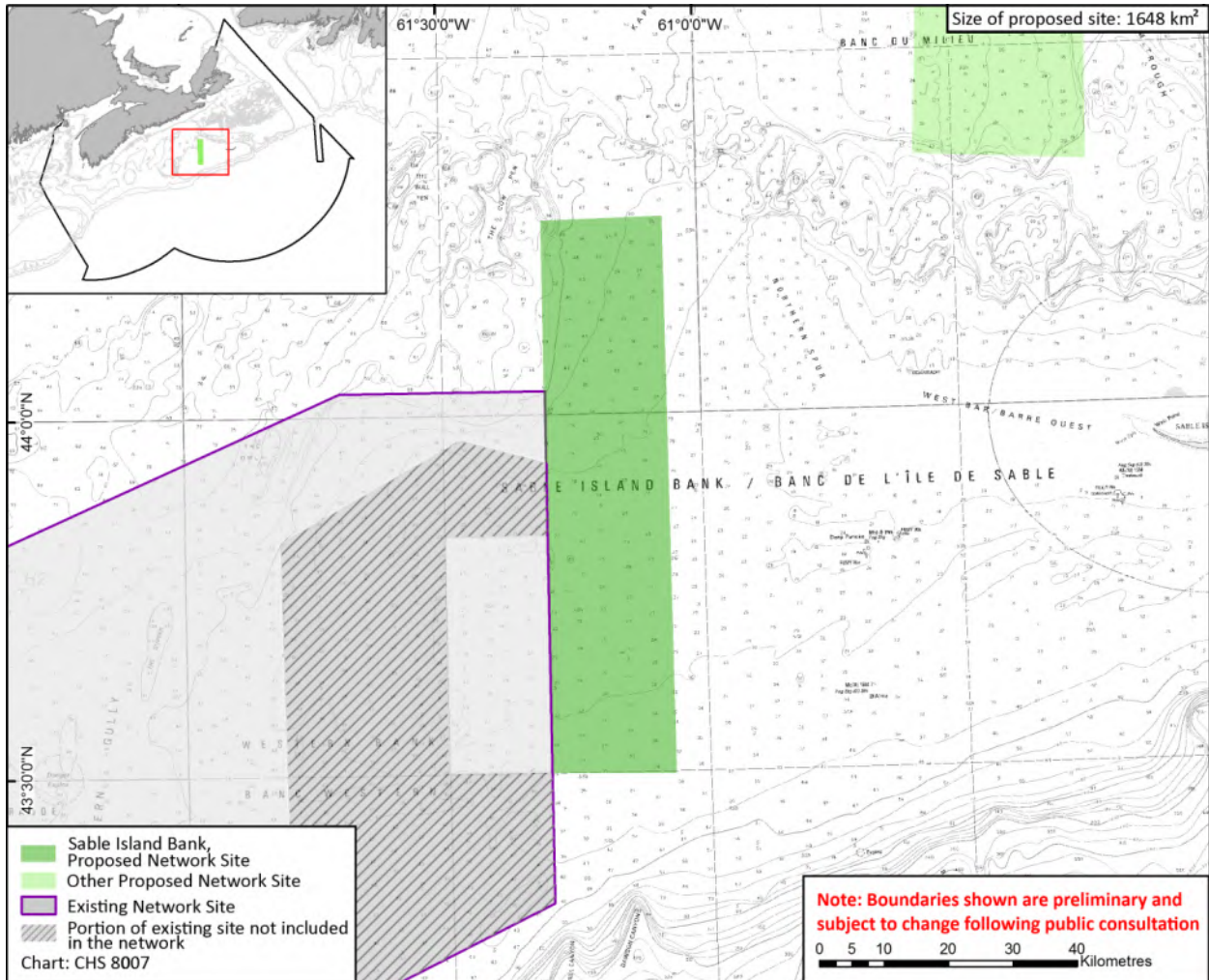


Figure 29: Map of Sable Island Bank, proposed network site.

28. CANSO AND MIDDLE BANKS

The Canso and Middle Banks site is located approximately 45 km southeast of Canso, Nova Scotia, and encompasses a portion of both Canso Bank and Middle Bank along with some of the surrounding basin, channels, holes, and mounds.

Why is this area special?

This site serves as a representative example of the bank, basin, and complex bottom habitat found on the Eastern Scotian Shelf. It is also an area of high biodiversity and is important habitat for several depleted groundfish species. The Canso Bank portion of this site also supports high primary productivity and is considered relatively natural because it has not been trawled to the extent of adjacent banks.

Key ecological features:

- Representative examples of bank and basin habitats and associated biological communities

- Diversity of habitat types, such as sandy banks, small channels, deep holes, and mounds
- Area of high larval fish, fish, and invertebrate species diversity
- Area of persistent high primary productivity (Canso Bank)
- Important habitat for depleted groundfish species, including Atlantic cod⁵⁵ (Endangered – COSEWIC), American plaice⁵⁶ (Threatened – COSEWIC), and thorny skate (Special Concern-COSEWIC)
- Significant concentrations of sponges and sand dollars
- High abundance of sand lance (a key prey species)
- Foraging habitat for various seabird species

Canso Bank is recognized as a relatively natural area compared to other parts of the Scotian Shelf. Middle Bank was historically an important cod spawning and nursery area.

How is this area used?

Canso and Middle Banks are important fishing grounds for the nearby coastal communities. Early fisheries targeted cod and other groundfish while more recently the focus is on snow crab, shrimp, scallop, sea cucumber, Atlantic halibut, and a small amount of bluefin tuna. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is currently a moratorium on fishing cod and haddock on the Eastern Scotian Shelf.

There has been little or no oil and gas exploration in this site over the past 25 years. However, there are two active natural gas pipelines located to the west of Canso Bank and Middle Bank. The gravel bottom area located on the northern half of Middle Bank has been identified as having some potential for future aggregate mining, but this activity is currently not permitted in Canada's offshore waters. This site also sees a relatively high amount of shipping traffic.

Conservation measures or other special designations

There are no current spatial conservation measures specific to Canso and Middle Banks. The Emerald and Western Banks Conservation Area is located roughly 65 km from the southern portion of this proposed site.

