Four Wind Energy Areas (WEA) in the Offshore of Nova Scotia: A Description of the Primary Marine Ecosystem Features, Significant and Protected Areas, At-risk and Depleted Species, Fish and Fisheries, Science Surveys, and Other Human Uses that May Occur In and Around the French Bank, Middle Bank, Sable Island Bank, and Sydney Bight Areas

Kristian J. Curran, Elizabeth J. Nagel, Shannan A. Murphy, Miranda L. Huskins-Shupe, and Emma C. Marotte

Fisheries and Oceans Canada
Maritimes Region
Bedford Institute of Oceanography
PO Box 1006
Dartmouth, Nova Scotia B2Y 4A2

2025

Canadian Manuscript Report of
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Kristian J. Curran, Elizabeth J. Nagel, Shannan A. Murphy,
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Fisheries and Oceans Canada
Maritimes Region
Bedford Institute of Oceanography
1 Challenger Drive
Dartmouth, NS, B2Y 4A2

Cat. No. Fs97-4/3312E-PDF ISBN 978-0-660-79249-1 ISSN 1488-5387
https://doi.org/10.60825/kp16-zx06

Correct citation for this publication:

Curran, K.J., Nagel, E.J., Murphy, S.A., Huskins-Shupe, M.,L. and Marotte, E.C. 2025. Four Wind Energy Areas (WEA) in the Offshore of Nova Scotia: A Description of the Primary Marine Ecosystem Features, Significant and Protected Areas, At-risk and Depleted Species, Fish and Fisheries, Science Surveys, and Other Human Uses that May Occur In and Around the French Bank, Middle Bank, Sable Island Bank, and Sydney Bight Areas. Can. Manuscr. Rep. Fish. Aquat. Sci. 3312: ix + 65 p. https://doi.org/10.60825/kp16-zx06

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ACRONYMS

AOI – Area of Interest
AZMP – Atlantic Zone Monitoring Program
CH – Critical Habitat
CFA – Crab Fishing Area
COSEWIC – Committee on the Status of Endangered Wildlife in Canada
CTD – Conductivity, Temperature, and Depth
ESS – Ecologically Significant Species
EBSA – Ecologically and Biologically Significant Areas
FB – French Bank
FSC – Food, Social, and Ceremonial
GB – Georges Bank
GOM – Gulf of Maine
GSC – Great South Channel
GSL – Gulf of St. Lawrence
HFA – Herring Fishing Area
KDE – Kernel Density Estimation
LFA – Lobster Fishing Area
MAB – Mid-Atlantic Bight
MB – Middle Bank
MFA – Mackerel Fishing Area
MHW – Marine Heat Waves
MPA – Marine Protected Area
MR – Marine Refuge
NAFO – Northwest Atlantic Fisheries Organization
NL – Newfoundland and Labrador
NEC – Northeast Channel
OECM – Other Effective Area-based Conservation Measures
OSW – Offshore Wind
SARA – *Species at Risk Act*
SDM – Species Distribution Model
SFA – Scallop Fishing Area / Shrimp Fishing Area
SIB – Sable Island Bank
SiBA – Significant Benthic Areas
SS – Scotian Shelf
SyB – Sydney Bight
WEA – Wind Energy Area
WSDB – Whale Sightings Database

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ABSTRACT

Curran, K.J., Nagel, E.J., Murphy, S.A., Huskins-Shupe, M.L., and Marotte, E.C. 2025. Four Wind Energy Areas (WEA) in the Offshore of Nova Scotia: A Description of the Primary Marine Ecosystem Features, Significant and Protected Areas, At-risk and Depleted Species, Fish and Fisheries, Science Surveys, and Other Human Uses that May Occur In and Around the French Bank, Middle Bank, Sable Island Bank, and Sydney Bight Areas. Can. Manuscr. Rep. Fish. Aquat. Sci. 3312: ix + 65 p.
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On July 29, 2025, the Government of Canada and the Province of Nova Scotia jointly designated four Wind Energy Areas (WEAs) in the offshore of Nova Scotia — French Bank, Middle Bank, Sable Island Bank, and Sydney Bight — marking the first such designation in Canada. This manuscript provides a high level description of the marine ecosystem and human uses in and around the WEAs. Briefly, the WEAs are located on the Eastern Scotian Shelf, which is a region characterized by complex oceanographic processes, diverse surficial geology, and notable ecosystem changes that include warming trends, marine heat waves, and shifts in trophic structure. The WEAs themselves exhibit minimal overlap with Ecologically and Biologically Significant Areas, Significant Benthic Areas, and existing and proposed marine conservation network sites, although many of these features and sites are found proximal to the WEAs. The WEAs support a wide range of marine species, including several at-risk and depleted diadromous, demersal, shark, sea turtle, and marine mammal species. Commercial fisheries operate in proximity to and/or within the WEAs, with fisheries that operate within the WEAs described in greater detail herein. Similarly, DFO fishery science and ecosystem surveys that are used to inform fishery stock assessment and ecosystem monitoring regularly collect data in and around the WEAs. Other known human uses that operate in proximity to and/or within the WEAs are also briefly described. The description presented in this manuscript is intended to be a means for DFO to inform regulatory decision-makers, industry, and members of the public of the primary marine ecosystem features, significant and protected areas, at-risk and depleted species, fish and fisheries, science surveys, and other human uses that may occur in and around each of the WEAs. This description does not assess the WEA sites for offshore wind suitability nor evaluate the risk of offshore wind energy development on the marine ecosystem or other human uses in each area.

RÉSUMÉ

Curran, K.J., Nagel, E.J., Murphy, S.A., Huskins-Shupe, M. L., and Marotte, E.C. 2025. Four Wind Energy Areas (WEA) in the Offshore of Nova Scotia: A Description of the Primary Marine Ecosystem Features, Significant and Protected Areas, At-risk and Depleted Species, Fish and Fisheries, Science Surveys, and Other Human Uses that May Occur In and Around the French Bank, Middle Bank, Sable Island Bank, and Sydney Bight Areas. Can. Manuscr. Rep. Fish. Aquat. Sci. 3312: ix + 65 p.
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Le 29 juillet 2025, le gouvernement du Canada et la province de la Nouvelle-Écosse ont désigné conjointement quatre zones d'énergie éolienne (ZEE) au large de la Nouvelle-Écosse – banc French, banc du Milieu, banc de l'Île de Sable et Sydney Bight – ce qui constitue la première désignation de ce type au Canada. Ce manuscrit fournit une description générale de l'écosystème marin et des activités humaines dans les ZEE et à proximité. En résumé, les ZEE sont situées dans l'est du plateau néo-écossais, une région caractérisée par des processus océanographiques complexes, une géologie de la surface diversifiée et des modifications notables de l'écosystème qui comprennent des tendances au réchauffement, des vagues de chaleur marines et des changements dans la structure trophique. Les ZEE présentent un chevauchement minimal avec des zones d'importance écologique et biologique, des zones benthiques importantes et des sites existants et proposés de réseaux de conservation marine, bien que bon nombre de ces caractéristiques et sites se trouvent à proximité des ZEE. Les ZEE abritent un large éventail d'espèces marines, dont plusieurs espèces diadromes, démersales, de requins, de tortues de mer et de mammifères marins en péril et en déclin. On pratique des pêches commerciales à proximité et/ou à l'intérieur des ZEE; ces pêches sont décrites plus en détail dans le présent document. De même, les relevés des sciences halieutiques, et de l'écosystème menés par les Sciences du MPO qui sont utilisées pour informer l'évaluation du stock de pêche, et le relevé de l'écosystème recueillir régulièrement des données dans les ZEE et à proximité. D'autres activités humaines connues qui se déroulent à proximité et/ou à l'intérieur des ZEE sont également brièvement décrites dans le présent document. La description présentée dans ce manuscrit se veut un moyen pour le MPO d'informer les décideurs réglementaires, l'industrie et les membres du public des principales caractéristiques de l'écosystème marin, des zones importantes et protégées, des espèces en péril et en déclin, des poissons et des pêches, des relevés scientifiques et d'autres activités humaines qui peuvent se produire à l'intérieur et à proximité de chacune des ZEE. La description ci-après n'évalue pas le caractère convenable des ZEE pour l'énergie éolienne en mer ni le risque que pose l'exploitation de l'énergie éolienne en mer pour l'écosystème marin ou d'autres activités humaines dans chaque zone.

INTRODUCTION

On July 29, 2025, the Government of Canada and the Province of Nova Scotia jointly designated Canada's first four Wind Energy Areas (WEAs) located in the offshore of Nova Scotia: French Bank, Middle Bank, Sable Island Bank, and Sydney Bight (Figure 1). A WEA represents an area of interest for offshore wind (OSW) development given its viable wind resource (Aegir 2023; Kilpatrick et al. 2025; Nagel et al. 2024; Nova Scotia Regional Assessment Committee 2025). The French Bank WEA is 3,125 km^2 in area, Middle Bank WEA is 2,289 km^2 in area, Sable Island Bank WEA is 5,850 km^2 in area, and Sydney Bight WEA is 1,285 km^2 in area (Government of Nova Scotia 2025). The total combined area of the four WEAs is 12,549 km^2.

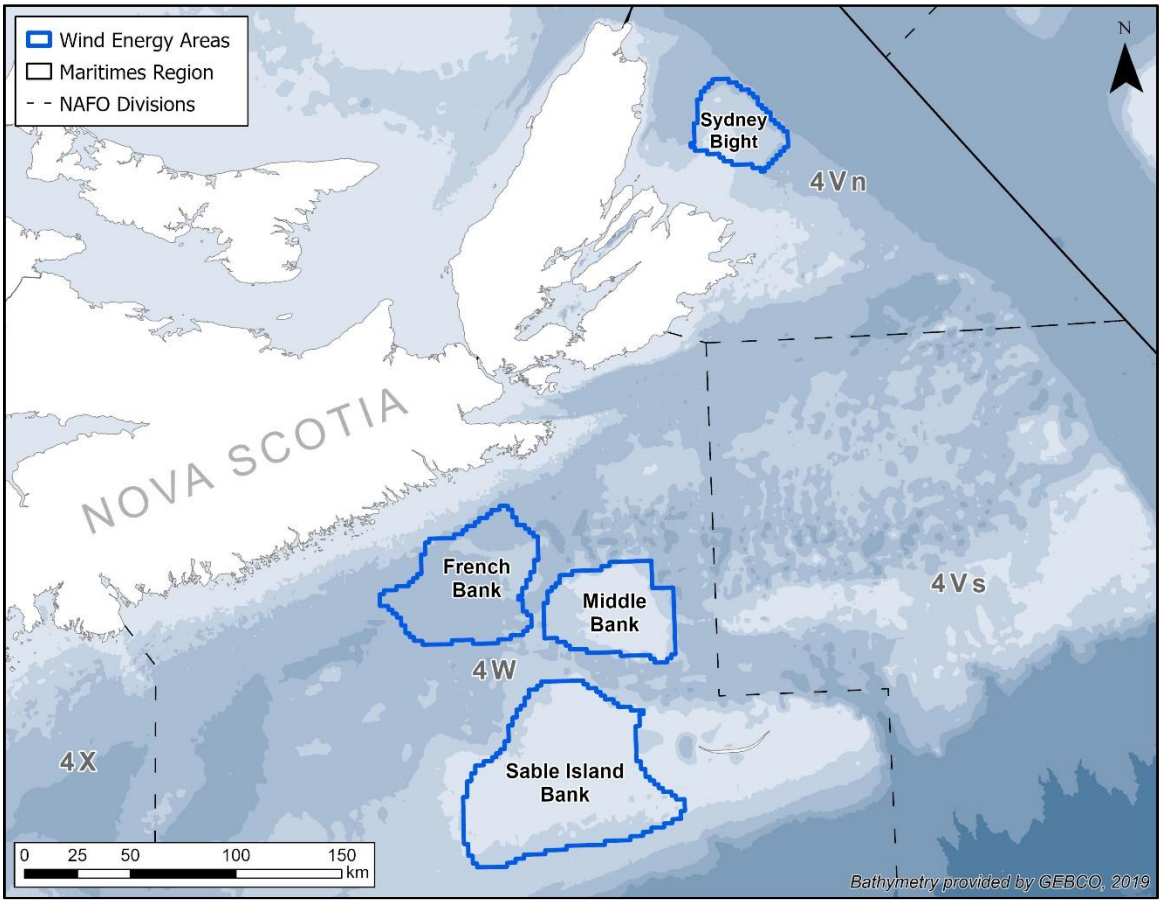


Figure 1. The French Bank, Middle Bank, Sable Island Bank, and Sydney Bight Wind Energy Areas (WEA) located in the offshore of Nova Scotia. The WEAs fall within Northwest Atlantic Fishery Organization (NAFO) Divisions 4Vn and 4W. Refer to this figure for WEA names when reviewing subsequent figures in this manuscript (subsequent figures do not include WEA names in an effort to not over-write underlying data presented in those figures). Figures in this manuscript utilize bathymetry from GEBCO (2019).

This manuscript aims to provide a high level description of the marine ecosystem and human uses in and around the four WEAs based on information held by Fisheries and Oceans Canada (DFO). The description primarily draws upon DFO's published science literature and data holdings (e.g., fishery licencing and landings information), with reference to other associated publications from the primary literature, or elsewhere, where applicable. The description does not list all DFO information and literature that is currently

available, but it does provide a starting point for understanding the marine ecosystem and human uses at the scale of the four WEAs.

The description presented herein is intended to be a means for DFO to inform regulatory decision-makers, industry, and members of the public of the primary marine ecosystem features, significant and protected areas, at-risk and depleted species, fish and fisheries, science surveys, and other human uses that may occur in and around each of the WEAs. The description does not assess the WEA sites for offshore wind suitability nor evaluate the risk of offshore wind energy development on the marine ecosystem, marine species, or human uses in each area. As such, it may inform the scope of future risk assessments, but additional detail and analyses on marine ecosystem components, species, and human uses would be needed to inform project-specific assessments.

The four WEAs fall within the Scotian Shelf-Bay of Fundy Planning Area. For more information about this planning area see: First-generation Marine Spatial Plan: Scotian Shelf and Bay of Fundy.

For general information contact:

Marine Planning and Conservation Program
Fisheries and Oceans Canada

Maritimes Region
E-Mail: Oceans_Maritimes@dfo-mpo.gc.ca

For project development information contact:

Attention: Referrals Secretariat

Fish and Fish Habitat Protection Program (Nova Scotia)
Fisheries and Oceans Canada
Maritimes Region
E-Mail: ReferralsMaritimes@dfo-mpo.gc.ca

OCEANOGRAPHY, SURFICIAL GEOLOGY, AND ECOSYSTEM

The Northwest Atlantic Ocean offshore of Atlantic Canada is influenced by seasonal changes in currents, sea surface water temperature, sea ice, and freshwater runoff (DFO 2022a; Bernier et al. 2023). The Newfoundland and Labrador Shelves, Gulf of St. Lawrence, and Scotian Shelf-Bay of Fundy bioregions can be envisioned as an interconnected shelf-sea marine environment. Ocean circulation on the continental shelves is characterized by a general northeast to southwest flow of water from the Labrador and Newfoundland Shelves through the Gulf of St. Lawrence, onto the Scotian Shelf, and into the Bay of Fundy/Gulf of Maine. The Newfoundland and Labrador Shelves are dominated by subpolar waters, with the cool, fresh Labrador Current flowing southward along the Newfoundland and Labrador Shelves to the south and west of the Grand Banks. The waters of the Scotian Shelf (i.e., offshore of Nova Scotia) include two modified water masses referred to as the Labrador Slope Water and the Warm Slope Water, which result from mixing of the colder, fresher subpolar waters flowing southwestward with the warmer, saltier Gulf Stream waters flowing northeastward.

On the Scotian Shelf, Bay of Fundy, and in the Gulf of Maine sub-regions, temperature and salinity conditions are determined by many processes: heat transfer between the ocean and atmosphere; flow from the Gulf of St. Lawrence supplemented by flow from the Newfoundland Shelf; exchange with offshore slope waters; localized mixing; freshwater

runoff; direct precipitation; and sea-ice meltwater (Hebert et al. 2024). The Nova Scotia Current is the dominant circulation feature on the inner Scotian Shelf, which originates in the Gulf of St. Lawrence and enters the Scotian Shelf through Cabot Strait (Figure 2). The pathway of this current is strongly affected by topography and has a general southwestward transport over the Scotian Shelf and into the Bay of Fundy/Gulf of Maine, where it contributes to counterclockwise mean circulation. Changes associated with circulation, however, are more easily detected in bottom-water temperature over the eastern and central Scotian Shelf in Northwest Atlantic Fisheries Organization (NAFO) Divisions 4Vs and 4W, respectively (see: Figure 1 for NAFO Divisions). Mixing with offshore waters from the continental slope often modifies water-mass properties on the Scotian Shelf. Shelf-water properties have large seasonal cycles, along-shelf and across-shelf gradients, and vary with depth (Petrie et al. 1996).

The circulation pattern on Sable Island Bank is influenced by its proximity to the Scotian Shelf break and Gully submarine canyon (James and Stanley 1968; Shan et al. 2014). Circulation on the bank is influenced by tides, as well as the Shelf-Edge Current, which is a branch of the Labrador Current that flows south along the edge of the continental shelf bringing cold subarctic water along the outer edge of Sable Island Bank that interacts with warmer slope waters, causing eddies and mixing (James and Stanley 1968). These interactions result in the formation of the Sable Island Bank gyre, which is a clockwise gyre that rotates around the bank and sets up a partial gyre over Western Bank (Hannah et al. 2001); such gyres in the Northern Hemisphere are associated with upwelling. The Sable Island Bank gyre is strongest in the summer and fall (Hannah et al. 2001). The eastern portion of the bank is further influenced by warm, salty water that can intrude onto the shelf via the Gully Canyon and other proximal canyons, resulting in cross-shelf exchange (Shan et al 2014). These intrusions affect temperature, salinity, and nutrient distributions on and around Sable Island Bank and northward onto the central Scotian Shelf.

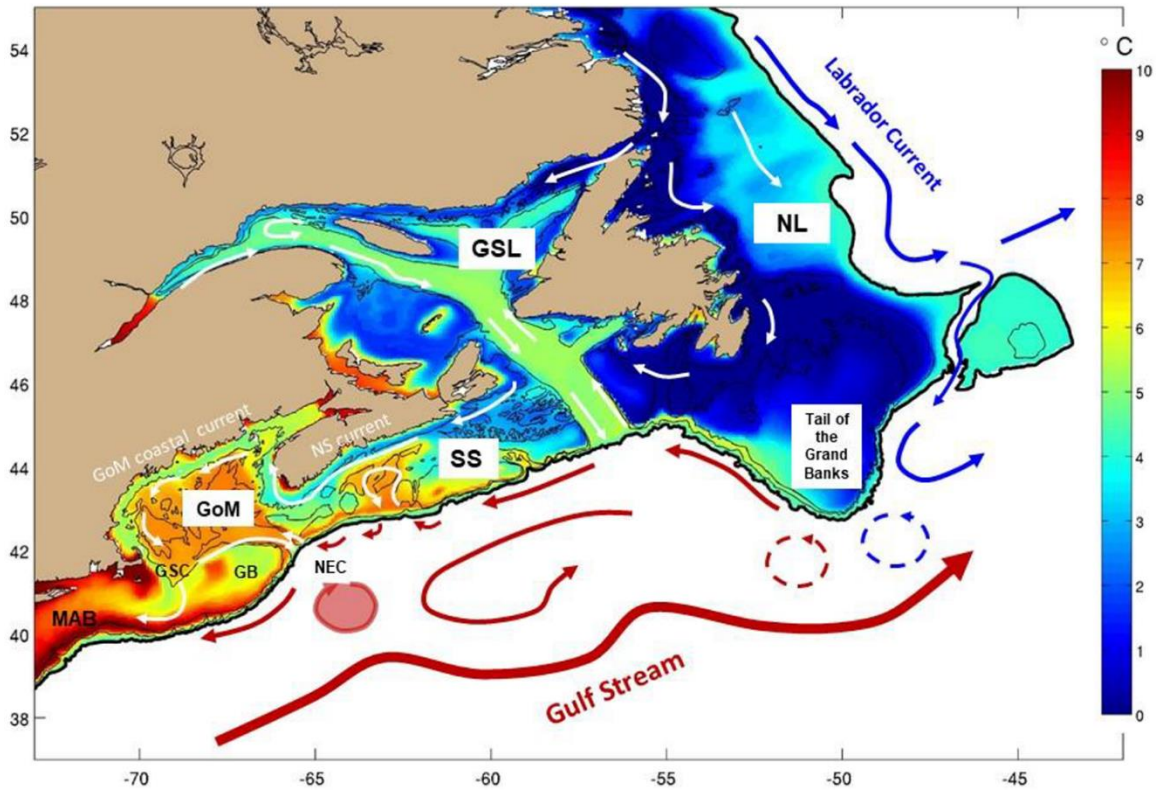


Figure 2. On the Scotian Shelf, the Nova Scotia Current is the dominant inflow, which originates in the Gulf of St. Lawrence and enters the shelf through Cabot Strait (Brickman et al. 2021). The colour coding of the continental shelf regions represents the annual average bottom water temperature, with the values represented by the colour bar on the right-hand side of the figure. The current, whose path is strongly affected by topography, has a general southwestward drift over the Scotian Shelf and into the Bay of Fundy/Gulf of Maine, where it contributes to a counterclockwise mean circulation. There are additional, more localized circulation patterns on Sable Island Bank and Sydney Bight that are described in the text herein. Place names are Gulf of Maine (GOM), Scotian Shelf (SS), Gulf of St. Lawrence (GSL), Newfoundland and Labrador (NL), Georges Bank (GB), Northeast Channel (NEC), Great South Channel (GSC), and Mid-Atlantic Bight (MAB).

Sydney Bight is placed in proximity to an area of exchange between the Gulf of St. Lawrence and the Scotian Shelf, as well as offshore of the Bras d'Or Lake. Sydney Bight influences localized current patterns that support a clockwise-rotating gyre, which is believed to be linked to outflow at Cabot Strait or morphology of the bight itself (Chassé 2001); again, such gyres in the Northern Hemisphere are associated with upwelling. Sydney Bight is prone to surface ice departing the Gulf of St. Lawrence through Cabot Strait, although in recent years the extent of ice has diminished (Galbraith et al. 2024a). In 2023, deep-water temperatures in the Cabot Strait, north of Sydney Bight, were observed to be some of the highest in the Atlantic Canada time series since 2016 (Bernier et al. 2023).

Observed local relative sea level along the coastline of Atlantic Canada is experiencing long-term changes driven by human-induced climate change. This is influenced by ocean warming, changes in ocean circulation, land-ice melt, and vertical land motion (Bernier et al. 2023). In eastern Canada, vertical land motion associated with the post-glacial isostatic adjustment of the continent differs in the meridional direction (south-north), with the continent sinking in the south (e.g., Halifax, Nova Scotia, and Saint John, New Brunswick) and rising in the north (e.g., Harrington Harbour, Québec, and Nain, Newfoundland and Labrador) (Peltier 2004; Robin et al. 2020). These combined

mechanisms give rise to significant spatial changes in mean relative sea level throughout the region. In more southern areas of Atlantic Canada, including on the Scotian Shelf, relative sea level is rising at rates ranging from 20 to 40 cm per century (e.g., rising 34.3 cm per century at Halifax, Nova Scotia, and 41.7 cm per century at North Sydney, Nova Scotia) (Hebert et al. 2024). The rate of relative sea level rise in the region has increased over the last several decades (Hebert et al. 2024).

The surficial geology of the Scotian Shelf is varied (Philibert et al. 2022). Postglacial Transgressive Sand and Gravel (PTSG) is present on banks and on the inner Scotian Shelf, in water depths less than 120 m. It has a general thickness up to 1–2 m, being much thicker on outer shelf banks of the Eastern Scotian Shelf. The PTSG observed on French Bank, Middle Bank, Sable Island Bank, and Sydney Bight is predominately composed of sand, gravelly-sand, or patchy gravel. In contrast, bottom sediments in deeper areas surrounding French Bank, Middle Bank, and Sable Island Bank are generally glacial or post-glacial in origin, of varying structure, and often contain a greater content of finer-grained sediment that includes variations of clay, silt, muddy-sands, and sub-littoral sands, some of which contain matrix-supported sand, gravel, and cobble clasts. Northwards towards shore from French Bank, the bottom transitions into coastal bedrock. Last, bottom sediments in deeper areas surrounding Sydney Bight are proglacial in origin, consisting of muddy sand or silt and little gravel that were deposited during sea level low stand (Philibert et al. 2022).

Natural bottom disturbance is a function of currents, waves, and storm events in relation to water depth and bottom sediment type; it varies by location on the Scotian Shelf (Horsman et al. 2011). French Bank is an area of moderate, low, and very low natural disturbance that decreases in disturbance with increasing water depth in the area. In contrast, Middle Bank and Sable Island Bank are areas of high natural disturbance. Sydney Bight is an area of low natural disturbance.

In terms of marine ecosystem change, in 2023 many coastal and offshore monitoring sites across the Scotian Shelf exhibited some of the highest sea surface temperatures recorded in the time series, with a series record high observed in the eastern central (i.e., NAFO Division 4W) and western (i.e., NAFO Division 4X) portions of the Scotian Shelf (Hebert et al. 2024). Overall, a greater influence of Gulf Stream water has resulted in record high water temperatures in deep basins on the Scotian Shelf. An analysis of bottom temperatures in the Western and Emerald Banks Marine Refuge (Murillo et al. 2026 [In prep]), which is partially overlapped by the Sable Island Bank WEA, showed that while bottom temperatures were highly variable across the 30-year period evaluated (1991–2020), temperatures have demonstrated a warming trend since 2005, consistent with the overall trend observed across the Scotian Shelf (Hebert et al., 2024). Near bottom temperature on the Scotian Shelf has increased about double the sea surface temperature change over the period 1993–2023 (Zhai et al., 2025). Furthermore, marine heat waves (MHWs), which are prolonged, anomalously warm ocean events, on the Scotian Shelf have become more frequent since 2020, with a particularly strong event observed in 2024 within NAFO 4Vn; a general area of the Eastern Scotian Shelf where the Sydney Bight WEA resides (Layton et al. 2025).

As atmospheric carbon dioxide levels rise due to human-induced emissions, more carbon dioxide diffuses from the atmosphere into the surface ocean. This results in a chemical process taking place that is referred to as ocean acidification, whereby decreasing pH values lead to an increased acidity of seawater. On the Scotian Shelf, pH has exhibited a general decrease from 8.25–8.20 prior to the 1940s to 8.00–7.90 in more recent times (Bernier et al. 2023). Change of this magnitude has occurred in the past, although such change occurred over geological timescales of tens of millions of years and not decades (Caldeira et al. 1999; Pearson and Palmer 2000). The modern day concern regarding

ocean acidification resides in its unprecedented rate of occurrence, due to the significant amount of carbon dioxide that has been added to the atmosphere over the past 250 years (Caldeira and Wickett 2003; Curran and Azetsu-Scott 2012). Although the reduction in pH on the Scotian Shelf is seemingly small, such decreases in pH can be impactful on marine ecosystems and associated species; particularly calcareous-based marine species. Bottom waters in the Sydney Bight area are believed to be more susceptible to ocean acidification compared to elsewhere on the Scotian Shelf. Although bottom waters of the Sydney Bight area still have sufficient aragonite saturation to support shell-forming marine life, its close proximity to the outflow of the Gulf of St. Lawrence, which has experienced the highest rate of decline in bottom water pH across Atlantic Canada since 1934 (Bernier et al. 2023), suggests a general vulnerability of this particular area to decreasing pH.

Since 2017, chlorophyll *a* inventories have remained near or below normal levels on the Scotian Shelf, with the magnitude of the spring phytoplankton bloom throughout the Atlantic Canada region mainly being lower than normal from 2012 to 2017, reaching peak levels in 2018 and 2019, and subsequently decreasing back to normal levels in 2020 (levels that are in line with the long-term average). In contrast, there has been strong evidence of important and coherent shifts in the region's zooplankton community structure since 2011 towards lower abundances of the large, energy-rich copepod *Calanus finmarchicus*, and higher abundances of smaller, less energy-rich *Pseudocalanus* species (Casault et al. 2024; Galbraith et al. 2024b), that coincide with a shift towards warmer temperatures in the region. An analysis of trends in the abundance of the copepod species *Calanus finmarchicus* and zooplankton dry biomass (which includes *Calanus finmarchicus*) from samples collected within the Western and Emerald Banks Marine Refuge, which partially overlaps the Sable Island Bank WEA, revealed a decline in both *Calanus finmarchicus* abundance and overall zooplankton biomass from 2000 to 2023. This is consistent with an overall decline observed in this important trophic level over the broader Scotian Shelf (Murillo et al. 2026 [In prep]).

Changes in productivity patterns from lower trophic levels appear to have taken place in recent years throughout the Atlantic Canada region; in particular, an overall decline in nutrients, chlorophyll *a* inventories, and zooplankton biomass that may be indicative of lower ecosystem production potential compared to previous decades (Bernier et al. 2023; Gailbraith et al. 2024b). While the consequences of these potential productivity shifts on higher trophic levels are not fully understood, changes in the distribution of *Calanus finmarchicus* has been associated with, for example, shifts in the distribution of the North Atlantic Right Whale (Brennan et al., 2021). Furthermore, changes in atmospheric forcing over the Northwest Atlantic shelf seas may be having impacts on trophic level composition and production that affect prey availability to upper trophic levels, including invertebrates, pelagic fish, whales, and seabirds (Bernier et al 2023). Refer to DFO (2022a), Bernier et al. (2023), Casault et al. (2024); Galbraith et al. (2024b), Hebert et al. (2024), and Layton et al. (2025) for a more detailed description of the marine ecosystem, ecosystem change, and associated impacts on marine species of the Scotian Shelf and throughout Atlantic Canadian waters.

ECOLOGICALLY AND BIOLOGICALLY IMPORTANT AREAS

There is a high degree of knowledge regarding Ecologically Significant Species (ESS), Ecologically and Biologically Significant Areas (EBSA), and Significant Benthic Areas (SiBA) in the Scotian Shelf-Bay of Fundy bioregion. The ESS, EBSA, and SiBA have informed the designation of existing Marine Protected Areas (MPA) pursuant to the *Oceans Act* and Marine Refuges (MR) pursuant to the *Fisheries Act*, as well as proposed areas for future marine conservation consideration.

An EBSA is an area that warrants a greater-than-usual degree of risk aversion in the management of human activities due to its particularly high ecological or biological significance (DFO 2004). Scientific criteria for EBSA identification have been defined at both the Canadian (DFO 2004) and international (CBD 2008) levels, with general overlap between the two sets of criteria (Westhead et al., 2013). The Canadian criteria for defining EBSA are: 1) Uniqueness: criterion is met if the area contains unique, rare, or distinct features; 2) Aggregation: criterion is met if significant numbers of a species are found in the area during some period of the year, significant numbers of a species use the area for a life history function, and/or structural feature or ecological process is observed in high density in the area; 3) Fitness Consequences: criterion is met if the life history activities of a species or population in the area strongly affect its fitness; 4) Resilience: criterion is met if the habitat structures or species present in the area are highly sensitive, easily perturbed, and/or slow to recover; and 5) Naturalness: criterion is met if the area is relatively pristine, with little to no evidence of human influence.

In 2014, DFO identified 38 EBSA in the Atlantic coastal region of Nova Scotia (Hastings et al. 2014). In 2016, DFO identified an additional 18 EBSA in the offshore component of the Scotian Shelf region (King et al. 2016). The EBSA located in proximity to and within the four WEAs are shown in Figure 3.