⁵⁵ Maritimes population

⁵⁶ Maritime population

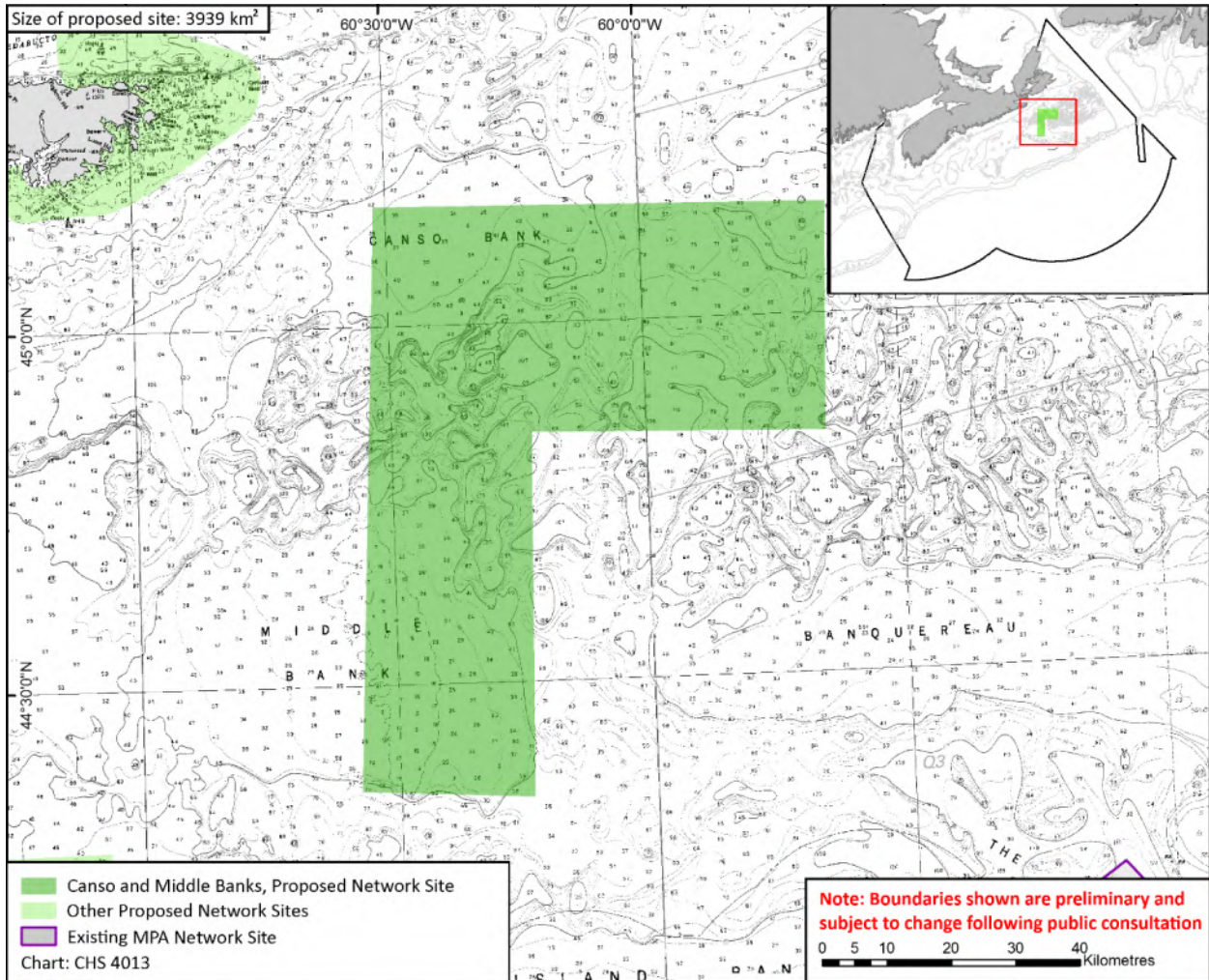


Figure 30: Map of Canso and Middle Banks, proposed network site.

29. MISAINÉ BANK AND LAURENTIAN CHANNEL

The Misaine Bank and Laurentian Channel site is located along the eastern edge of Misaine Bank where the shelf meets the channel, and extends approximately mid-way into the Laurentian Channel.

Why is this area special?

This site serves as a representative example of the bank, basin, and channel habitats found in the eastern portion of the bioregion. The deep holes and channels of Misaine Bank were formed by glaciers more than 10,000 years ago and create a complex seafloor environment. East of the bank, the shelf quickly drops off into the Laurentian Channel, which has a fairly flat, muddy bottom and is home to dense concentrations of sea pens, a type of coral that provides habitat for other species. The entire Laurentian Channel serves as an important migratory route for fish, marine mammals, and sea turtles moving in and out of the Gulf of St. Lawrence. This site is also important habitat for many depleted groundfish species.

Key ecological features:

- Representative examples of bank, basin, and channel habitats and associated biological communities
- Area of high fish and invertebrate species diversity
- Significant concentrations of sea pens (Laurentian Channel)
- Important habitat for depleted groundfish species, including Atlantic cod⁵⁷ (Endangered – COSEWIC), American plaice⁵⁸ (Threatened – COSEWIC), Atlantic wolffish (Special Concern – COSEWIC), redfish (Threatened – COSEWIC), smooth skate⁵⁹ (Special Concern – COSEWIC), thorny skate (Special Concern – COSEWIC), and white hake⁶⁰ (Threatened – COSEWIC)
- High abundance of sand lance (a key prey species)
- Foraging habitat for various seabird species

The Laurentian Channel is part of an important migratory route for groundfish, whales, and leatherback turtles (Endangered – SARA). Atlantic cod are known to overwinter along the edge of the channel.

How is this area used?

In recent years, the Misaine Bank and Laurentian Channel site has supported relatively small amounts of commercial fishing activity. Snow crab is the most active fishery in the area while small amounts of shrimp, redfish, halibut, and other groundfish are also harvested there. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. Atlantic cod was historically fished along the edge of the channel; however, there is currently a moratorium on fishing cod and haddock on the Eastern Scotian Shelf. There are currently no offshore petroleum licences in this area. The Laurentian Channel is also an area of relatively high shipping traffic.

Conservation measures or other special designations

There are no current spatial conservation measures specific to the Misaine Bank and Laurentian Channel site. The St. Anns Bank MPA is located roughly 35 km to the northwest of this site and the Laurentian Channel Area of Interest is about 10 km to the north and lies within the Newfoundland-Labrador Shelves Bioregion.