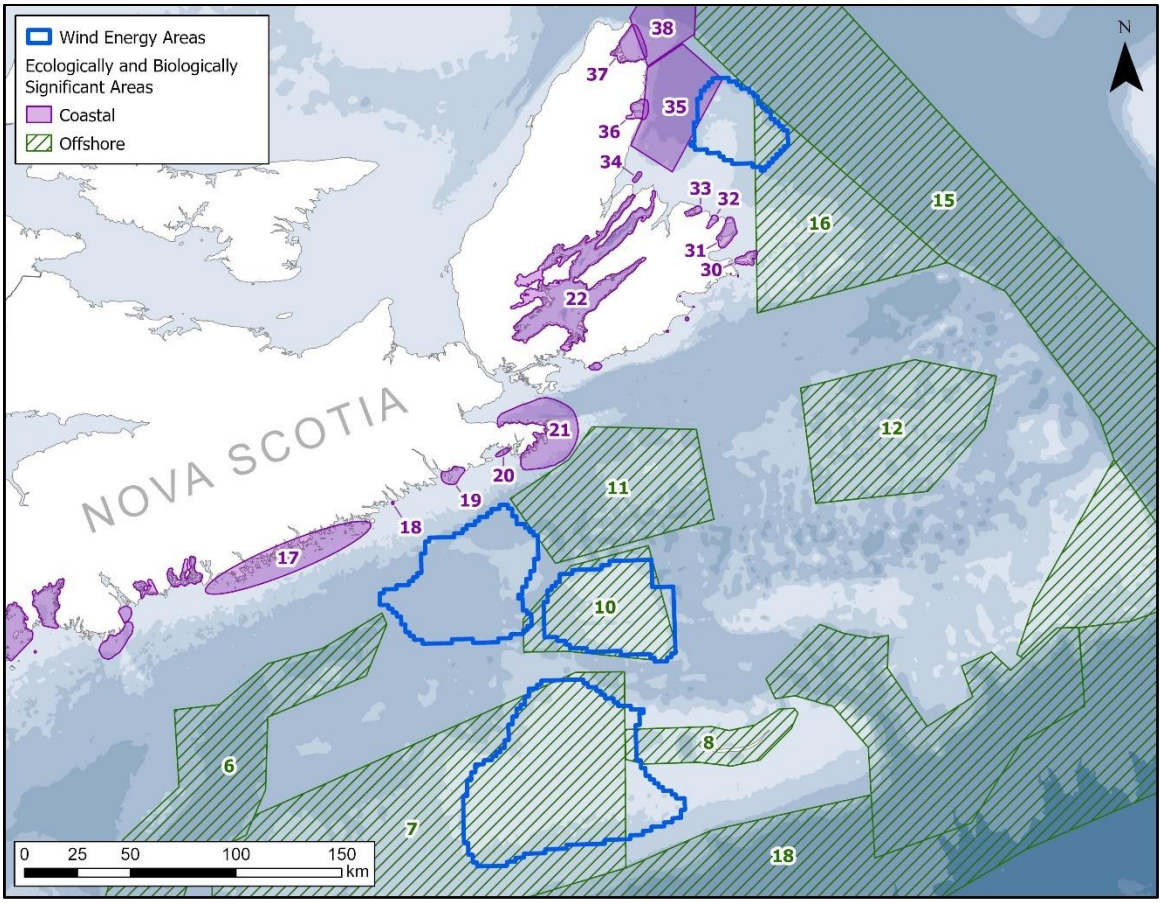


Figure 3. Coastal (purple) and offshore (green) Ecologically and Biologically Significant Areas (EBSA) that overlap or are located in proximity to the four Wind Energy Areas (WEA). The coastal sites described in Hastings et al. (2014) include: Eastern Shore Archipelago [17]; Tobacco Island [18]; Country Harbour Islands [19]; Sugar Harbour Islands [20]; The Canso Ledges [21]; Bras d'Or Lakes [22]; Scatarie Island [30]; Morien Bay [31]; Big Glace Bay [32]; Lingan Bay-Indian Bay [33]; Bird Islands [34]; Western Sydney Bight [35]; Ingonish Bays [36]; Aspy Bay [37]; and Cabot Strait (Between Cape North and St. Paul Island) [38]. The offshore sites described in King et al. (2016) include: Emerald Basin and the Scotian Gulf [6]; Emerald-Western-Sable Island Bank Complex [7]; Sable Island Shoals [8]; Middle Bank [10]; Canso Bank and Canso Basin [11]; Misaine Bank [12]; Laurentian Channel [15]; St. Anns Bank [16]; and Scotian Slope [18]. The site numbers on this figure are those listed in the respective publications. See Figure 5 in Hastings et al. (2014) and Figure 1 in King et al. (2016) for more information on the coastal and offshore EBSA sites. Refer to Figure 1 above for WEA names.

The EBSA located in proximity to the French Bank WEA include: Emerald Basin and the Scotian Gulf; Eastern Shore Archipelago; Tobacco Island; Country Harbour Islands; Sugar Harbour Islands; The Canso Ledges; Canso Bank and Canso Basin; Middle Bank; Emerald Western Sable Banks Complex; and Sable Island Shoals (Figure 3). The French Bank area, however, was not identified as an offshore EBSA, although it does have small overlap with western portions of the Middle Bank EBSA and Canso Bank and Canso Basin EBSA (King et al. 2016).

Middle Bank itself was identified as an offshore EBSA due to its importance to groundfish (e.g., Atlantic Cod, *Gadus morhua***,** spawning and nursery area), high larval fish genus richness, high invertebrate species diversity, high small fish species richness, high invertebrate biomass, and important seabird habitat (King et al. 2016) (Figure 3). However, the Middle Bank EBSA was determined not to be as well-studied as other potential EBSAs, only meeting the criteria for Aggregation and Fitness Consequences.

The Middle Bank EBSA did not meet the criteria for Uniqueness, Resilience, and Naturalness. Middle Bank is not currently identified as a proposed marine conservation network site. Other EBSA located in proximity to the Middle Bank WEA include: Emerald Basin and the Scotian Gulf; Eastern Shore Archipelago; Tobacco Island; Country Harbour Islands; Sugar Harbour Islands; Canso Ledges; Point Michaud and Basque Islands; Canso Bank and Canso Basin; Misaine Bank; Middle Bank; Emerald, Western, and Sable Banks Complex; Sable Island Shoals; and Eastern Scotian Shelf Canyons (Figure 3).

Two offshore EBSAs overlap with the Sable Island Bank WEA: the Emerald, Western and the Sable Banks Complex EBSA and Sable Island Shoals EBSA (Figure 3). Both were identified as EBSA due to the importance to groundfish (Atlantic Cod spawning and nursery area), high larval fish genus richness, high invertebrate species diversity, high small fish species richness, high invertebrate biomass, and important seabird habitat. The two EBSA areas met the criteria for Uniqueness, Aggregation, Fitness Consequences, and Resilience. They did not meet the criteria for Naturalness. Other EBSA located in proximity to the Sable Island Bank WEA include: Emerald Basin and the Scotian Gulf; Canso Bank and Canso Basin; Middle Bank; Emerald, Western, and Sable Banks Complex; Sable Island Shoals; Eastern Scotian Shelf Canyons; and Scotian Slope (Figure 3).

Two offshore EBSAs overlap with the Sydney Bight WEA: the Western Sydney Bight EBSA and St. Anns Bank EBSA (Figure 3). The Western Sydney Bight EBSA overlaps with the western portion of the Sydney Bight WEA. This EBSA includes a large expanse of waters in the western half of Sydney Bight north of the Bird Islands EBSA. Although the EBSA extends near to the coast, there is no intertidal component. Shackell and Frank (2003) indicated that a large expanse of the northeast shelf, including Western Sydney Bight EBSA and the Cabot Strait EBSA, ranked among the highest species-rich areas in the Scotian Shelf-Bay of Fundy bioregion. Horsman and Shackell (2009) further indicated that Western Sydney Bight EBSA is an important summer habitat for Atlantic Herring (*Clupea harengus*), Witch Flounder (*Glyptocephalus cynoglossus*), American Plaice (*Hippoglossoides platessoides*), Smooth Skate (*Malacoraja senta*), Thorny Skate (*Amblyraja radiata*), White Hake (*Urophycis tenuis*), and Atlantic Cod. Other species detected in the area include Capelin (*Mallotus villosus*), Northern Shortfin Squid (*Illex illecebrosus*), Snow Crab (*Chionoecetes opilio*), Leatherback Sea Turtle (*Dermochelys coriacea*), and aggregations of larval Atlantic Herring, Atlantic Mackerel (*Scomber scombrus L.*), American Plaice, Atlantic Cod, Longhorn Sculpin (*Myoxocephalus octodecemspinosus*), Acadian Redfish (*Sebastes fasciatus*) and Deepwater Redfish (*Sebastes mentella*). The Western Sydney Bight coastal EBSA is also known to support significant at-sea aggregations of several seabird functional guilds (Allard et al. 2014). The site met the criteria for Uniqueness, Aggregation, and Fitness Consequences. The site did not meet the criteria for Resilience, while the criterion Naturalness was not assessed for this EBSA.

The St. Anns Bank offshore EBSA overlaps with the eastern portion of the Sydney Bight WEA (Figure 3). This EBSA exhibits high primary productivity, high larval fish genus richness, importance to groundfish (used by three populations of Atlantic Cod, as well as Atlantic Wolffish [*Anarhichas lupus*]), high fish and invertebrate species diversity, and high small fish species richness. It also represents important foraging habitat for Leatherback Sea Turtles, is located on a migratory route (e.g., groundfish, cetaceans, Leatherback Sea Turtle), hosts sensitive benthic communities (e.g., sea pen fields [*Pennatulacea*]), and is of particular importance for seabirds (especially for plunge diving piscivores). The site met the criteria for Uniqueness, Aggregation, Fitness Consequences, and Resilience. The site did not meet the ESA criteria for Naturalness. St. Anns Bank to the south, including a portion of the St. Anns Bank EBSA, has been designated as an MPA pursuant to the

Oceans Act. The portion of the St. Anns Bank EBSA that overlaps with the Sydney Bight WEA is not currently identified as a proposed marine conservation network site.

Other EBSA located in proximity to Sydney Bight WEA include: Bras d'Or Lakes; Bird Islands; Ingonish Bays; Western Sydney Bight; Aspy Bay; Cabot Strait (between Cape North and St. Paul Island); Laurentian Channel slope; Indian Bay – Lingan Bay; Big Glace Bay; Morien Bay; Scatarie Island; Islet off of Baleine; Portnova Islands; and St. Anns Bank (Figure 3).

A SiBA is a regional habitat that contains sponges (*Porifera*), large and small gorgonian corals (*Alcyonacea*, formerly classed as *Gorgonacea*), and/or sea pens as a dominant and defining feature (DFO 2017a). On the Scotian Shelf, SiBA polygons based on kernel density estimation (KDE) were developed for sponges, large gorgonian corals, and sea pens; there was insufficient data to perform the analyses on small gorgonian corals (Kenchington et al. 2010, 2016; Beazley et al. 2017; DFO 2017a). Random forest presence-absence species distribution models (SDM) were also developed and used to identify SiBA (Kenchington et al. 2016). The SiBA polygons identified below have underlying uncertainties associated with the data and methods, so are not intended to be used as hard boundaries for management decisions; they are intended to be used to focus attention on the key areas for identifying significant concentrations of corals, sponges, and sea pens (Kenchington et al. (2016). The SiBA located in proximity to and within the four WEAs are shown in Figure 4.

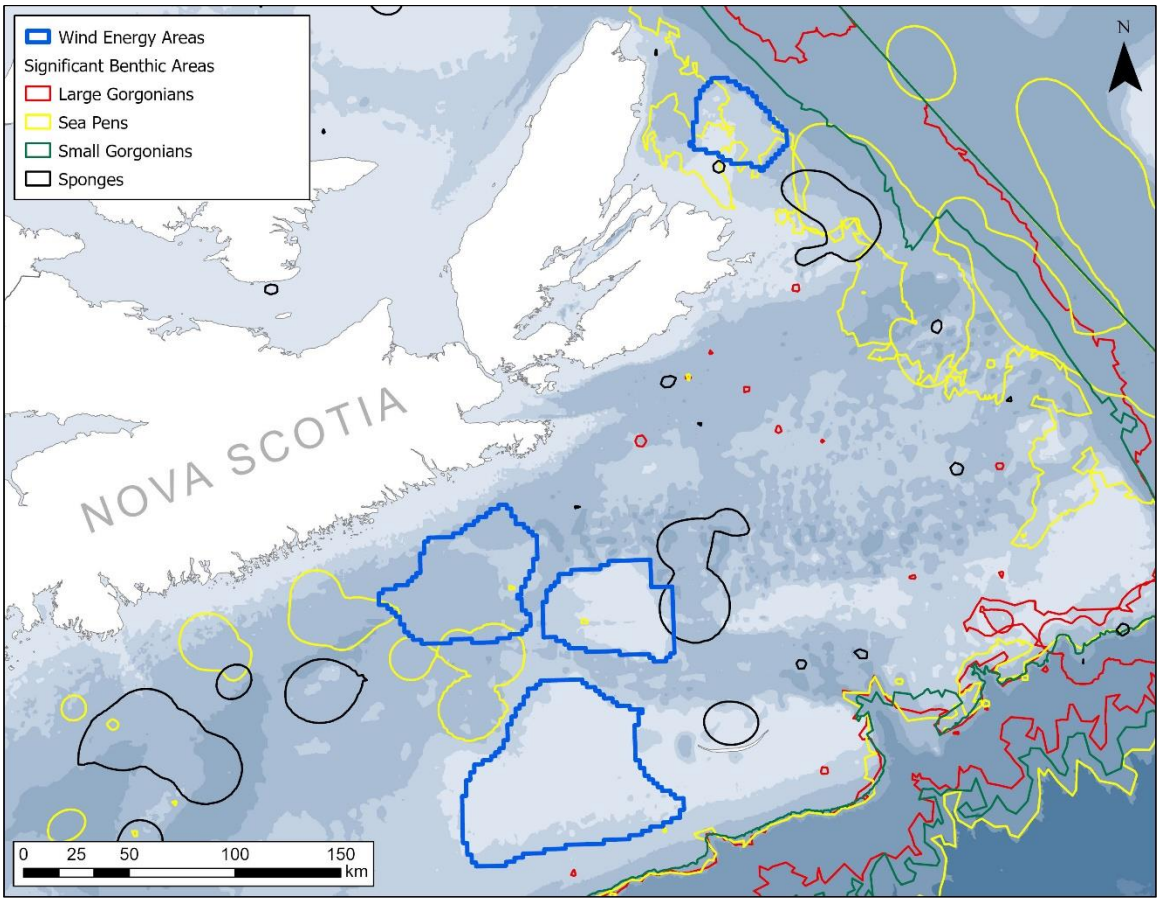


Figure 4. Locations of sponge, large gorgonian coral, and sea pen Significant Benthic Areas (SiBA) that overlap or are located in proximity to the four Wind Energy Areas (WEA). The SiBA were determined from kernel density estimation (KDE) analyses (figure adopted from DFO [2017a]). Random forest presence-absence species distribution models (SDM) were also developed. Limitations of the boundaries for management purposes are described in the text herein. Further details on SiBA can be found in Kenchington et al. (2016) and Beazley et al. (2017). Refer to Figure 1 above for WEA names.

The analyses exhibited an overlap between the French Bank WEA and presence of an aggregate of sea pens to the west and to the south of the area, with a smaller area of sea pens falling within the French Bank WEA itself to the east (Figure 4). For the Middle Bank WEA, the analyses exhibited an overlap between the WEA and a sponge SiBA to the east and a small sea pen SiBA located in the central-western portion of the WEA (Figure 4). There is also a significant aggregation of sea pens to the southwest and sponges to the southeast of the Middle Bank WEA. For the Sable Island Bank WEA, the analyses exhibited a sea pen SiBA located to the northwest of the WEA and two sponge SiBA further to the east and northeast of the WEA (Figure 4). The SDM analyses indicated a presence of sea pen, large gorgonian coral, and small gorgonian coral along the south edge of Sable Island Bank at the Scotian Shelf edge. For the Sydney Bight WEA, the SDM analyses exhibited an overlap with sea pens, with a small aggregation of sponge identified from KDE being located near the southern edge of the Sydney Bight WEA and a larger sponge and sea pens, also from identified KDE, being located southeast of the Sydney Bight WEA (Figure 4). Locations of catches used to delineate the SiBA polygon areas are detailed in Kenchington et al. (2016).

DFO's science knowledge of ESS, EBSA, and SiBA, including more recent research on the delineation of benthic habitats and associated epifaunal species assemblages (see:

Murillo et al. 2024) and other known ecological features and human uses, has informed development of a marine conservation network plan for the Scotian Shelf-Bay of Fundy bioregion. Information on identified coastal and offshore marine conservation network sites located proximal to the French Bank, Middle Bank, Sable Island Bank, and Sydney Bight WEAs are described in the following section.

MARINE CONSERVATION NETWORK PLANNING AND PROTECTED SITES

Over the past decade, DFO Maritimes Region, in collaboration with Parks Canada and the Canadian Wildlife Service, has been developing a Marine Conservation Network Plan for the Scotian Shelf-Bay of Fundy. The network plan is made up of existing MPAs and Other Effective area-based Conservation Measures (OECMs) such as MRs, current Areas of Interest (AOI) for *Oceans Act* MPA designation, and additional marine conservation areas for future implementation. Development of the network plan included extensive consultation with Rightsholders, other levels of government, marine users, stakeholders, and the Canadian public.

Proposed marine conservation network plan sites are organized into existing sites and future sites of two tiers:

1. Tier 1 future sites are a higher priority for implementation because of their ecological characteristics and/or feasibility considerations, such as interest or support from Rightsholders, other levels of government, marine users, and stakeholders. Some of these sites could be selected for advancement by 2030.
2. Tier 2 future sites are also important contributors to the conservation network plan but will not be considered for advancement by 2030. Most of these sites require more research and information on ecological features and human uses before any advancement is considered further.

Marine conservation network plan sites located in proximity to the four WEAs are shown in Figure 5. The Sable Island Bank WEA overlaps with the Western and Emerald Banks Marine Refuge (WEBMR), as well as two Tier 2 network sites: Sable Island Bank North and Sable Island Bank South. Table A1 in Appendix A provides a description of all sites shown in Figure 5, which represent the conservation network plan sites located in proximity to each of the WEAs. Supporting information on DFO's planning of the Scotian Shelf-Bay of Fundy bioregion's marine conservation network plan can be found in: DFO (2012); Gromack and Allard (2013); DFO (2018); King et al. (2013, 2016, 2021); and Serdynska et al. (2021).

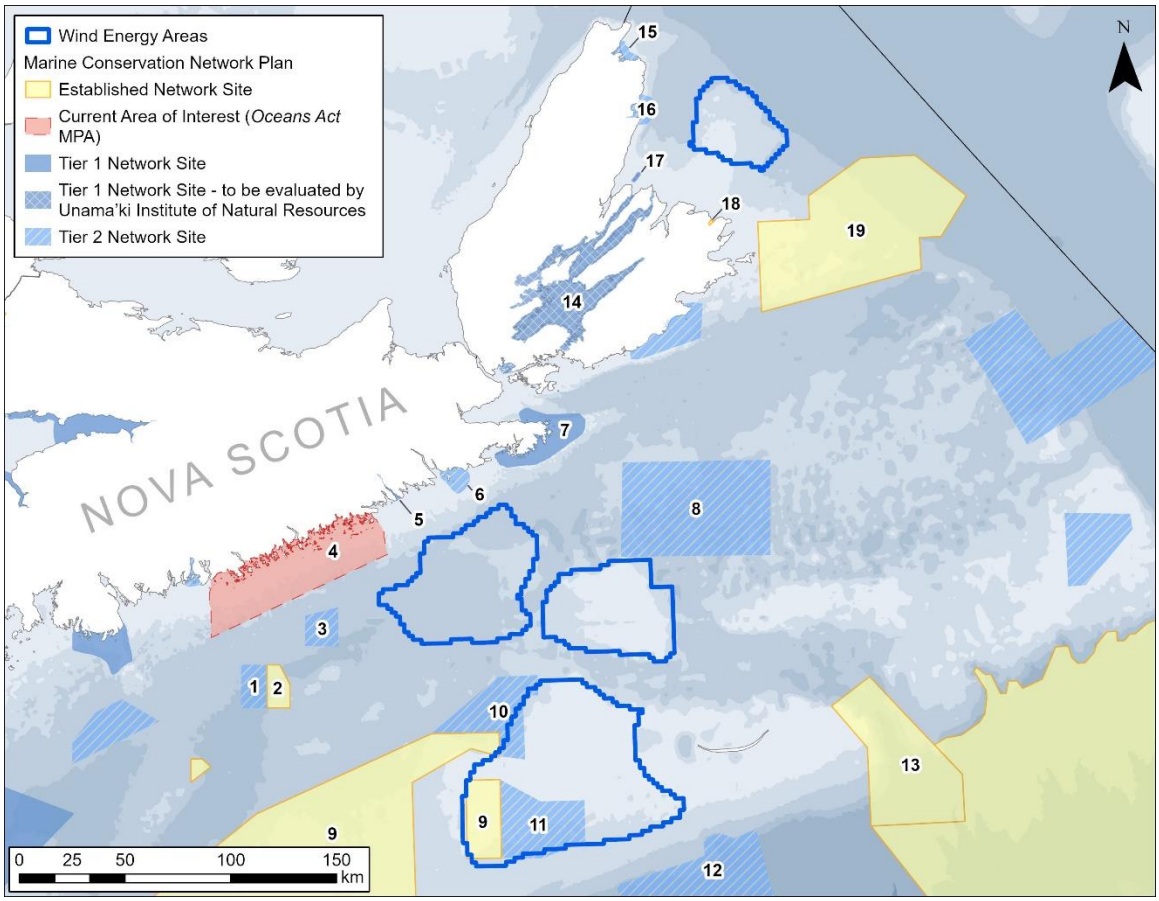


Figure 5. Existing and proposed sites in the Marine Conservation Network Plan for the Scotian Shelf-Bay of Fundy bioregion that overlap or are located in proximity to the four Wind Energy Areas (WEA). The sites are: Emerald Basin Extension Tier 2 network site [1]; Emerald Basin Marine Refuge [2]; Inner Shelf Sea Pen Field Tier 2 network site [3]; Eastern Shore Islands Area of Interest [4]; St. Mary's (Napu'saqnuk) River and Estuary Tier 1 network site [5]; Country Island Tier 2 network site [6]; Canso Ledges-Sugar Harbour Island Tier 1 network site [7]; Canso Bank and Channels Tier 2 network site [8]; Western and Emerald Banks Marine Refuge [9]; Sable Island Bank North Tier 2 network site [10]; Sable Island Bank South Tier 2 network site [11]; Logan Canyon Tier 2 network site [12]; Gully Marine Protected Area [13]; Bras d'Or Lake Tier 1 network site [14]; Aspy Bay Tier 2 network site [15]; Ingonish Bays Tier 2 network site [16]; Bird Islands Tier 1 network site [17]; Big Glace Bay Lake Migratory Bird Sanctuary [18]; St. Anns Bank Marine Protected Area [19]. More distant sites are plotted but not labeled/numbered. Refer to Table A1 in Appendix A for a detailed description of each labeled/numbered site. Refer to Figure 1 above for WEA names.

An MR is an area-based fisheries closure that meets the OECM criteria. It is established pursuant to the *Fisheries Act*. An MR offers targeted protection to species and their habitats from the impacts of fishing. Activities in MRs other than fishing are subject to a Government of Canada minimum protection standard for OECMs (DFO 2024a) and are managed in ways that achieve positive and sustained long-term conservation of biodiversity.

WEBMR is a conservation area that exhibits unique ecological importance due to its critical spawning and nursery habitat for the Scotian Shelf Haddock (*Melanogrammus aeglefinus*) stock, high habitat heterogeneity, species richness, and the presence of a large partial gyre. WEBMR contributes to the protection of habitat for depleted species such as Atlantic Cod, Ocean Pout (*Zoarces americanus*), and White Hake, as well as

contributes to Canada's national marine conservation targets (see: Table A1 in Appendix A).

AT-RISK AND DEPLETED SPECIES

There are a number of at-risk or depleted demersal fish (bottom-dwelling), pelagic fish (water column-dwelling), sharks, sea turtles, and marine mammals that reside in the Scotian Shelf-Bay of Fundy bioregion. For purposes herein, 'at-risk' species are considered those that have been assessed by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) as being of 'special concern', 'threatened', or 'endangered' in Canada and/or listed pursuant to the *Species at Risk Act* (SARA). 'Depleted species' are considered those species that are currently at a very low abundance but were much more abundant at some point in the past (DFO 2007). Many, but not all, depleted species have been assessed by COSEWIC.

Many at-risk and/or depleted species exhibit a broad range throughout the western North Atlantic Ocean and/or Scotian Shelf-Bay of Fundy bioregion. While some species are year-round residents off Atlantic Canada, others are migratory in nature and primarily utilize Atlantic Canadian waters seasonally to fulfill certain life history functions. For at-risk and/or depleted species there is uncertainty in population size, as only a small fraction of the habitat used by the species is surveyed, detection probabilities are not well-established, available data are often only opportunistic in nature due to a lack of dedicated population-level study efforts, and/or there has been little focused research effort on the species or populations themselves.

This section summarizes at-risk and many of the depleted diadromous and marine species that may be found on the Eastern Scotian Shelf and occur in or utilize one or more of the WEAs throughout their life history. Additional details and relevant recovery documents and science publications for these species are presented in Table A2 in Appendix A. As OSW development advances within multiple WEAs, the cumulative impact on such species and their habitat may warrant further consideration. Installation of shoreward infrastructure (e.g., power cables, etc.) associated with OSW development should also consider the potential presence of at-risk and depleted species that utilize coastal and inshore areas.

DIADROMOUS FISH

Diadromous fish are fish species that migrate between freshwater and saltwater habitats at different stages of their life cycle. At-risk diadromous species in the Scotian Shelf-Bay of Fundy bioregion that may utilize offshore marine waters include: Atlantic Salmon (*Salmo salar*), Atlantic Sturgeon (*Acipenser oxyrinchus*), American Eel (*Anguilla rostrata*), and Striped Bass (*Morone saxatilis*) (see: Table A2 in Appendix A). These species are of significant cultural importance to Indigenous peoples; particularly for food, social, and ceremonial (FSC) purposes, and in the case of American Eel, also the Treaty right to fish in pursuit of a moderate livelihood.

Global Atlantic Salmon population declines have been observed since the 1970s, with the most significant declines occurring in the southern range of the species (which includes those populations in Atlantic Canada). Low survival of Atlantic Salmon while undertaking marine migration is considered to be a primary driver of the declines, although the underlying mechanisms remain poorly understood (Dufresne et al., 2025). Given the declines, the Bay of Fundy and the Atlantic coast of Nova Scotia Atlantic Salmon populations have been assessed as endangered by COSEWIC.

Dufresne et al. (2025) demonstrated the broad range of Atlantic Salmon migration throughout Atlantic Canada, based on tagging off Greenland, where tagged fish spent the winter months in the Labrador and Irminger seas before initiating their homing migration to natal rivers to spawn between February and mid-April. The study concluded that marine water temperatures shaped the thermal distribution of North American Atlantic Salmon and marine migration routes. Less is known, however, about the marine distribution of salmon smolts that do not migrate to Labrador, which are a larger component of most Atlantic Salmon populations in Nova Scotia (Bowlby et al. 2013).

American Eel spawn only once during their life span, with the entire population spawning together in the Sargasso Sea, located south of Bermuda. Post-spawning, eel larvae drift on North Atlantic currents for up to one year before reaching coastal waters. They then morph into glass eels when they reach the continental shelf and leave open ocean to enter rivers in early spring as pigmented elvers. When eels prepare for their spawning migration, they metamorphose into silver eels. Adult eels tolerate a wide range of temperatures and salinities and can reside in a variety of habitats including the open ocean, brackish estuaries, and freshwater rivers and lakes. The distribution of American Eel in Atlantic Canada is represented in zones that include the Scotian Shelf-Bay of Fundy, Gulf of St. Lawrence, and Newfoundland and Labrador Shelves (DFO 2025a).

The Scotian Shelf provides important habitat for Striped Bass, which may include individuals from the Bay of Fundy population and Southern Gulf of St. Lawrence population (COSEWIC 2012). In the region, Striped Bass are found in shallower, warmer waters of the inner Scotian Shelf during the summer months but are known to move to deeper waters or up the coast to cooler environments as water temperatures rise. In contrast, Atlantic Sturgeon utilize the marine environment for feeding. A study conducted by Dadswell et al. (2016) demonstrated the marine movement of Atlantic Sturgeon, which can be wide spread, with fish marked in the Minas Basin subsequently being detected from New Jersey to Gaspé Peninsula.

All four WEAs should be considered habitat that exists within the regular range of many diadromous fish species utilizing Atlantic Canadian waters, including at-risk species. Table A2 in Appendix A summarizes diadromous species that may be found on the Eastern Scotian Shelf and occur or utilize the WEAs in some way; unfortunately, habitat use and behaviour of diadromous species in the marine environment in general remains poorly understood.

DEMERSAL FISH

Demersal fish live near or in close proximity to the seafloor on the continental shelf, mostly consuming zooplankton, bottom invertebrates, or small fish (Bernier et al. 2023). Demersal fish found in Atlantic Canada include groundfish, skates, and some sharks. Demersal groundfish, which are the primary focus of this section, have both economic and ecological importance in Atlantic Canada, supporting major fisheries but also playing a critical role as secondary consumers or predators that exert top-down influences on food webs. Dogfishes and skates are opportunistic feeders, consuming a wide variety of cephalopods, crustaceans, jellyfish, and other small demersal or pelagic fish. In turn, they may be preyed upon by other demersal fish or sharks, larger pelagic sharks, and marine mammals. The status of groundfish in the region are primarily informed by data from the DFO Summer Ecosystem Research Vessel Trawl Survey (Bundy et al. 2017; DFO 2025b).

The DFO Summer Ecosystem Research Vessel Trawl Survey has a stratified random survey design that ensures sampling takes place throughout the range covered by the survey (DFO 2025b). The strata were originally selected to represent different depths and

habitats. Sampling occurs at randomly selected stations within all strata. The data are averaged within each stratum, weighted by stratum area, and then summed over all appropriate strata for each stock. While this ensures that sampling is representative of the entire area, low sampling intensity means that there is high variability, particularly for stocks that are highly aggregated or that inhabit only a small part of the entire survey area. As such, single data points in the biomass series should be interpreted with caution, as large inter-annual changes could simply reflect variability in the data rather than changes in population abundance (DFO 2025b).

On the Eastern Scotian Shelf, the total biomass index for demersal groundfish declined to very low levels in the early-1990s, largely due to overfishing (Frank et al. 2005). The index still remains low. Acadian Redfish, Haddock, and Silver Hake (*Merluccius bilinearis*) have comprised most of the biomass index since 2016. However, Haddock and Silver Hake have declined since 2017, while Acadian Redfish has been relatively stable since 2012. Biomass of Spiny Dogfish (*Squalus acanthias*) has been variable from year-to-year but generally remains at low levels. Similarly, most skates remain at very low levels: Smooth Skate, Winter Skate (*Leucoraja ocellata*), and Thorny Skate have declined significantly from historical levels. In contrast, Atlantic Halibut (*Hippoglossus hippoglossus*) has historically been considered depleted, although its biomass has increased from a depleted state in the 1990s to healthy levels today, with the rate of increase having levelled off since about 2017 (Johnson et al. 2024; DFO 2025c). Atlantic Cod has also shown some recovery over the past decade. Barndoor Skate (*Dipturus laevis*) abundance has also increased since the late-1990s, peaking in 2023. The current status of many depleted groundfish species remains a reflection of past fishing pressure.

The French Bank WEA is in close proximity to the Middle Bank EBSA that was identified due to its presence of groundfish (King et al. 2016). At-risk and/or depleted groundfish species observed in proximity to the French Bank area during the 2024 DFO Ecosystem Research Vessel Trawl Survey included American Plaice, Atlantic Wolffish, Acadian Redfish, and White Hake (DFO 2025b), although Smooth Skate and Winter Skate were also associated with the area, among other demersal groundfish species.

The Middle Bank area was identified as an offshore EBSA due to the presence of groundfish (King et al. 2016). At-risk and/or depleted groundfish species observed in proximity to the Middle Bank area during the 2024 DFO Ecosystem Research Vessel Trawl Survey included American Plaice and Atlantic Wolffish (DFO 2025b), although Smooth Skate and Winter Skate were also associated with the area, among other demersal groundfish species.

The Sable Island Bank area was also identified as an offshore EBSA due to the presence of groundfish (King et al. 2016). At-risk and/or depleted groundfish species observed in proximity to the Sable Island Bank area during the 2024 DFO Ecosystem Research Vessel Trawl Survey included American Plaice, Acadian Redfish, White Hake, and Winter Skate (DFO 2025b). In contrast, other flounders, Ocean Pout, and skates were observed on edges of the bank to the west (DFO 2025b).

The Sydney Bight WEA is in close proximity to several EBSA, some of which were identified due to their presence of groundfish (King et al. 2016). At-risk and/or depleted groundfish species observed in proximity to the Sydney Bight area during the 2024 DFO Ecosystem Research Vessel Trawl Survey included American Plaice, Atlantic Wolffish, Acadian and Deepwater Redfish, Smooth Skate, Thorny Skate, and White Hake (DFO 2025b), among other demersal groundfish species.

As noted above, there is substantial year-to-year variability in catches from the DFO Ecosystem Research Vessel Trawl Survey, largely due to the random allocation of samples within strata coupled with annual variability in the distribution of the species being

detected (DFO 2025b). This means that detections of species biological characteristics, species abundance, and species locations in the trawl survey in previous years can differ from those detected in subsequent years. The research presented in Horsman and Shackell (2009) and Bundy et al. (2017) aggregated DFO Ecosystem Research Vessel Trawl Survey results into fishing eras, in order to convey a more general understanding of demersal groundfish species distributions, persistence, and habitat uses on the Scotian Shelf through time.

All four WEAs should be considered habitat that exists within the regular range of many demersal fish species utilizing Atlantic Canadian waters, including at-risk species. Table A2 in Appendix A summarizes demersal species that have been assessed by COSEWIC and may be found on the Eastern Scotian Shelf and occur in or utilize the WEAs in some way. There may be additional depleted demersal species not assessed by COSEWIC, nor included in Table A2, that could be present within or in proximity to the WEAs.

PELAGIC FISH

Pelagic fish are those that inhabit the water column and do not predominantly live on or near the sea bottom. This group of fish are further divided into small pelagic and large pelagic species, with smaller pelagic fish (known as forage fish) feeding on plankton and other small aquatic organisms, serving as food sources to the much larger predatory species. Small pelagic species include Capelin, Herring, and Mackerel. In contrast, large pelagic fish often prey on smaller fish, cephalopods (squid and octopuses), and crustaceans. Large pelagic fish include Atlantic Swordfish (*Xiphias gladius*), Tuna species (e.g., Atlantic Albacore [*Thunnus alalunga*], Atlantic Bigeye Tuna [*Thunnus obesus*], and Atlantic Yellowfin Tuna [*Thunnus albacares*]), and Billfishes (e.g., White Marlin [*Kajikia albida*]). Though many shark species are considered to be large pelagic fish, sharks are discussed in a dedicated section below.