⁵⁷ Maritimes population

⁵⁸ Maritime population

⁵⁹ Laurentian-Scotian population

⁶⁰ Atlantic and Northern Gulf of St. Lawrence population

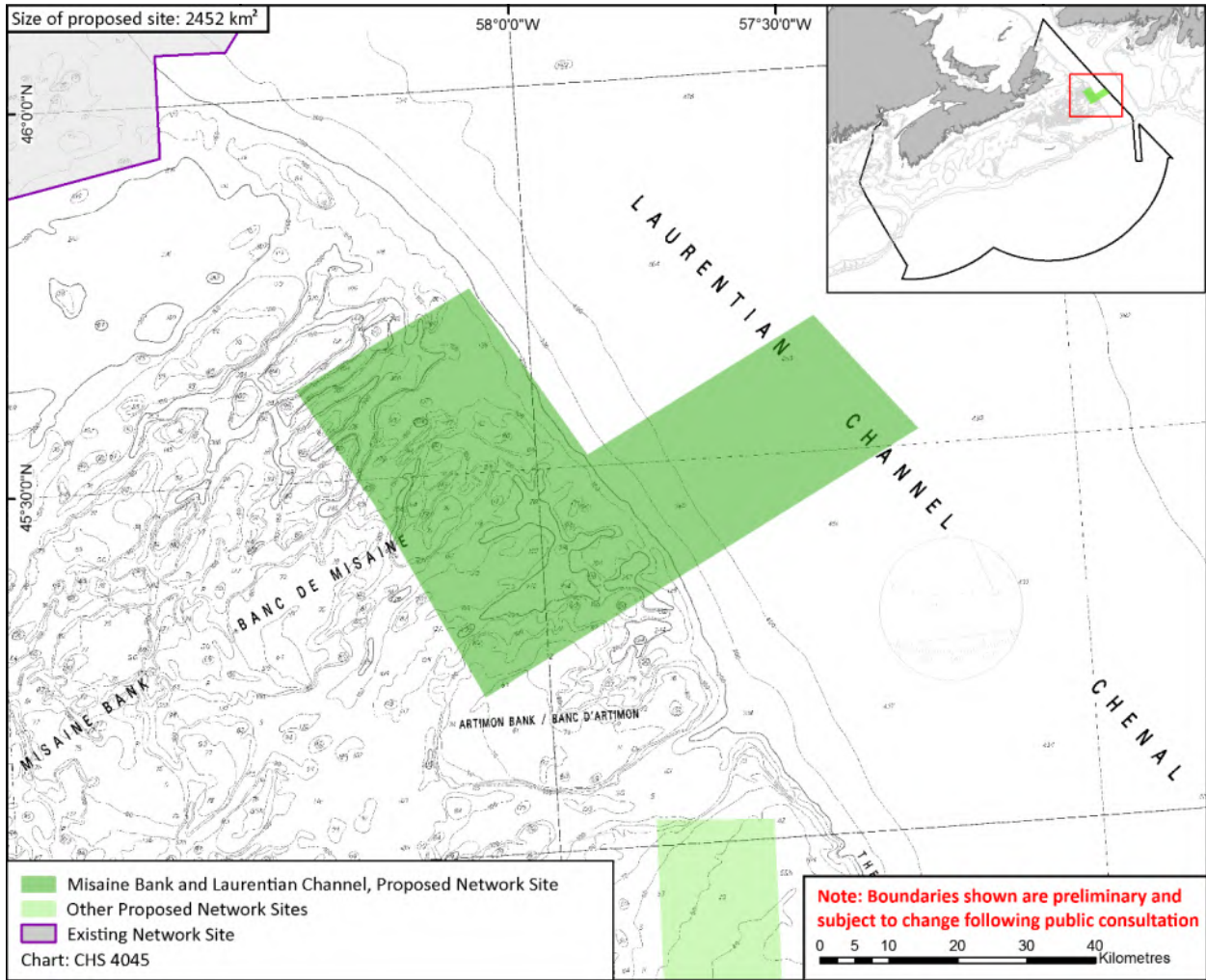


Figure 31: Map of Misaine Bank and Laurentian Channel, proposed network site.

30. EASTERN SHOAL

The Eastern Shoal site is a shallow, sand-bottom feature located on Banquereau, approximately 160 km east of Sable Island and near the eastern-most corner of the Scotian Shelf.

Why is this area special?

The large, shallow sand body that makes up Eastern Shoal is a unique geological feature. This site is also an area of high biodiversity and is important habitat for several depleted fish species.

Key ecological features:

- Large, shallow sand body (unique geological feature)
- Representative example of bank habitat and associated biological communities
- Area of high larval fish and invertebrate species diversity
- Important habitat for depleted groundfish species, including Atlantic cod⁶¹ (Endangered – COSEWIC), winter skate⁶² (Endangered – COSEWIC), and thorny skate (Special Concern – COSEWIC)
- Significant concentrations of sand dollars

How is this area used?

Eastern Shoal was historically important for the flounder fishery, and some flounder is still caught there today. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. There is currently a moratorium on fishing Atlantic cod and haddock on the Eastern Scotian Shelf. The offshore clam fishery operates on Banquereau, but minimal landings have been reported in the Eastern Shoal area. There are currently no offshore petroleum licences in this area. There are several old plugged/abandoned oil and gas wells nearby.

Conservation measures or other special designations

There are no current spatial conservation measures specific to Eastern Shoal.

⁶¹ Maritimes population

⁶² Eastern Scotian Shelf - Newfoundland population

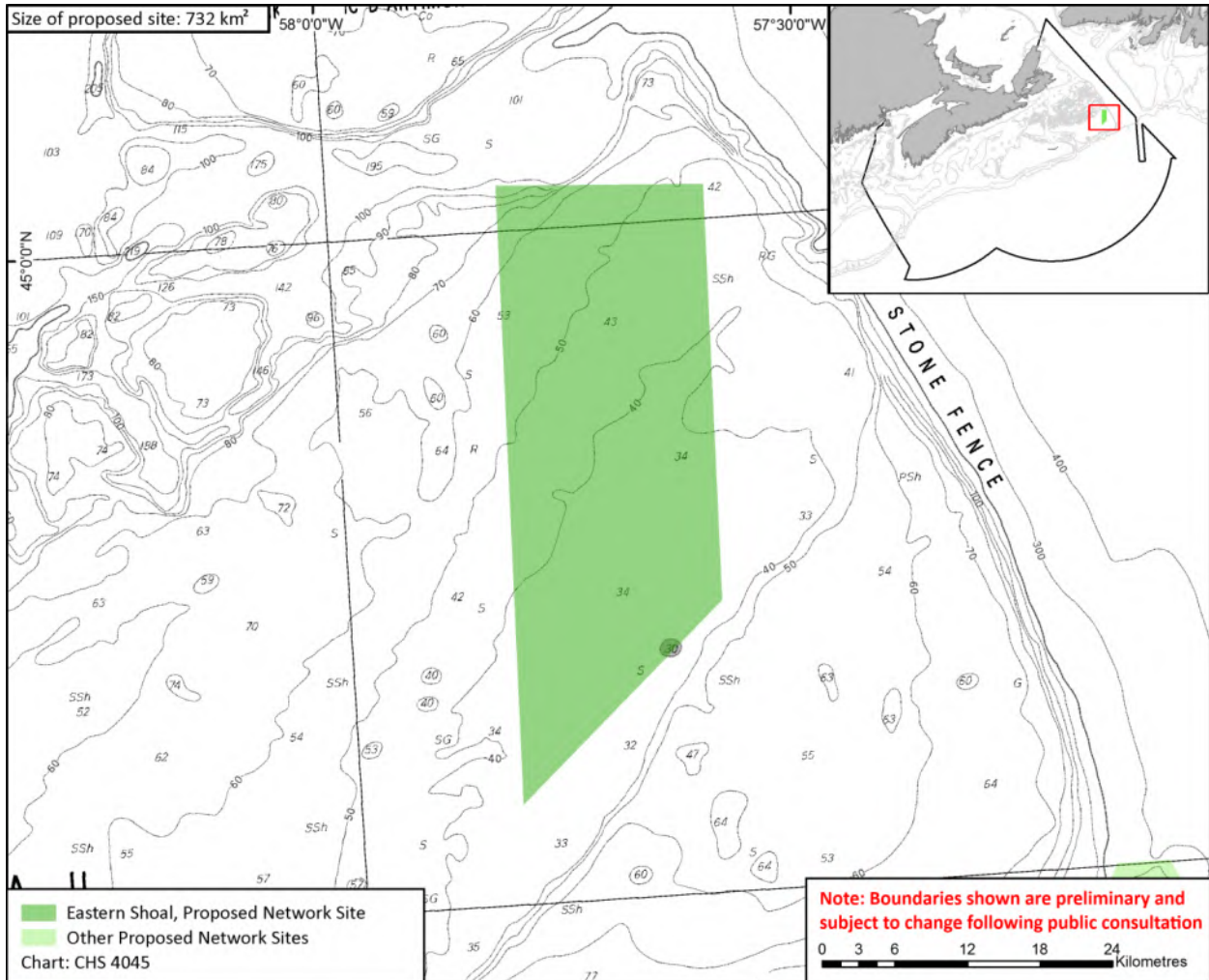


Figure 32: Map of Eastern Shoal, proposed network site.

31. COLD SEEPS

The Cold Seeps site is located in the deep waters (~4000 m depth) of Canada's offshore, approximately 1000 km east of Halifax, Nova Scotia.

Why is this area special?

Cold seeps are areas where hydrocarbon-rich fluid seeps up from below the sea floor and often attract highly productive and diverse communities of organisms. This site includes several cold seep communities discovered by a scientific survey program in 1987. These communities include clams and other bivalves, gastropods, crabs, and other organisms unique to this habitat type. This site also serves as a representative example of the Laurentian Fan, continental rise, and abyssal plain habitats found on the Eastern Scotian Shelf.

Key ecological features:

- Unique chemosynthetic communities
- Concentrations of clams and other bivalves, gastropods, crabs, polychaete worms, and other organisms unique to the cold seep habitat
- Representative examples of Laurentian Fan, continental rise, and abyssal plain habitats and associated biological communities

How is this area used?

Use of the Cold Seeps area is minimal due to its remote offshore location. This site falls within the jurisdiction of the Canada-Newfoundland and Labrador Offshore Petroleum Board.

Conservation measures or other special designations

There are no current spatial conservation measures specific to the Cold Seeps.

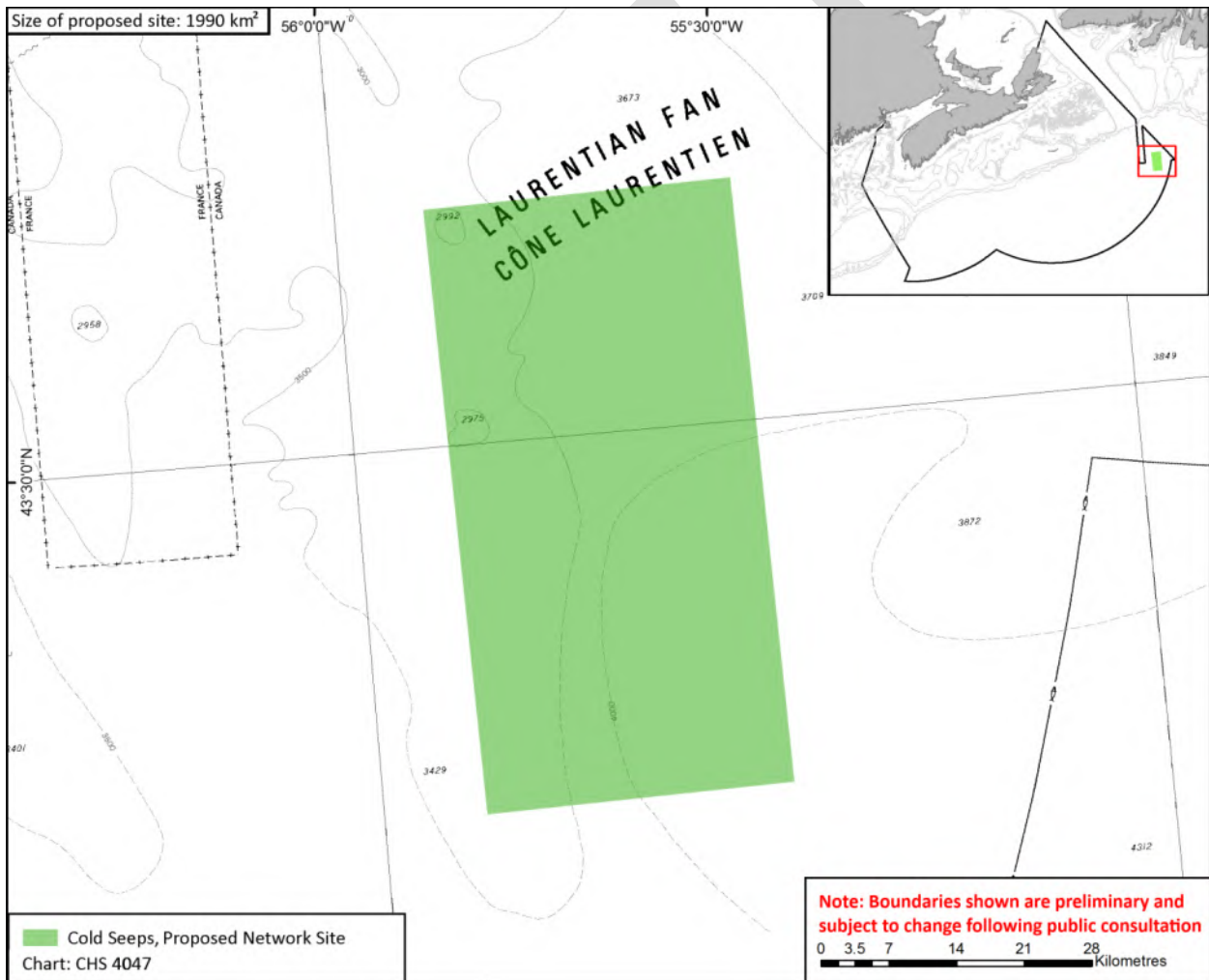


Figure 33: Map of Cold Seeps, proposed network site.