Mackerel is a widely distributed transboundary, small pelagic marine fish species found in both the Northeast Atlantic Ocean (Europe) and the Northwest Atlantic Ocean (North America). The Northwest Atlantic population is found in coastal waters from North Carolina to Labrador. Mackerel overwinter in deeper, warmer waters at the edge of the continental shelf and migrate inshore during the spring to spawn and then disperse to feed. Mackerel use the Scotian Shelf for overwintering and for their migration routes; particularly, around banks such as Sable Island Bank, LaHave Bank, and Emerald Bank, due to suitable water temperatures. Mackerel in Atlantic Canada currently are at low abundance. The species is presently being evaluated by COSEWIC, with stock assessments exhibiting abundance levels being at or near the Critical Zone since 2011 (DFO 2024b). In May 2025, DFO announced continuation of the Mackerel commercial fishery closure for 2025 and 2026.

All four WEAs should be considered habitat that exists within the regular range of many pelagic fish species utilizing Atlantic Canadian waters, including at-risk species. Table A2 in Appendix A summarizes SARA-listed and/or COSEWIC assessed pelagic species that may be found on the Eastern Scotian Shelf and occur in or utilize the WEAs. Mackerel is not listed in Table A2 given it has not yet been assessed by COSEWIC.

SHARKS

A diverse array of shark species occur throughout Atlantic Canadian waters, including many that have been assessed as at-risk by COSEWIC and/or listed pursuant to SARA (see: Table A2 in Appendix A). Pelagic sharks are highly migratory and exhibit broad distributions throughout and beyond Atlantic Canadian waters. Basking Shark (*Cetorhinus*

maximus), Porbeagle Shark (*Lamna nasus*), and White Shark (*Carcharodon carcharias*) populations utilize the Northwest Atlantic from the Sargasso Sea to Atlantic Canada, while the Shortfin Mako Shark (*Isurus oxyrinchus*) population is distributed throughout the entire North Atlantic, including European waters and off North Africa.

Of the at-risk species (see: Table A2 in Appendix A), only Porbeagle Shark resides year-round in Atlantic Canada (Campana et al. 2013; Campana et al. 2015); the other shark species are largely seasonal migrants (e.g., Bowlby et al. 2022a, Bowlby et al. 2022b). Historically, there was a directed Porbeagle Shark fishery on the Scotian Shelf that closed in 2013 out of conservation concern for the species (DFO 2015a). Bycatch of Shortfin Mako Sharks could be landed by numerous fisheries in Atlantic Canada until 2021 (Bowlby et al. 2022a). However, Porbeagle Shark and Shortfin Mako Shark continued to be intercepted by numerous Atlantic Canadian fisheries as bycatch. The most recent assessment for Porbeagle Shark indicates that even though abundance has been increasing since 2001, the population remains overfished (i.e., at low biomass; ICCAT 2020a). The most recent assessment for Shortfin Mako Shark indicates that the population is both overfished and that overfishing is still occurring (ICCAT 2020b). In contrast, standardized monitoring for White Shark from 2014 to 2023 demonstrates an increasing presence of the species in Atlantic Canadian waters from 2019 to 2022 (DFO 2017c; Allegue et al. 2025).

Satellite tagging and sightings data demonstrate that all at-risk pelagic sharks discussed above move throughout the Scotian Shelf-Bay of Fundy bioregion (Campana 2016; Bowlby et al. 2022a; Bowlby 2022b), although it is not possible to approximate how much time they may spend in the region relative to the rest of their range throughout Atlantic Canadian waters. Because seasonal movements have been linked to foraging behaviour, it is likely that the distribution and availability of suitable prey would be a large determinant of habitat use for pelagic sharks within the Scotian Shelf-Bay of Fundy bioregion.

All four WEAs should be considered to be foraging and/or migratory habitat within the regular range of many shark species utilizing Atlantic Canadian waters, including at-risk species. Table A2 in Appendix A summarizes SARA-listed and/or COSEWIC assessed sharks that may be found on the Eastern Scotian Shelf and occur in or utilize the WEAs.

SEA TURTLES

Four species of marine turtles are known to occur in Atlantic Canadian waters: the soft-shelled Leatherback Turtle and the hard-shelled Loggerhead Turtle (*Caretta caretta*), Green Turtle (*Chelonia mydas*), and Kemp's Ridley Turtle (*Lepidochelys kempii*) (Bernier et al., 2023). Two of these species, Leatherback Turtles and Loggerhead Turtles, have been assessed by COSEWIC and are listed as endangered pursuant to SARA (see: Table A2 in Appendix A). Sea turtles are broadly distributed throughout the offshore and coastal waters of Atlantic Canada. From 1971 to 2023, greater numbers of sea turtle sightings, primarily Leatherback Turtles and Loggerhead Turtles, have been recorded in coastal waters of mainland Nova Scotia, Sydney Bight, and Gulf of St. Lawrence, on the western Scotian Shelf, and along the Scotian Shelf break, with fewer sightings reported from the central and eastern regions of the Scotian Shelf (source: Canadian Sea Turtle Network).

Adult and sub-adult Leatherback Turtles undertake annual migrations from reproductive areas of the tropical and sub-tropical western Atlantic Ocean to northern foraging habitat, which includes coastal waters of Atlantic Canada (James et al. 2007). For Leatherback Turtles, areas of high importance have been identified from long-term biotelemetry research that will be used to inform the identification of Critical Habitat for Leatherback Turtle in Atlantic Canadian waters in an amended recovery strategy for the species. Two

primary areas of importance are: 1) the southeastern Gulf of St. Lawrence and waters off eastern Cape Breton Island, including Sydney Bight, the Cabot Strait, portions of the Magdalen Shallows, and adjacent portions of the Laurentian Channel; and 2) waters south and east of the Burin Peninsula, Newfoundland, including parts of Placentia Bay (see: Figure 2 in DFO 2020).

Leatherback Turtles primarily use Atlantic Canadian waters from late-spring through fall, with most individuals departing continental shelf waters by late-October. This is consistent with observations in James et. al. (2006), who found that Atlantic Canadian waters support one of the highest summer and fall densities of Leatherback Turtles in the North Atlantic. However, some Leatherback Turtles and Loggerhead Turtles may persist in Atlantic Canadian waters, including the Scotian Shelf break, slope, and further south, late into the year, with some newer evidence suggesting that both species can occur in Atlantic Canadian waters year-round (pers comm., Dr. M. James, DFO Maritimes Marine Sea Turtle Science Research Authority, 29 October 2025).

Leatherback Turtles are the most regularly-observed sea turtles in Atlantic Canada, in part due to their large size and regular coastal foraging behaviour (DFO 2020). In contrast, most Loggerhead Turtles, Green Turtles, and Kemp's Ridley Turtles found in Atlantic Canadian waters are juveniles or sub-adults; they are observed less frequently due to their small size, lower likelihood to be detected in fishery bycatch, and thermal tolerances that limit them to a more constricted distribution for much of the year (pers comm., Dr. M. James, DFO Maritimes Marine Sea Turtle Science Research Authority, 29 October 2025). The Loggerhead Turtle is the most common hard-shelled sea turtle observed in Atlantic Canada; it is known to interact with large pelagic longline fisheries (Brazner and McMillan 2008; DFO 2017b; James et al. 2024). In contrast, Green Turtles and Kemp's Ridley Turtles are less frequently encountered; the majority of sightings of these species represent cold-stunned, stranded turtles found along the coast in the late-fall and winter months (James et al. 2004; McAlpine et al. 2007).

The importance of the French Bank and Middle Bank WEAs to sea turtles remains unclear, although parts of the two WEAs appear to overlap with or are proximate to important habitat identified for Leatherback Turtles in Atlantic Canadian waters (James et al. 2006; DFO 2020). For the Sable Island Bank WEA, biotelemetry results have indicated that Leatherback Turtles do use this area (DFO 2020). In terms of Loggerhead Turtle, distribution patterns in Atlantic Canadian waters are inferred from large pelagic longline fishery interactions (e.g. Brazner and McMillan 2008; James et al. 2024). Sydney Bight represents an area of high use and important foraging habitat for Leatherback Turtles, which has been confirmed from sightings data and by satellite tagging (James et al. 2006; DFO 2020).

All four WEAs should be considered to be foraging and/or migratory habitat within the regular range of sea turtles utilizing Atlantic Canadian waters. Table A2 summarizes SARA-listed and/or COSEWIC assessed sea turtles that may be found on the Eastern Scotian Shelf and occur in or utilize the WEAs.

MARINE MAMMALS

Marine mammals found on the Scotian Shelf include cetaceans (whales, dolphins, and porpoises) and pinnipeds. A broad range of these species have been observed on the Eastern Scotian Shelf and occur within and in proximity to the four WEAs (e.g., MacDonald et al. 2017; Gomez et al., 2020; Delarue et al. 2022; Macklin et al. 2025). Marine mammal sightings data have been used to develop SDM that help predict seasonally-suitable habitat for marine mammal species that utilize Atlantic Canadian

waters off Nova Scotia, Newfoundland, and Labrador (e.g., Roberts et al. 2016; Gomez et al. 2020; Feyrer et al. 2023; Roberts et al. 2023).

Marine mammals are important marine predators. They are consumers of a range of trophic levels, from zooplankton to fish. Unfortunately, many marine mammals found on the Scotian Shelf are at-risk: Blue Whale (*Balaenoptera musculus*), Fin Whale (*Balaenoptera physalus*), North Atlantic Right Whale (*Eubalaena glacialis*), Killer Whale (*Orcinus orca*), Northern Bottlenose Whale (*Hyperoodon ampullatus*), Sei Whale (*Balaenoptera borealis*), Sowerby's Beaked Whale (*Mesoplodon bidens*), and Harbour Porpoise (*Phocoena phocoena*) (see: Table A2 in Appendix A). At-risk marine mammals found throughout Atlantic Canada owe this status, in varying degrees, to their often large migratory ranges through heavily-used ocean spaces (e.g., migrations along the east coast of North America), fishery interactions (e.g., incidental or bycatch), vessel interactions (e.g., vessel strikes), habitat that is subject to habitat degradation (e.g., ocean noise, contaminants, marine litter, and/or ghost gear), and/or subject to changing marine ecosystems (e.g., climate induced). Historical whaling is also responsible for the depletion of some marine mammal species and/or populations. The magnitude of each of the threats faced by marine mammals differs by species and population (see: Table A2 in Appendix A).

While not considered species at risk, there are two species of pinnipeds that are resident on the Scotian Shelf: Grey Seal and Harbour Seal. DFO has recently completed a haul-out survey to estimate Harbour Seal abundance and describe the summer distribution of both species (Lidgard et al. 2023). DFO has also been monitoring Grey Seal pup production on Sable Island since the 1960s. The Sable Island Grey Seal breeding colony currently accounts for 78% of pup production in Canada (DFO 2022b). Grey seals forage on the shallow banks around Sable year-round but are also observed foraging throughout the region, including movement through Sydney Bight and into the Gulf of St. Lawrence (Breed et al. 2013, Nowak et al. 2020). Nowak et al. (2020) provides a good overview of Grey Seal foraging behavior on the Scotian Shelf.

Numerous gaps in knowledge for many marine mammals in the Scotian Shelf-Bay of Fundy bioregion remain despite decades of research (Bernier et al. 2023). Abundance data are not available for many marine mammal populations that regularly occur in the Northwest Atlantic Ocean and the majority of the species have unknown trends in their population sizes (Bernier et al., 2023). There are also considerable knowledge gaps related to the distribution and habitat use of many species, with climate change impacting marine mammals either directly through changes in the abiotic characteristics of habitat or indirectly through changes in the abundance and/or distribution of prey. Unfortunately, datasets for marine mammals are hosted across separate government and non-government databases, influencing research on abundance and distribution trends.

The North Atlantic Right Whale is a critically endangered marine mammal that utilizes Atlantic Canadian waters. In Atlantic Canada, North Atlantic Right Whale sightings have been reported year-round, with the exception of March, although North Atlantic Right Whale upcalls are detected through acoustic monitoring efforts in all months, though infrequently from December through March. Various data sources that include North Atlantic Right Whale sightings, acoustic detections, persistence of predicted foraging habitat based on prey modeling, and a probability of occurrence model, have been used to identify important habitats for the species in Atlantic Canadian waters, as well as to describe their functions, features, and attributes (Ratelle et al. 2025).

Important habitat for North Atlantic Right Whale for feeding, reproduction, rearing, socializing, and socialization is comprised of the southern and northwestern Gulf of St. Lawrence, including the Jacques-Cartier Strait and entrance to Baie des Chaleurs, the

Scotian Shelf, especially Emerald and Roseway Basins, the Bay of Fundy, and the Canadian portions of Georges Bank and the Gulf of Maine. The important habitat also includes corridors for migratory movements and habitat connectivity; namely, the Laurentian Channel, Cabot Strait, and the eastern portion of the Scotian Shelf (Ratelle et al. 2025). In addition, potential foraging areas have been identified in coastal waters of the Eastern Scotian Shelf and around Newfoundland, at the southern and eastern edges of the Grand Banks, the Flemish Cap, and in the northeast portion of the Jacques Cartier Strait.

Information on cetaceans is available from the DFO Maritimes Region Whale Sightings Database (WSDB). Updated WSDB data are available from DFO upon request. In addition to WSDB, DFO has also been operating Whale Insight since 2022; a publicly available visualization tool that provides near real-time information on reported sightings and acoustic detections of North Atlantic Right Whales in Atlantic Canadian waters. Detections from trusted sources, such as academic experts and non-government organizations, as well as validated opportunistic sightings, are included on the Whale Insight platform. Detections contribute to the Government of Canada's effort to monitor and protect this critically endangered species.

The importance of the four WEA areas to marine mammals is generally unknown, although all WEAs overlap with or are proximate to important habitat or Critical Habitat identified for many at-risk marine mammal species. All four WEAs should be considered foraging and/or migratory habitat within the regular range of many marine mammals utilizing Atlantic Canadian waters. Table A2 in Appendix A summarizes SARA-listed and/or COSEWIC assessed marine mammals that may be found on the Eastern Scotian Shelf and occur in or utilize the WEAs.

FISH AND FISHERIES

FISH

Fish are broadly defined under the *Fisheries Act* to include; shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans, or marine animals; and the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals. The definition is inclusive of species such as clams, crabs, corals, sponges, sea worms, sea stars, and krill, among the many, many other benthic, demersal, pelagic, and marine mammal species described in this manuscript. Many fish species have already been described in overlying sections of this manuscript, so are not reiterated in detail here (although they should still be considered fish species).

The Eastern Scotian Shelf is home to a broad range of benthic (species that live on or in the seabed), demersal (species that primarily reside near the sea bed), and pelagic (species that reside primarily within the water column above the seabed) fish species that are in addition to the at-risk and/or depleted species described above. Over the past several decades, DFO fish science surveys have recorded more than 800 different marine species throughout the Scotian Shelf-Bay of Fundy bioregion. Between 2015 and 2025, 135 different benthic, demersal, and pelagic marine species were recorded in the French Bank WEA, 163 in the Middle Bank WEA, 137 in the Sable Island Bank WEA, and 164 in the Sydney Bight WEA. The numbers are based on records from the DFO Ecosystem Research Vessel Trawl Survey, DFO-Industry Collaborative Fishery Science Surveys (e.g., Halibut, Snow Crab, Lobster, and Shrimp), past DFO Fishery Science Surveys (e.g., Sentinel Surveys), and/or records from the At-sea Fishery Observers Program. The actual number of species that utilize the seabed and water column within the four WEAs are likely under-represented from the available data sources.

Since the collapse of many demersal fish stocks in the late-1980s and early-1990s, commercial fisheries for crustacean species have become the most valuable of all fisheries in Atlantic Canadian waters (Bernier et al. 2023). However, commercial fishing pressure, warming waters, and ocean acidification have become important drivers of change for some species of large marine invertebrates on the Scotian Shelf, impacting physiology, recruitment dynamics, population distributions, and predator-prey interactions. For instance, American Lobster (*Homarus americanus*) (e.g., Colburn et al. 2016; Flaherty et al. 2025) and Halibut (e.g., Czich et al. 2023) have increased in abundance with warming waters, while species such as Northern Shrimp (*Pandalus borealis*) and Snow Crab have seen declines on the Eastern Scotian Shelf due to a reduction in suitable bottom habitat for these cold-water species. Sand Lance (*Ammodytes dubius*), which is an important forage fish, has also increased in abundance on the Eastern Scotian Shelf since the 1990s (Ricard et al. 2022).

In terms of small pelagic species, total commercial landings from 2016 to 2021 have been low compared to historical landings of the late-1980s and early-1990s, although landings have remained relatively stable since 2010. On the Eastern Scotian Shelf, landings of Herring currently remain at historically low levels in NAFO Division 4V but have been relatively stable since 2018 in NAFO Division 4W. In contrast, Mackerel landings on both the Western and Eastern Scotian Shelves remain at very low levels (approximately 1,000 tonnes or less since 2010). However, it should be noted that species population dynamics are complex and are not to be inferred or interpreted from fishery landings alone. Similarly, these species are managed under a Total Allowable Catch, which would restrict the amount that could be landed in any given year.