Sites Announced on March 22, 2018

The Draft Design identifies three proposed sites that were publicly announced on March 22, 2018, including: two Areas of Interest (AOIs) to become *Oceans Act* MPAs, and a proposed Marine Refuge under the *Fisheries Act* (labelled sites in Figure 2). The two AOIs are Eastern Shore Islands⁶³ and Fundian Channel-Browns Bank⁶⁴. As shown on the map, the Fundian Channel-Browns Bank AOI is made up of two components that are not physically connected. However, these components are connected ecologically and are being advanced as one AOI. The proposed site moving forward under the *Fisheries Act* is called Eastern Canyons. Site-specific designation processes that include extensive consultation are currently underway for each of these three sites.

⁶³ <http://dfo-mpo.gc.ca/oceans/aoi-si/easternshore-ilescoteest-eng.html>

⁶⁴ <http://dfo-mpo.gc.ca/oceans/aoi-si/fundian-fundy-browns-eng.html>

EASTERN SHORE ISLANDS AREA OF INTEREST

The Eastern Shore Islands site includes the nearshore waters surrounding the archipelago that stretches from Clam Bay near Jeddore Harbour to Barren Island near Liscomb Point. The site extends seaward roughly 24 km from the mainland. The Eastern Shore Islands Area of Interest (AOI) is proposed for MPA designation under the *Oceans Act*. The designation process involves extensive site-specific consultation that includes the formation of an advisory committee to facilitate stakeholder input into the design of the site. Consultation on this site started in 2018 and is ongoing. For more information on the Eastern Shore Islands AOI visit our [website](#) or contact: MaritimesMPAs@dfo-mpo.gc.ca.

Why is this area special?

This highly natural area encompasses a dense chain of hundreds of islands that provide important nesting and foraging ground for many colonial seabirds and shorebirds. The area also includes rich beds of eelgrass and kelp that provide important habitat for many marine species, including commercial species that use these habitats as juveniles. Estuaries associated with several rivers that drain into this site are considered important habitat for endangered Atlantic salmon.

Proposed conservation priorities:

- High naturalness
- Archipelago that is regionally unique in size and density
- Significant concentrations of kelp and eelgrass
- Diversity of benthic habitat types
- Areas used by juvenile Atlantic cod⁶⁵ (Endangered – COSEWIC), pollock and hake
- Important habitat for Atlantic salmon⁶⁶ (Endangered – COSEWIC)
- Spawning area for Atlantic herring
- Important areas for nesting, foraging, and migrating marine birds, including Common Eider, Harlequin Duck (Special Concern – SARA), and Roseate Tern (Endangered – SARA).

The deeper waters within this site also include several areas that were once known to be cod, pollock, and hake spawning grounds. Fisheries and Oceans Canada (DFO) is planning additional research surveys in the area to update and expand our knowledge of important ecological features within the site.

How is this area used?

The eastern shore has some of the lowest human population densities in Nova Scotia with relatively low levels of industrial and residential development compared to other parts of the coast. The lobster fishery is a key industry in the area. Other active fisheries include herring (fixed gear), mackerel, groundfish (fixed gear), hagfish, scallop, bluefin tuna, and some shellfish and marine plant (Irish moss, rockweed) harvesting. There are also several finfish and shellfish aquaculture leases within the area. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. Recreational fishing and hunting is another popular activity in the area. Due to its high

⁶⁵ Maritimes population

⁶⁶ Southern Uplands population

degree of naturalness, the area is valued by nature-lovers for sea kayaking, camping, hiking, sailing and boat tours.

Conservation measures or other special designations

Many of the islands in the archipelago fall within a Provincial Wilderness Area, and some in the eastern portion are also part of the Eastern Shore Wildlife Management Area. Privately owned islands in the western portion of the site are currently the focus of the Nova Scotia Nature Trust’s “100 Wild Islands Legacy Campaign”⁶⁷ to acquire and manage these properties for conservation purposes. Over 80% of the islands within the focus of this campaign have been protected to date, either by the Province of Nova Scotia or through the Nature Trust. The site is also adjacent to Taylor Head and Clam Harbour Provincial Parks. The eastern portion of the archipelago has been recognized as an Important Bird Area, and several of the islands were identified as Sites of Ecological Significance by the International Biological Program (1964-74).

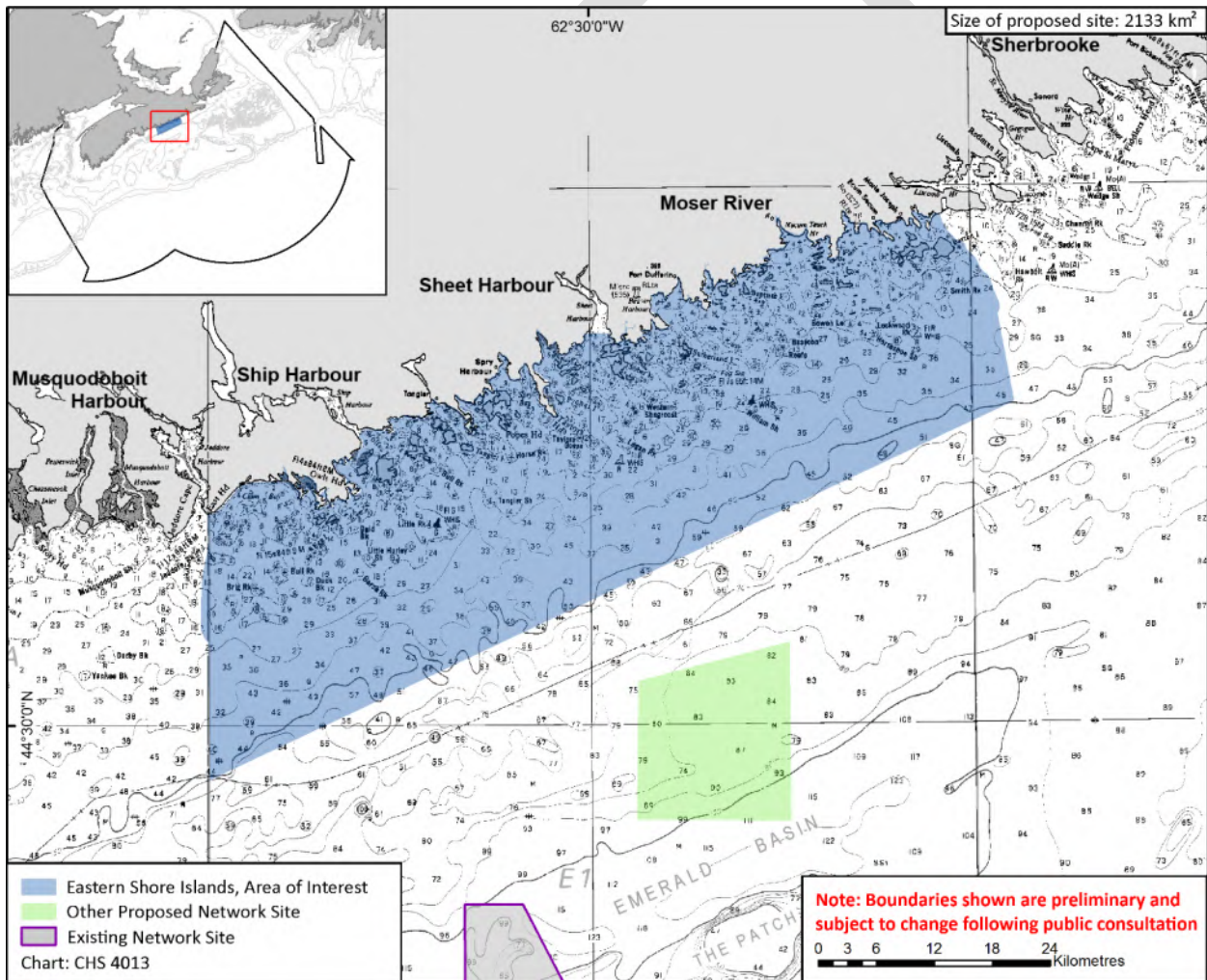


Figure 34: Map of Eastern Shore Islands Area of Interest.

⁶⁷ <http://www.100wildislands.ca>

FUNDIAN CHANNEL-BROWNS BANK AREA OF INTEREST

The Fundian Channel-Browns Bank Area of Interest (AOI) is located approximately 120 km south of Yarmouth, Nova Scotia and includes two geographically separate components. The western section of this AOI is centred on Georges Basin while the larger eastern section encompasses the Northeast Channel and part of Browns Bank. In earlier versions of the draft conservation network design, this site was one contiguous geographic area, but it was later split into two separate components to minimize overlap with commercial fishing activity. The Fundian Channel-Browns Bank AOI is proposed for MPA designation under the *Oceans Act*. The designation process involves extensive site-specific consultation that includes the formation of an advisory committee to facilitate stakeholder input into the design of the site. Consultation on this site recently began with the first advisory committee taking place in June 2021. For more information on the Fundian Channel-Browns Bank AOI, please visit our [website](#) or contact: maritimesMPAs@dfp-mpo.gc.ca.

Why is this area special?

This area was selected as an AOI because it encompasses important oceanographic processes, diverse benthic habitats, depleted species, and sensitive biogenic habitats. The cold, nutrient-rich waters of the Labrador Current flow into the Gulf of Maine through the Fundian Channel making this site essential to the circulation and primary productivity patterns of the western portion of the Scotian Shelf-Bay of Fundy Bioregion. The channel is also the largest entrance to the Gulf of Maine from the open Atlantic Ocean and many species use it as a migration corridor. The area known as the Hell Hole, at the mouth of the Fundian Channel, is a distinct oceanographic feature where high levels of mixing result in the aggregation of large pelagic fishes and other species at certain times of the year. The Fundian Channel-Browns Bank AOI also captures a wide range of benthic habitat types, including bank, basin, channel and slope. It is an area of high biodiversity and represents important habitat for many depleted groundfish species. The Northeast Channel portion of the site contains the densest known concentrations of large gorgonian corals in the region, and the Browns Bank portion contains significant concentrations of sponges and a diverse benthic community.

Proposed Conservation Priorities:

Habitat

- Diverse representation of habitat types, including basin, bank, deep water slope and channel habitats, and their associated fish and invertebrate communities
- Persistent habitat for juvenile Atlantic halibut
- Concentrations of large mature female lobster
- Suitable habitat for beaked whales

Biodiversity

- Deep-water corals
- Significant concentrations of sponges
- Representative habitat for Atlantic cod, Atlantic wolffish, winter skate, thorny skate, and white hake
- Highly suitable habitat for cusk

Productivity

- The collection of oceanographic features, such as internal waves, areas of upwelling, and occasional presence of Gulf current and warm-core rings, at the mouth of the Fundian Channel that make it a highly productive area that is associated with the presence of large pelagic fishes, sea turtles, and cetaceans
- A blue whale foraging area
- Foraging ground for most functional guilds of marine birds, including Leach's storm petrel

How is this area used?

The Fundian Channel-Browns Bank AOI contains important fishing grounds for large pelagic species (Bluefin tuna, other tunas, and swordfish), offshore lobster, several groundfish species (cod, haddock, pollock, redfish, flounders, and halibut), scallop, and hagfish (Georges Basin). Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. The western portion of this site overlaps with a series of older petroleum licences; however, there is currently a moratorium on exploration activities in much of this AOI. An offshore petroleum exploration licence also occurs just outside the southeastern boundary of this site. Parts of this AOI see relatively high shipping traffic.