In terms of large pelagic species, Porbeagle and Shortfin Mako sharks have seen declines in stock size to low biomass levels, while others large pelagic species such as Atlantic Bluefin Tuna (*Thunnus thynnus*), Swordfish, Yellowfin Tuna, Bigeye Tuna, and Albacore Tuna are currently considered healthy, despite some declines for specific species (ICCAT 2020c, 2025). Bluefin Tuna is a highly migratory, large pelagic marine fish species found across the Atlantic Ocean, Mediterranean, and Black Seas. As such, they are managed internationally. In the Atlantic Ocean, the International Commission for the Conservation of Atlantic Tunas (ICCAT) is the regional fishery management organization responsible for all tuna and tuna-like species. Under this type of management, all countries who participate in the fishery are brought together to ensure consistent management measures are adopted. In 2011, COSEWIC assessed Bluefin Tuna as endangered; however, the Government of Canada has made a determination not to list the species pursuant to SARA based on a series of western Atlantic Bluefin Tuna stock assessments that demonstrated continued stock growth since about 2004. In 2018, ICCAT completed a 20-year rebuilding program for Bluefin Tuna, and in 2022, ICCAT adopted a Management Strategy Evaluation (MSE) for the species. Tagging studies demonstrate the extensive use of the Scotian Shelf by Bluefin Tuna (Walli et al. 2009).

There are many marine mammals that utilize the Eastern Scotian Shelf that have not been assessed by COSEWIC, including: Minke (*Balaenoptera acutorostrata acutorostrata*), Humpback (*Megaptera novaeangliae*), Cuvier's Beaked whales (*Ziphius cavirostris*), True's Beaked (*Mesoplodon mirus*), Sperm (*Physeter macrocephalus*), Long-finned Pilot (*Globicephala melas*) and Killer Whales; Atlantic White-sided (*Lagenorhynchus acutus*) and Short Beaked Common (*Delphinus delphis*) dolphins; and Grey Seal (*Halichoerus grypus*).

Fish stocks are often defined by a management area and can include a single population, a smaller subset of a single population, or more than one population. In the DFO Maritimes Region, which aligns with the Scotian Shelf-Bay of Fundy bioregion, there are more than 150 fish stocks, with some of the fish species described above constituting the

43 stocks reported upon annually in the regional sustainability survey for fisheries (the 43 stocks is based on the 2023 DFO Sustainability Survey). Many of these fish stocks are the basis of important and highly-valuable fisheries throughout the region.

FISHERIES

Indigenous Fisheries

The Canadian Constitution recognizes, and the Supreme Court of Canada clarified through the 1990 *Sparrow* decision, that Indigenous people have the right to fish for food, social and ceremonial (FSC) purposes. This Aboriginal right takes priority over all other uses of the fishery resource after conservation objectives are met. To authorize and support the exercise of this right within an integrated fisheries management and regulatory framework, DFO issues FSC licences to Indigenous communities; however, FSC licences do not define an Aboriginal right to fish or its scope. FSC fishing licences include conditions that are intended to reflect the outcomes of collaborative consultations and understandings between DFO and Indigenous communities. FSC licences specify the species and various conditions in place to manage the fishery (e.g., geographic area, level of effort, conservation measures) under which Indigenous communities can exercise their rights.

The *Marshall* decision affirmed that 35 Indigenous communities in the Atlantic and Gaspé regions of Canada have a treaty right to fish, hunt, and gather in pursuit of a moderate livelihood. This applies to Mi'kmaq First Nations, Wolastoqey First Nations, and the Peskotomuhkati Nation at Skutik on the East Coast of Canada, who are recognized as modern day beneficiaries of the Peace and Friendship Treaties of 1760–1761. The approaches for implementing treaty rights have been adaptive over time and depend on First Nation preferences.

The Crown has a duty to consult and, where appropriate, accommodate Indigenous groups when it considers conduct that might adversely impact potential or established Aboriginal or treaty rights.

Commercial Fisheries

Datasets that summarize commercial fishery activities are made available by DFO for public use following quality control and privacy assessments. If privacy thresholds are not met, catch weight locations are withheld from statistical areas to protect the identity or activity of individual vessels or companies. In terms of the fishery landings analysis reported herein, the percentage overlap between fishery landings and WEAs were calculated using the most recent total aggregated landings data available to the Department for the period 2012–2023 (reported in the following text and in Table A3 in Appendix A). The fishery landings data used herein do not consider discards, so they cannot be used to inform a level of interaction between fisheries and non-target species in WEAs. Further, the estimates presented herein are to be considered as a preliminary assessment that identifies fisheries that may have higher landings within a WEA. The estimates are a generalization and do not infer the social or economic significance of the fisheries or ecological role they may play.

Commercial fisheries that operate in and around each WEA were evaluated to determine what portion of aggregated total reported landings (2012–2023) from the licenced fishery management unit were reported as landed from within a WEA. Fisheries that had aggregated total landings equal to or greater than 1% reported as coming from within a WEA are included in Table A3 in Appendix A. It is acknowledged that limiting the analysis to the recent decade of aggregated total reported landings (i.e., 2012–2023) may not fully

capture the historical importance of a particular WEA to a fishery, given that fish stocks and fishery distributions can change through time. Similarly, although some fisheries that operate in and around a WEA may not be considered in detail herein, a WEA may still be important to individual harvesters for their total individual landings or in conducting their fishery operations (e.g., vessel maneuverability, gear drift, etc.).

For fisheries such as the pelagic longline fishery that use gear with a large spatial footprint, overlap with WEAs may be better represented by vessel monitoring system (VMS) data versus a single landings location recorded in logbooks (Butler et al. 2019); similarly, bottom Halibut longline landings may require further consideration of how the fishery reports its landings in logbooks (Bowlby et al. 2024). Additional analysis would be required to assess overlap from pelagic and bottom longline fisheries operating within or in proximity to each WEA. Last, OSW development within WEAs may affect fishing vessel transit to fishing grounds further afield, while any shoreward infrastructure (e.g., cables) should also consider any important nearshore fishing grounds. The fishing sector may have additional information on fishing activities beyond those that are summarized in this manuscript.

French Bank

The bank edge and adjacent deeper water areas of the French Bank WEA are important to some benthic and groundfish fisheries. Fisheries that operate in and around the French Bank WEA that had less than 1% of total aggregated fishery landings (2012–2023) being reported as landed from within the French Bank WEA include: Mackerel Fishing Area [MFA] 19-20 Mackerel Fixed Gear (currently under moratorium); NAFO Divisions 4VW Flounder; NAFO Divisions 4VWX5Z Bluefin Tuna; NAFO Divisions 4VWX5Z Groundfish Bottom Longline; NAFO Divisions 4VWX5Z Groundfish Trawl; NAFO Divisions 4VWX5Z Pelagic Longline; Scallop Fishing Area [SFA] Scallop; and Shrimp Fishing Area [SFA] 13-15 Mobile Northern Shrimp. Overlap with Herring Fishing Area [HFA] 19-20 Bait and MFA 19-20 Mackerel Bait (currently under moratorium) could not be verified with existing landings data.

Fisheries that operate in and around the French Bank WEA that had equal to or greater than 1% of total aggregated fishery landings (2012–2023) reported as landed from within the French Bank WEA include: Crab Fishing Area 24 (East) Snow Crab; NAFO Divisions 4W (Midshore) Hagfish; NAFO Divisions 4VsW Atlantic Halibut; and possibly Lobster Fishing Area [LFA] 31B and 32 American Lobster (Figure 6; Table A3).

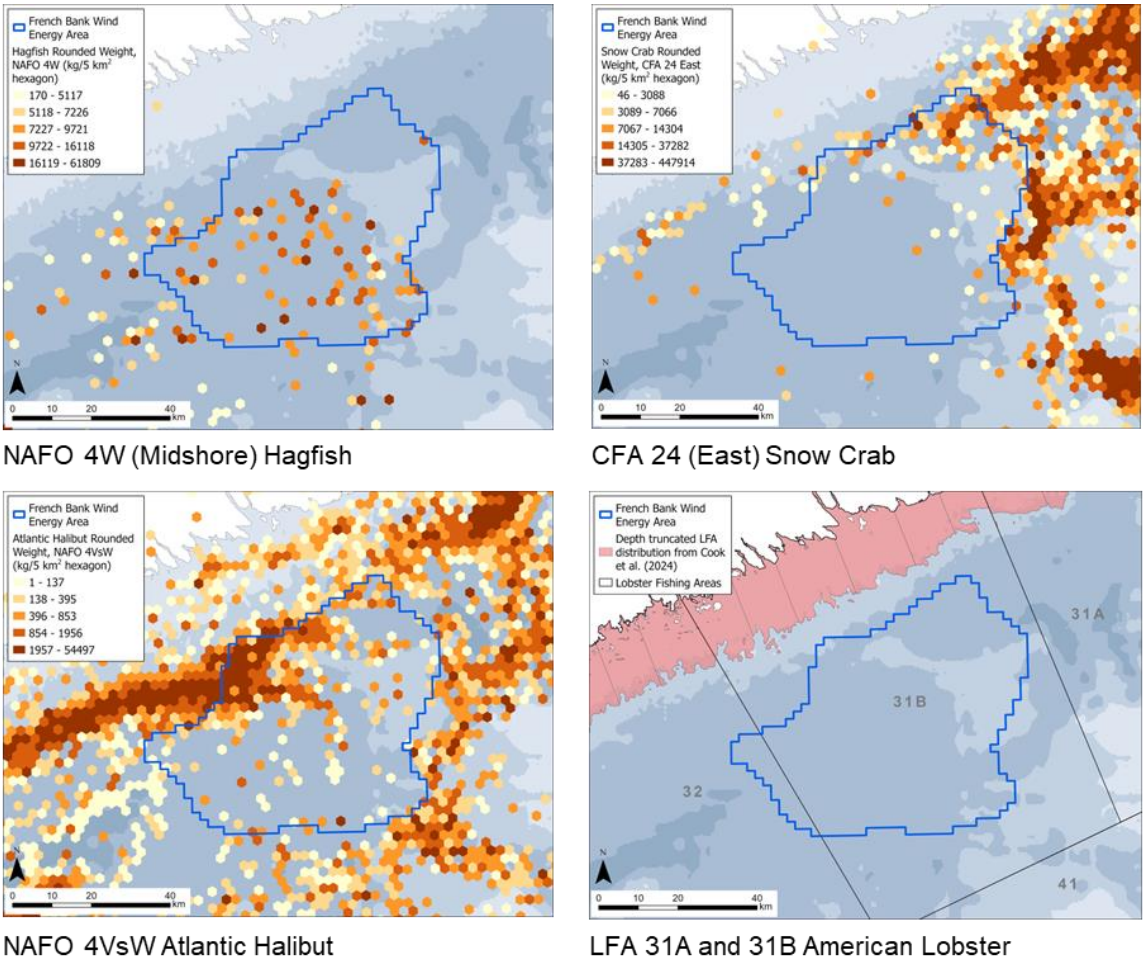


Figure 6. Aggregated total fishery landings (2012–2023) by licenced fishery management unit for fisheries that had a proportion of total landings equal to or greater than 1% reported as being landed from within the French Bank WEA. Overlap between the French Bank WEA and LFA 31B and LFA 32 is shown, which includes depth-truncated LFA landings distributions from Cook et al. (2024); see main text for description. See Table A3 in Appendix A for more information on these fisheries. Refer to Figure 1 above for WEA names. NAFO = Northwest Atlantic Fishery Organization; CFA = Crab Fishing Area; LFA = Lobster Fishing Area.

Lobster Fishing Areas 31B and 32 American Lobster are included herein given the species importance regionally to coastal communities. The inshore Lobster fishery reports landings by statistical grid. For LFA 31B and LFA 32, the statistical grids overlap with the French Bank WEA. Analyses conducted by Cook et al. (2024) identified 'truncated' areas per statistical grid that either represented areas with 99% or more of reported landings in the statistical grid or the furthest area offshore that Lobster landings were reported in the statistical grid. When the analyses of Cook et al. (2024) are considered, there is no longer overlap between the majority of Lobster landings reported in LFAs 31B and 32 and the French Bank WEA.

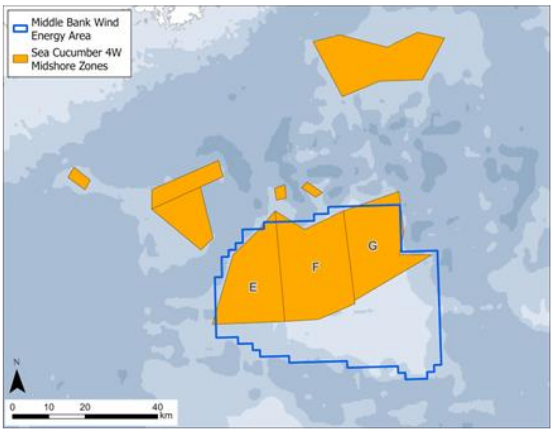
Middle Bank

The bank edge and adjacent deeper water areas of the Middle Bank WEA are important to some benthic and groundfish fisheries. Fisheries that operate in and around the Middle Bank WEA that had less than 1% of total aggregated fishery landings (2012–2023) being reported as landed from within the Middle Bank WEA include: NAFO Divisions 4VWX5Z Bluefin Tuna; NAFO Divisions 4VWX5Z Groundfish Bottom Longline; and NAFO Divisions 4VWX5Z Pelagic Longline. The Middle Bank WEA also overlaps with a moderate portion

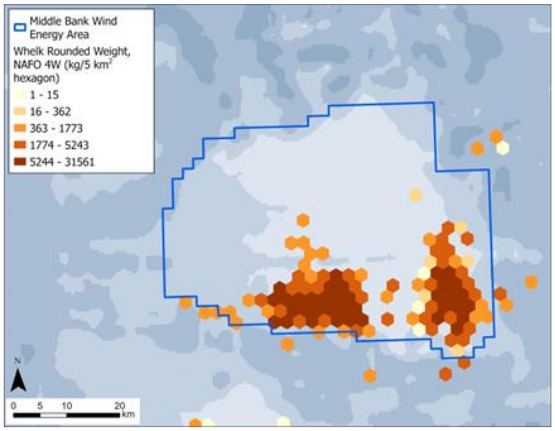
of LFA 31A and a small portion of LFA 31B and LFA 41, although the Middle Bank WEA does not overlap with areas currently utilized by harvesters of inshore or offshore Lobster for landings purposes (Cook et al. 2024) nor contains any reported landings of Lobster from LFA 41, so is not discussed in further detail herein.

Fisheries that operate in and around the Middle Bank WEA that had equal to or greater than 1% of total aggregated fishery landings (2012–2023) reported as landed from within the Middle Bank WEA include: NAFO Division 4W (Midshore) Sea Cucumber (*Cucumaria frondosa*); NAFO Division 4W (Exploratory) Whelk (*Buccinum undatum*); SFA 25 Sea Scallop; CFA 24 (East) Snow Crab; and SFA 13–15 (Mobile) Northern Shrimp (Figure 7; Table A3).

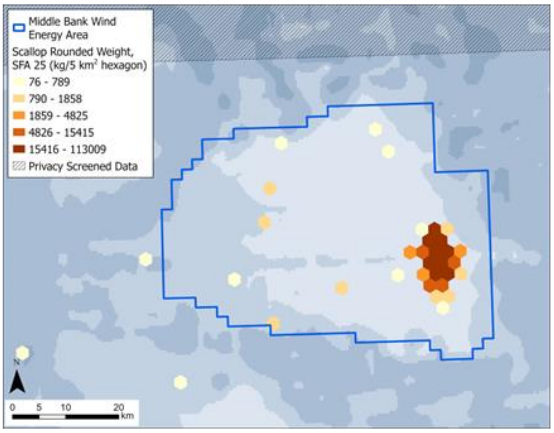
NAFO Division 4W (Midshore) Sea Cucumber fishery, in particular, exhibited a very high overlap in landings with the Middle Bank WEA, although for privacy reasons the precise details cannot be reported in Figure 7 or Table A3. The NAFO Division 4W (Exploratory) Whelk fishery is considered to be exploratory fishery, not a commercial fishery, but is included herein due to its overlap with the Middle Bank WEA. Exploratory Whelk percentages are based on 2019–2023 aggregated landings data.



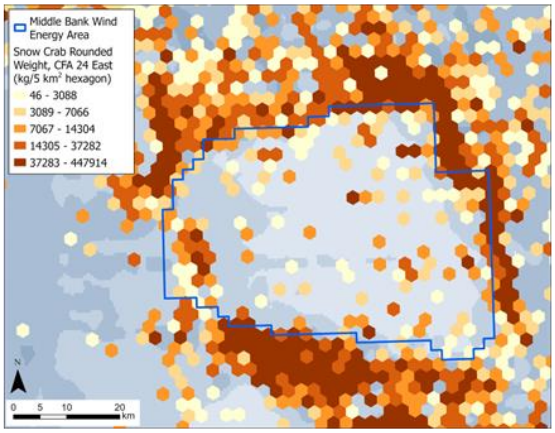
NAFO 4W (Midshore) Sea Cucumber



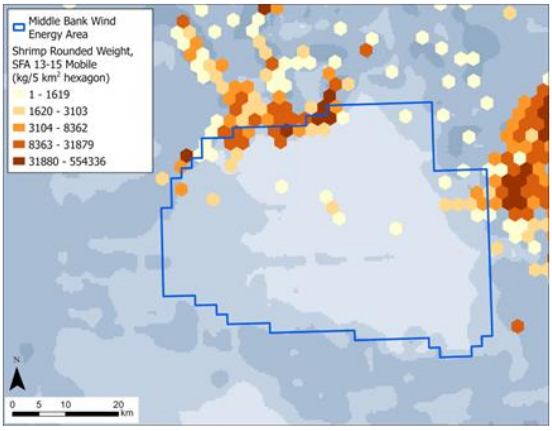
NAFO 4W (Exploratory) Whelk



SFA 25 Sea Scallop



CFA 24 (East) Snow Crab

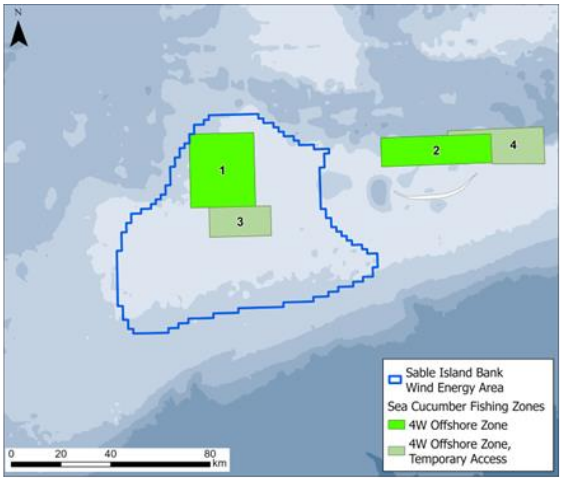


SFA 13-15 (Mobile) Northern Shrimp

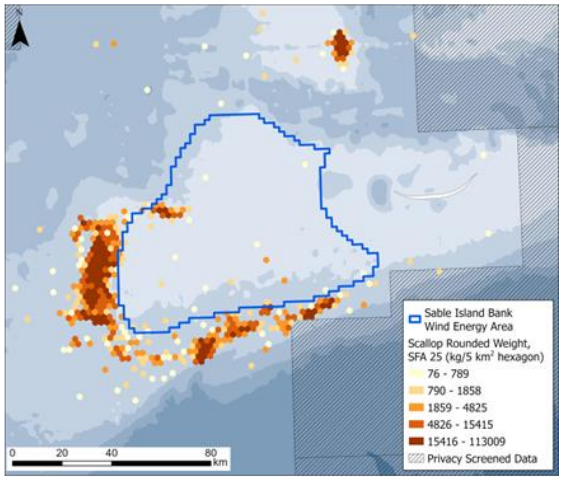
Figure 7. Aggregated total fishery landings (2012–2023) by licenced fishery management unit for fisheries that had a proportion of total landings equal to or greater than 1% reported as being landed from within the Middle Bank WEA. Due to privacy reasons associated with limited licencing numbers, only fishing zones are shown for Sea Cucumber. For Sea Cucumber, the Middle Bank WEA overlaps with fishing NAFO Division 4W (Midshore). For exploratory Whelk total aggregated landings data depicted are from 2019–2023 (Rozalska and Coffen-Smout 2025). See Table A3 in Appendix A for more information on these fisheries. Refer to Figure 1 above for WEA names. CFA = Crab Fishing Area; NAFO = Northwest Atlantic Fishery Organization; SFA = Scallop Fishing Area; SFA = Shrimp Fishing Area.

Sable Island Bank

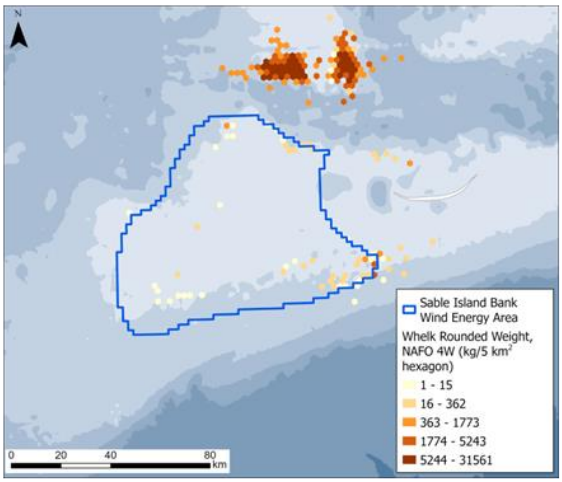
The bank edge and adjacent deeper water areas of the Sable Island Bank WEA are important to some benthic and groundfish fisheries. Fisheries that operate in and around the Sable Island Bank WEA that had less than 1% of total aggregated fishery landings (2012–2023) being reported as landed from within the Sable Island Bank WEA include: CFA (East) Snow Crab; NAFO Division 4W Hagfish; HFA 19-20E Herring Mobile Gear; NAFO Divisions 4VWX5Z Bluefin Tuna; NAFO Divisions 4VWX5Z Groundfish Bottom Longline; NAFO Divisions 4VW Flounder; NAFO Divisions 4VWX5Z Pelagic Longline; and Sable Island Bank Offshore Clam.



NAFO 4W (Offshore) Sea Cucumber



SFA 25 Sea Scallop



NAFO 4W (Exploratory) Whelk

Figure 8. Aggregated total fishery landings (2012–2023) by licenced fishery management unit for fisheries that had a proportion of total landings equal to or greater than 1% reported as being landed from within the Sable Island Bank WEA. Due to privacy reasons associated with limited licencing numbers, only fishing zones are shown for Sea Cucumber. For Sea Cucumber, the Sable Island Bank WEA overlaps with fishing NAFO Division 4W (Offshore). See Table A3 in Appendix A for more information on these fisheries. Refer to Figure 1 above for WEA names. NAFO = Northwest Atlantic Fishery Organization; SFA = Scallop Fishing Area.

Fisheries that operate in and around the Sable Island Bank WEA that had equal to or greater than 1% of total aggregated fishery landings (2012–2023) reported as landed from within the Sable Island Bank WEA include: NAFO Division 4W (Offshore) Sea Cucumber; NAFO Division 4W (Exploratory) Whelk; and SFA 25 Sea Scallop. The NAFO Division 4W

(Offshore) Sea Cucumber fishery, in particular, exhibited a high overlap in landings with the Sable Island Bank WEA, although for privacy reasons the precise details cannot be reported in Figure 8 or Table A3. Again, NAFO Division 4W (Exploratory) Whelk fishery is considered to be exploratory fishery, not a commercial fishery, but is included herein due to its overlap with the Sable Island Bank WEA. Exploratory Whelk percentages are based on 2019–2023 aggregated landings data.

Sydney Bight

The bank edge and adjacent deeper water areas of the Sydney Bight WEA are important to some benthic and groundfish fisheries. Fisheries that operate in and around the Sydney Bight WEA that had less than 1% of total aggregated fishery landings (2012–2023) being reported as landed from within the Sydney Bight WEA include: NAFO Divisions 4VW Flounder; NAFO Divisions Greenland Halibut (*Reinhardtius hippoglossoides*); NAFO 4VWX5Z Groundfish Bottom Longline; and Unit 2 Redfish (*Sebastes fasciatus*). Overlap with HFA 17–18 Herring Bait; HFA 17–18 Herring Mobile Gear; MFA 17–18 Mackerel Bait (currently under moratorium); MFA 17–18 Mackerel Mobile Gear (currently under moratorium) could not be verified with existing landings data.

Fisheries that operate in and around the Sydney Bight WEA that had equal to or greater than 1% of total aggregated fishery landings (2012–2023) reported as landed from within the Sydney Bight WEA include: CFA 20–22 Snow Crab; NAFO Subdivision 4Vn Atlantic Halibut Longline/Handline; NAFO Subdivision 4Vn Hagfish; and LFA 27 American Lobster (Figure 9; Table A3).

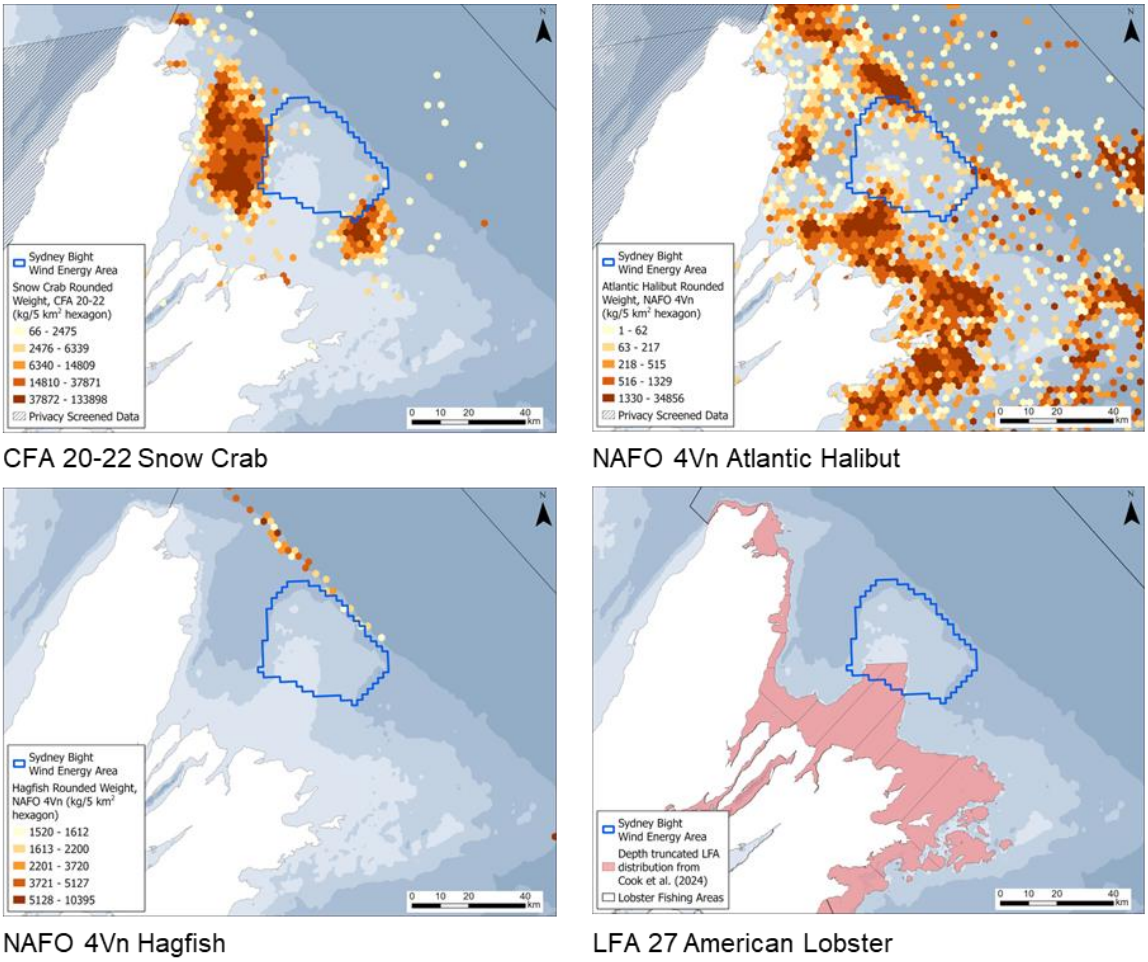


Figure 9. Aggregated total fishery landings (2012–2023) by licenced fishery management unit for fisheries that had a proportion of total landings equal to or greater than 1% reported as being landed from within the Sydney Bight WEA. Overlap between the Sydney Bight WEA and LFA 27 is shown, which includes depth-truncated LFA distributions from Cook et al. (2024); see main text for description. Refer to Figure 1 above for WEA names. See Table A3 in Appendix A for more information on these fisheries. CFA = Crab Fishing Area; LFA = Lobster Fishing Area; NAFO = Northwest Atlantic Fishery Organization.

Lobster Fishing Area 27 American Lobster is included herein given the species importance regionally to coastal communities. The inshore Lobster fishery reports landings by statistical grid. For LFA 27, the statistical grid overlaps with the Sydney Bank WEA. Analyses conducted by Cook et al. (2024) identified ‘truncated’ areas per statistical grid that either represented areas with 99% or more of reported landings in the statistical grid or the furthest area offshore that Lobster landings were reported in that statistical grid. When the analyses of Cook et al. (2024) are considered, there is a reduced overlap between LFA 27 Lobster landings and the Sydney Bight WEA, although the extent to which the Sydney Bight WEA may overlap with the Lobster fishery in LFA 27 remains uncertain.

FISHERY, ECOSYSTEM, AND MEGAFAUNA SCIENCE SURVEYS

DFO conducts a range of science surveys on the Eastern Scotian Shelf. These surveys comprise multi-species and single species fishery surveys, ocean monitoring surveys, and megafauna monitoring surveys (including sea turtle, cetacean, and marine mammal), among other types of science monitoring or project-specific research surveys. Data from

these surveys are used to inform DFO's fishery stock assessments, understanding of the state of the ocean, serve as inputs into oceanographic and atmospheric models, and guide monitoring of changes to the marine ecosystem associated with marine conservation sites, aquaculture sites, and marine industrial activities.

The DFO Maritimes Region conducts 11 fishery science surveys region-wide, four of which are run solely by DFO and seven of which are run jointly between DFO and Industry fish harvesters. Collectively, these fishery surveys document multiple species (again, having recorded more than 800 different species throughout the region). The results of these surveys inform status for over 150 regional fish stocks. On the Eastern Scotian Shelf, five long-term regional fishery surveys overlap with one or more of the four WEAs (Table 1). The five surveys have linkages to 90 regional fish stocks, 20 of which are considered major fish stocks and 14 COSEWIC-listed species.

Table 1. Long-term DFO and DFO-Industry fishery science surveys that occur on the Eastern Scotian Shelf and overlap with the one or more of the four Wind Energy Areas (WEA). FB = French Bank; MB = Middle Bank; SIB = Sable Island Bank; and SyB = Sydney Bight.

Survey Name	Legal Agreement Between DFO and Fish Harvesters	WEA Overlap	Survey Gear Type	Assessed Stocks (Major Fish Stocks)	Survey Species Target
DFO Maritimes Summer Ecosystem Survey	No	FB, MB, SIB, SyB	Mobile Trawl	78 (15)	Multi-species
Atlantic Halibut Longline Survey	Yes	FB, MB, SIB, SyB	Fixed Long-Line	34 (3)	Multi-species
DFO Maritimes Offshore Scallop Survey	Yes	FB, MB, SIB	Mobile Drag	5 (4)	Single species
DFO Maritimes Region Snow Crab Trawl Survey	Yes	FB, MB, SIB, SyB	Mobile Trawl	59 (7)	Multi-species
DFO Maritimes Northern Shrimp Trawl Survey	Yes	FB, MB	Mobile Trawl	14 (2)	Multi-species

In addition to fishery science surveys, the DFO Atlantic Zone Monitoring Program (AZMP) collects and analyzes physical, chemical, and biological oceanographic data that informs elements of the marine ecosystem. The AZMP survey is conducted twice annually in the spring and fall, with the AZMP fixed Halifax and Louisburg lines located to the west and east of French Bank WEA, Middle Bank WEA, and Sable Island Bank WEA, respectively. In contrast, the AZMP St. Anns Bank and Cabot Strait lines are located to the south and north of the Sydney Bight WEA, respectively.

The AZMP collects a suite of hydrographic data associated with all primary fishing stations sampled during the DFO Ecosystem Research Vessel Trawl Survey. On average, approximately two Conductivity, Temperature, and Depth (CTD) casts are collected per year in the French Bank and Sydney Bight WEAs, six casts in the Middle Bank WEA, and seven casts in the Sable Island Bank WEA. These represent a source of environmental data for the areas in and around each WEA, while also contributing to a broader understanding of the marine ecosystem shelf-wide.

Last, DFO undertakes a variety of marine mammal and megafauna surveys. This survey provides information on the abundance and distribution of North Atlantic Right Whales in Atlantic Canadian waters, as well as provides information about other large marine megafauna that may be detected. The survey is conducted in the Gulf of St. Lawrence, in the Bay of Fundy, on the Scotian Shelf, and on the Newfoundland and Labrador shelves.

MARINE PLANTS

In the Scotian Shelf-Bay of Fundy bioregion, kelps are generally limited to water depths of 30 m or less (Krumhansl et al. 2025). Eelgrass is found even shallower, being limited to water depths of 10 m or less (O'Brien et al. 2022). DFO Science does not expect there to be habitat for marine plants in the WEAs, although there remains a small possibility that marine plants do exist in these areas. The DFO Science marine plants distribution maps are limited to within 5 km of the coastline and do not cover offshore areas (pers comm., Dr. K. Krumhansl, DFO Maritimes Marine Plants Research Authority, 17 November 2025).