Conservation measures or other special designations

This AOI partially overlaps with several existing fisheries closures, including the LFA 40 lobster closure, a seasonal groundfish spawning closure, the Hell Hole (pelagic longline closure) and a Marine Refuge known as the Northeast Channel Coral Conservation Area⁶⁸. The western portions of this site overlap with the Georges Bank moratorium area on petroleum exploration.⁶⁹

⁶⁸ <http://www.dfo-mpo.gc.ca/oceans/oeabcm-amcepz/refuges/northeast-nordest-eng.html>

⁶⁹ *Georges Bank Protection Act*: http://laws-lois.justice.gc.ca/PDF/2015_39.pdf

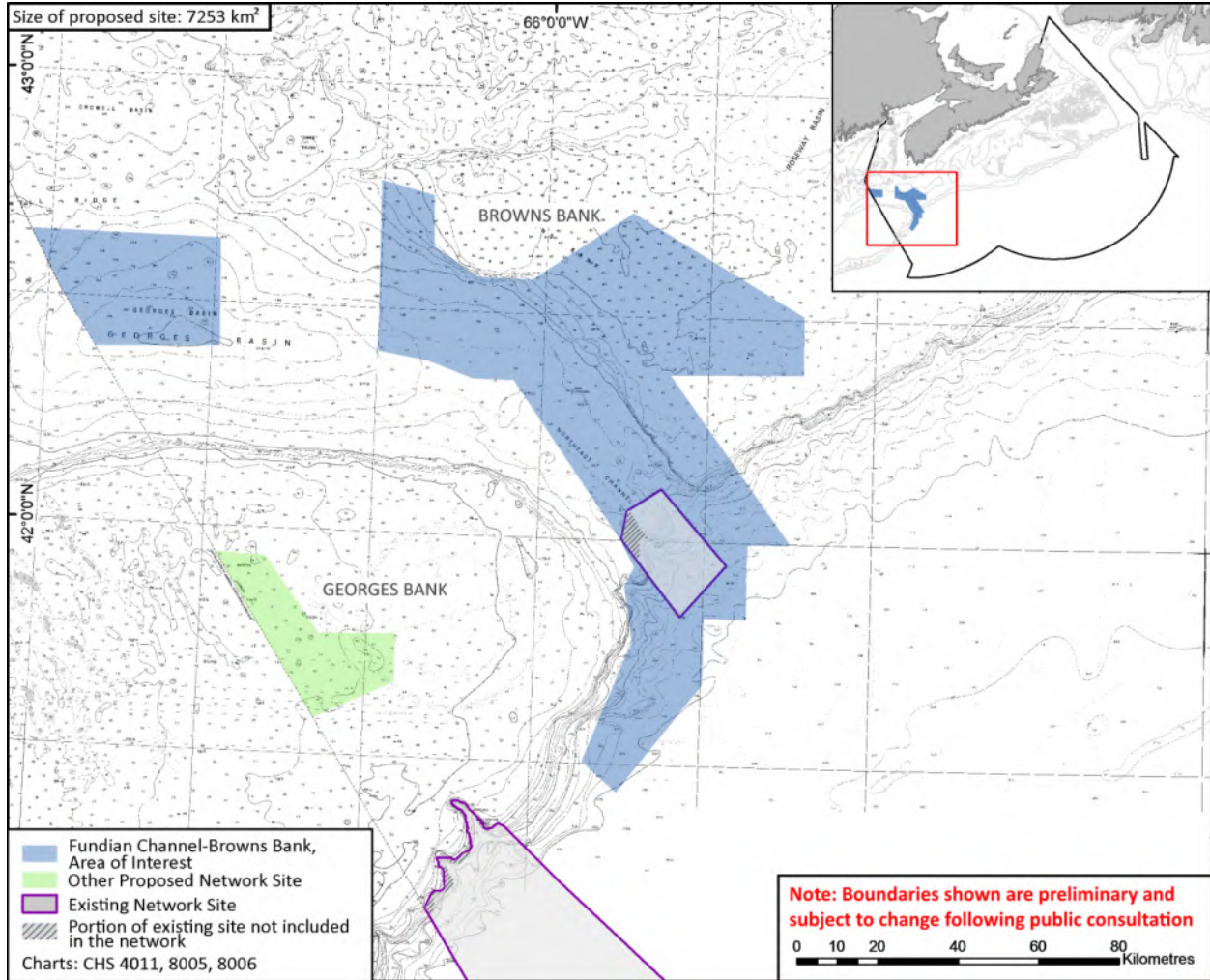


Figure 35: Map of Fundian Channel-Browns Bank Area of Interest.

EASTERN CANYONS PROPOSED MARINE REFUGE

The Eastern Canyons site is located approximately 80 km east of Sable Island. The area extends from the shelf break along the southern edge of Banquereau and runs down the Eastern Scotian Slope and across the abyssal plain to the outer limit of Canada’s Exclusive Economic Zone (EEZ). This large site is proposed as a Marine Refuge under the *Fisheries Act*. The dense corals found in the canyons and along the shelf edge warrant consideration under DFO’s *Policy for Managing the Impact of Fishing on Sensitive Benthic Areas*.⁷⁰ This site was extended into the deep-water to foster connectivity among the shelf, slope, and abyssal plain, and because deep-sea ecosystems are vulnerable to disturbance. It is important to note that the current conservation focus for this proposed site is on areas of high coral density and the diversity of deep-water seafloor habitats. Consultation on the establishment of this site started in early

⁷⁰ Policy for Managing the Impacts of Fishing on Sensitive Benthic Areas: <http://www.dfo-mpo.gc.ca/reports-rapports/regs/sff-cpd/benthi-eng.htm#n1>

2021, and the Marine Refuge is expected to be designated in fall 2021. Once established, the new Marine Refuge will absorb the existing Lophelia Coral Conservation Area located near the mouth of the Laurentian Channel. The Marine Refuge will restrict bottom contact fishing. However, this area is also important to several whale species listed under the *Species at Risk Act*. Additional measures may be considered to reduce the risk of harm to these species in the future.

Why is this area special?

This area serves as a representative example of the varied deep-water habitats and organisms that characterize the eastern portion of the bioregion. Notable features include a number of canyons that cut into the Eastern Scotian Shelf and serve as pathways for sediment transport to the deep sea. The canyons and inter-canyon areas of the upper slope are known to support beaked whales, significant concentrations of corals, including the reef-building coral *Lophelia pertusa*, several depleted groundfish species, and overall high biodiversity. Shortland and Haldimand Canyons, along with the Gully located immediately west of this site, have been identified as critical habitat under the *Species at Risk Act* for the endangered Scotian Shelf population of northern bottlenose whales.

Key ecological features:

- Representative example of canyon, slope, continental rise, and abyssal plain habitats and associated biological communities
- Contains important slope and deep-water ecological processes
- High larval fish, invertebrate, and small invertebrate species diversity
- Significant concentrations of large gorgonian corals and other coral species, including the only species of reef-building coral in Canada, *Lophelia pertusa*
- Critical habitat for northern bottlenose whale, Scotian Shelf population (Endangered – SARA)
- Feeding area for Sowerby's beaked whale (Special Concern – SARA) and other cetaceans
- Important habitat for depleted groundfish, including American plaice⁷¹ (Threatened – COSEWIC), Atlantic wolffish (Special Concern – SARA), Unit 2 redfish (Endangered – COSEWIC)⁷², smooth skate⁷³ (Special Concern – COSEWIC), thorny skate (Special Concern – COSEWIC), and white hake⁷⁴ (Threatened – COSEWIC)
- Presence of roundnose grenadier (Endangered – COSEWIC) and roughhead grenadier (Special Concern – COSEWIC)

New multibeam surveys were completed in this area over the last decade and those data are being interpreted to reveal surficial geology, sediment dynamics, and related seafloor processes on the slope and rise. Optical seafloor surveys are planned in areas where coral has been identified and recent models suggest high likelihood of occurrence.

⁷¹ Maritime population

⁷² Unit 2 includes two populations: Acadian redfish is listed as Threatened under COSEWIC; and deep-water redfish is considered Endangered under COSEWIC.

http://www.sararegistry.gc.ca/virtual_sara/files/cosewic/sr_Deepwater%20and%20Acadian%20Redfish_0810_e.pdf

⁷³ Laurentian-Scotian population

⁷⁴ Atlantic and Northern Gulf of St. Lawrence population

How is this area used?

Commercial fishing and trans-Atlantic shipping are the main human activities in this area. Current fisheries are dominated by redfish, halibut, swordfish, and tunas. Licences issued to Indigenous groups provide access to this area to fish for food, social, and ceremonial (FSC) purposes. The area was subject to offshore petroleum exploration as recently as 2003 though no licences are active at the present time. The slope component of this site was part of the Canada Nova Scotia Offshore Petroleum Board's (CNSOPB) call for bids in 2014; however, no bids were received. This site overlaps with a very small portion of a Significant Discovery Licence that remains in place on the western side of Shortland Canyon.

Conservation measures or other special designations

This site is roughly bound by two existing sites in the conservation network: the Gully MPA⁷⁵ in the northwest and the Lophelia Coral Conservation Area⁷⁶ in the northeast. Zone 1 of the Gully MPA, and Shortland and Haldimand Canyons have been identified as critical habitat under the *Species at Risk Act* for the endangered Scotian Shelf population of northern bottlenose whales.

⁷⁵ <http://www.dfo-mpo.gc.ca/oceans/mpa-zpm/gully-eng.html>

⁷⁶ <http://www.dfo-mpo.gc.ca/oceans/ceccsr-cerceef/measures-mesures-eng.html>

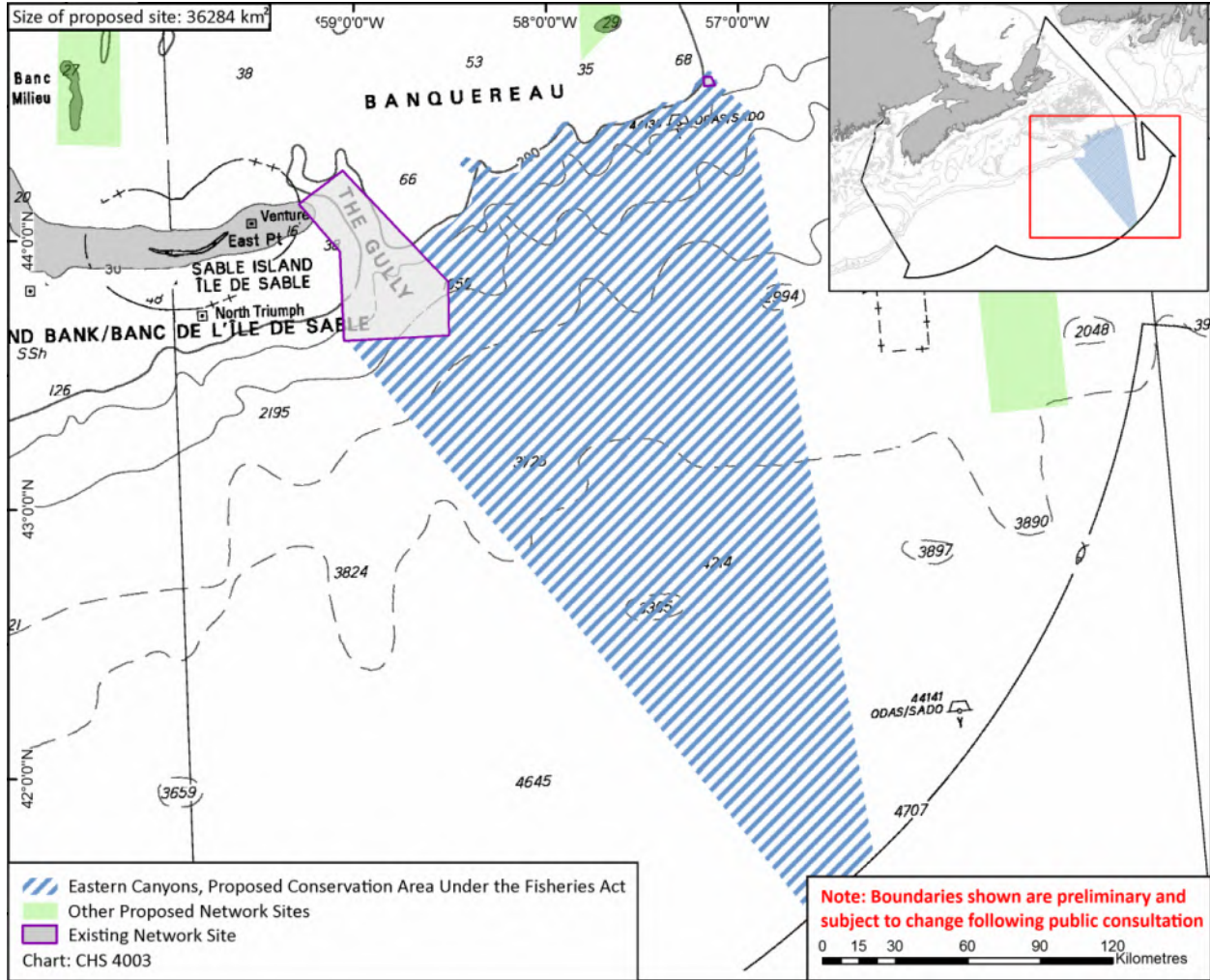


Figure 36: Map of Eastern Canyons, proposed conservation area under the Fisheries Act.