AQUATIC INVASIVE SPECIES

Aquatic invasive species (AIS) are marine or freshwater plants, animals, algae, and micro-organisms introduced outside of their natural or past distribution. This can include the introduction of species from other parts of Canada or other international locations. AIS can have significant negative impacts on the marine environment, economy, society, and human health. Many AIS are already established in Atlantic Canadian waters, including on the Scotian Shelf and in the Gulf of St. Lawerence. AIS species that are present in the Scotian Shelf-Bay of Fundy bioregion include: European Green Crab (*Carcinus maenas*); Vase Tunicate (*Ciona intestinalis*); Pancake Batter Tunicate (*Didemnum vexillum*); and Clubbed Tunicate (*Styela clava*) (DFO 2015b).

OTHER MARITIME ACTIVITIES

The Eastern Scotian Shelf in the offshore of Nova Scotia hosts many other human uses and infrastructure beyond those associated with Indigenous fisheries, commercial fisheries, and DFO science surveys.

The French Bank area hosts an active telecommunications cable (EXA Infrastructure Express, formerly Hibernia Express) and an uncharted shipwreck located at a water depth of 70.9 m (coordinates at 44° 41.404' N, 61° 04.580' W). In contrast, inactive submarine cables intersect the Middle Bank area. The Sable Island Bank area hosts an abandoned pipeline that runs inshore to Goldboro, Nova Scotia. There is also an uncharted shipwreck located at a water depth of 73.3 m (coordinates at 44° 14.433' N, 60° 46.642' W). The Sydney Bight area hosts two active telecommunications cables (i.e., Persona/Eastlink and HDR1 Bell Canada, formerly APOCS 1), an interprovincial ferry route between the Province of Nova Scotia and the Province of Newfoundland and Labrador, and an uncharted shipwreck located at 51 m at the shallowest point (coordinates at 46° 30.008' N 059° 56.189' W). In addition to these uses, non-DFO science and monitoring programs may also operate within or in proximity to the WEAs; for example, the Ocean Tracking Network (see: Bangley et al. 2020).

Any OSW development in the French Bank, Middle Bank, Sable Island Bank, and Sydney Bight WEAs should account for other human activities or features, in discussion with the applicable regulators. The presence of maritime transport, recreational fisheries, ocean disposal sites, shipwrecks, unexploded ordinance (UXO), offshore petroleum, submarine cables, military defence activities, science surveys, and/or tourism, etc., should be considered.

MARXAN CASE STUDY: OFFSHORE WIND PLANNING

Drawing upon DFO analyses that supported marine conservation network planning in the Scotian Shelf-Bay of Fundy planning area, Nagel et al. (2024) used the software *Marxan with Zones* to evaluate marine planning scenarios that considered potential OSW

development in the context of existing marine features and human uses. Results of the study were used to inform the Regional Assessment of Offshore Wind Development in Nova Scotia (Nova Scotia Regional Assessment Committee 2025). *Marxan with Zones* is an advanced planning tool that uses geospatial data to optimize land and/or marine uses by incorporating different zones that align with different planning objectives and constraints.

The objectives of Nagel et al. (2024) were to explore the capabilities of *Marxan with Zones* for marine planning, as well as to identify potential lower-conflict areas for OSW development in the Scotian Shelf-Bay of Fundy bioregion planning area that avoided known ecological features, conservation areas, and other ocean uses. In total, Nagel et al. (2024) incorporated 108 different geospatial datasets into the analysis, including: 1) ecological datasets such as EBSA, SiBA, and at-risk species; 2) existing and proposed protected area datasets such as existing MPAs, MRs, and other priority sites in the Marine Conservation Network; 3) human use datasets such as commercial fishing and vessel traffic data; and 4) datasets that represented site suitability for OSW, such as surficial geology and water depth.

Under different planning objectives and constraints, 18 scenarios were developed that each included 100 Marxan runs, which were used to develop summed solutions for two optimized zones: 1) a wind zone; and 2) an existing use zone (i.e., ecological, other human use, or both). Results represented how often areas were selected out of the 100 runs that met a scenario's objectives. The primary objective for the wind zone was to select areas potentially suitable for OSW development that avoided overlap with existing use zones. In contrast, the primary objective for the existing use zone was to select areas that had a high density of existing uses, including ecological areas and/or existing human use areas (e.g., commercial fisheries, maritime vessel transit corridors/routes, etc.).

One scenario that was explored – see Scenario C1.1 in Nagel et al. (2024) – only included shallow water depths in the wind zone (less than 70 m), in order to identify lower-conflict areas that may be suitable for fixed-base OSW development potential. In this scenario, the wind zone avoided overlap with the existing use zone (which captured 90% of each ecological feature and human use and avoided designated conservation areas) (Figure 10). When results were compared to the Middle Bank WEA, the wind zone selection frequency was higher in the central portion of the WEA, but excluded the northwest and southeast portions of the WEA, with the highest selection frequencies for existing-uses located around the edges of the WEA. For the Sable Island Bank WEA, the wind zone selection was highest in the shallowest areas of the northern portion of the WEA, but excluded any selection frequency in the southwest portion of the WEA due to its overlap with WEBMR (as designated conservation areas were set as exclusion areas in the scenario that the wind zone could not occupy). For the Sydney Bight WEA, the wind zone selection frequency was highest in the central shallow portion of the WEA, while the existing use zone exhibited the highest selection frequencies in areas that overlapped ferry routes and the southern portion of the WEA. The existing use zone selection frequency was highest on the southwest portion and edges of the Sydney Bight WEA. The wind zone did not overlap with the French Bank WEA in this scenario, as water depths exceeded 70 m.

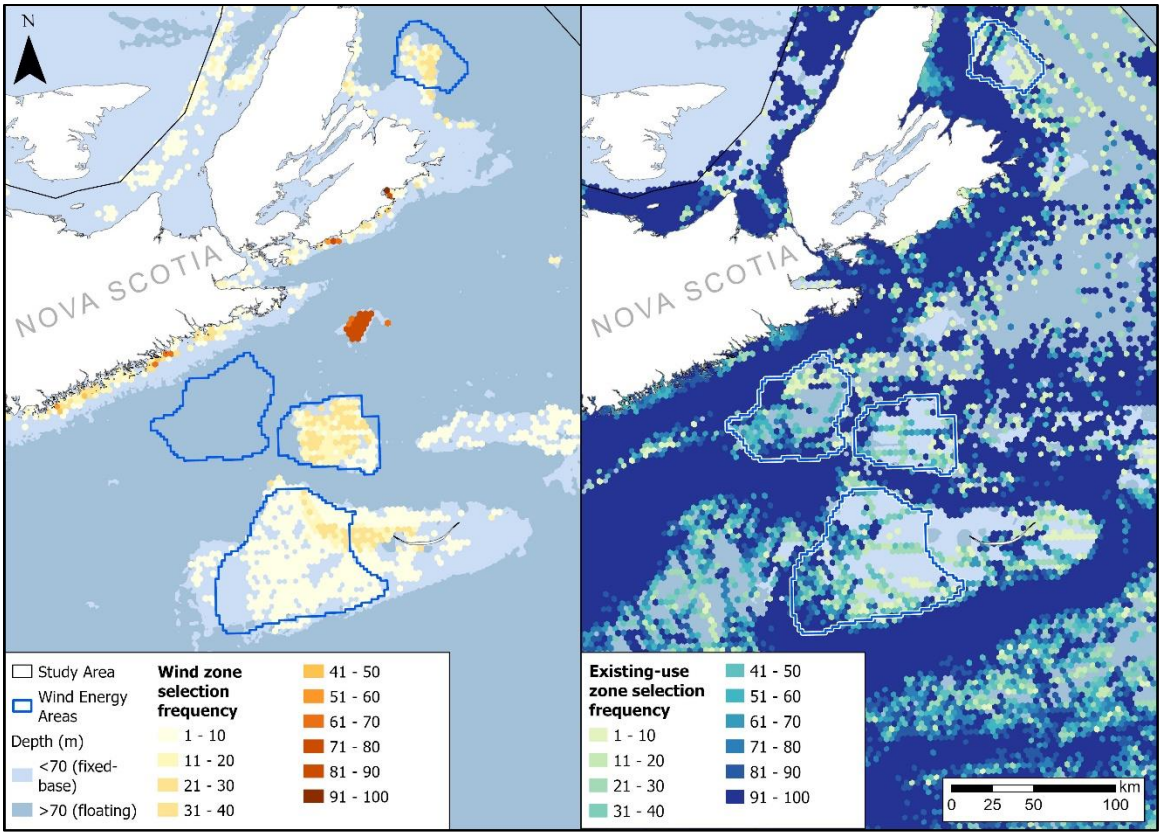


Figure 10. Summed-solution selection frequency results based on 100 Marxan runs from Scenario C1.1 depicting the wind zone (Left Panel) and existing use zone (Right Panel). In the wind zone, higher selection frequencies are denoted by darker red colours, which represent lower-conflict areas for offshore wind with existing uses. In the existing-use zone, higher selection frequencies are denoted by darker blue colours, which represent areas of higher existing use. Refer to Figure 1 above for WEA names. Figure adapted from Nagel et al. (2024).

A second scenario that was explored – see Scenario C1.2 in Nagel et al. (2024) – had similar planning targets to scenario C1.1, but did not restrict the wind zone by depth, in order to identify areas that may be suitable for both fixed-base and floating OSW development potential (Figure 11). In general, the wind zone selection frequencies were lower across all WEAs due to other suitability considerations (e.g., distance to shore) that had a greater influence on selection frequencies when compared to scenario C1.1. In this scenario, the existing use zone selection exhibited similar patterns to the existing use zone in scenario C1.1, as this zone was not limited by depth in either scenario. Around the French Bank WEA, wind zone areas with higher selection frequency included the shallowest bank areas in the eastern portion of the WEA, while the highest existing use zone selection was on the northwest corner and southern edge of the WEA (Figure 11). For the Middle Bank, Sable Island Bank, and Sydney Bight WEAs, there was moderate wind zone selection in the shallower portions of each WEA (Figure 11).

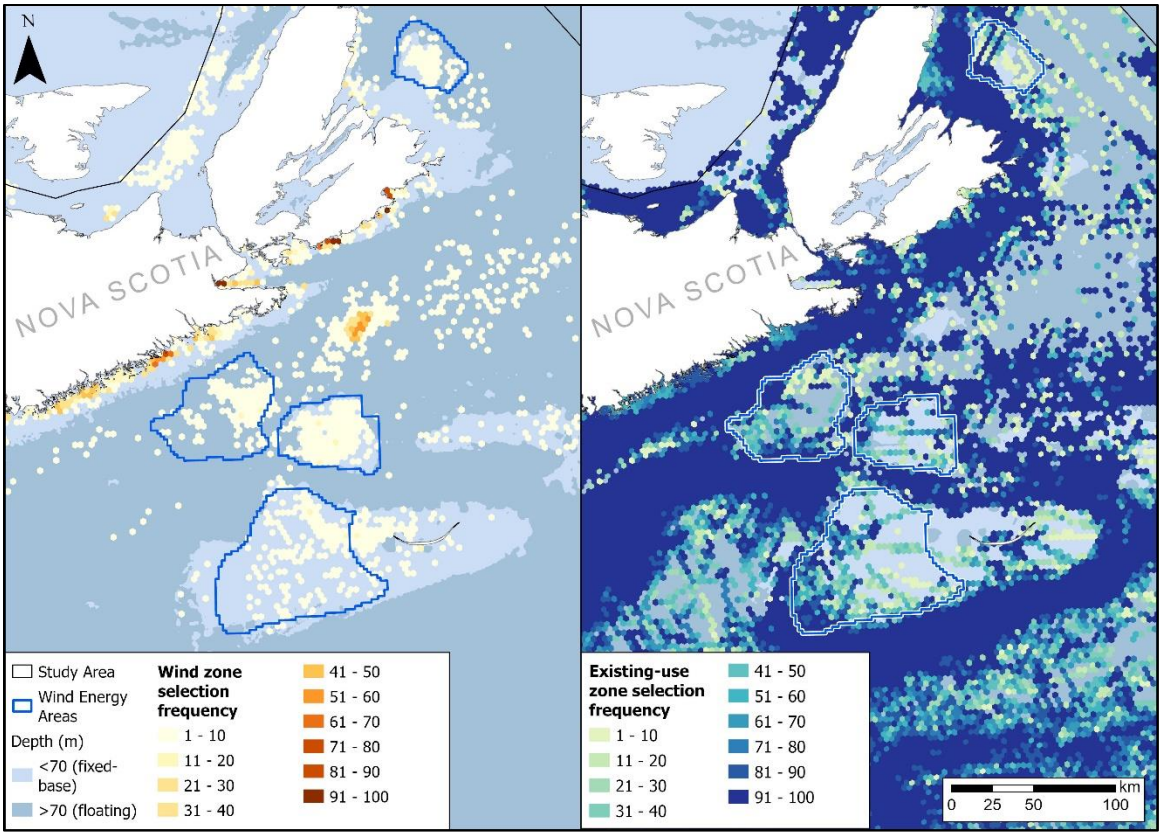


Figure 11. Summed-solution selection frequency results based on 100 Marxan runs from Scenario C1.2 depicting the wind zone (Left Panel) and the existing use zone (Right Panel). In the wind zone, higher selection frequencies are denoted by darker red colours, which represent lower-conflict areas for offshore wind with existing uses. In the existing-use zone, higher selection frequencies are denoted by darker blue colours, which represent areas of higher existing use. Refer to Figure 1 above for WEA names. Figure adapted from Nagel et al. (2024).

The results of Nagel et al. (2024) generally demonstrated that the French Bank, Middle Bank, Sable Island Bank, and Sydney Bight WEAs do represent areas that appear to pose lower conflict between OSW development and existing uses, avoiding a large proportion of areas that contain important marine ecological features, commercial fishing activity, and/or other human uses. The results of Nagel et al. (2024) are generally consistent with the findings of this manuscript, whereby the four WEAs appear to exhibit limited overlap with a broad range of ecologically and biologically important areas, marine conservation network planning and protected area sites, and commercial fisheries. It remains, however, that the WEAs may still overlap with important individual marine features, species, and human uses, which require consideration in context of OSW development.

CONCLUSIONS

Designation of the French Bank, Middle Bank, Sable Island Bank, and Sydney Bight WEAs marks a step-forward in Canada's OSW energy planning and development. The four areas are the first of their kind in Canada, collectively spanning 12,549 km² in area. This manuscript provides a high level description of the marine ecosystem and human-uses that may occur in or in proximity to each WEA, primarily drawing upon DFO published literature and data holdings.

The WEAs are situated in the offshore of Nova Scotia, within a dynamic and relatively well-studied marine ecosystem on the Eastern Scotian Shelf. The Eastern Scotian Shelf is

characterized by complex oceanographic processes, diverse surficial geology, and notable ecosystem changes that include warming trends, marine heat waves, and shifts in trophic structure. The WEAs themselves exhibit limited overlap with EBSAs, SiBAs, and existing and future marine conservation network sites, although many of these features and sites are located proximal to the WEAs.

The WEAs do intersect with habitats used by numerous at-risk and depleted species, including a range of diadromous, demersal, shark, sea turtle, and marine mammal species. The WEAs also support a range of fish species and fisheries, with those fisheries directly overlapping each of the WEAs described in more detail herein. Last, DFO science surveys and monitoring programs, including the summer DFO Ecosystem Research Vessel Trawl Survey, AZMP, and megafauna surveys, regularly collect data within and around the WEAs. Data from these science surveys are used to inform fishery stock assessments, ecosystem monitoring, and other regulatory decision-making.

A *Marxan with Zones* case study conducted by DFO demonstrated that the WEAs appear to align with lower-conflict areas for OSW energy development potential, while also avoiding existing high use areas that contain important marine ecological features, commercially-valued fish species, and/or other human uses when a broad range of information is considered. However, the WEAs still may overlap with important individual marine features, species, and human uses.

The description presented herein is intended to be a means for DFO to inform regulatory decision-makers, industry, and members of the public of the primary marine ecosystem features, significant and protected areas, at-risk and depleted species, fish and fisheries, science surveys, and other human uses that may occur in and around each of the WEAs. The description does not assess the WEA sites for offshore wind suitability nor evaluate the risk of offshore wind energy development on the marine ecosystem, marine species, or human uses in each area. As such, it may inform the scope of future risk assessments, but additional detail and analyses on marine ecosystem components, species, and human uses would be needed to inform project-specific assessments.

ACKNOWLEDGEMENT

The contents of this manuscript represent excerpts from many existing DFO publications, as well as contributions from a broad range of departmental sectors in the DFO Maritimes Region. The authors wish to thank the many DFO subject matter experts who reviewed content in earlier versions of the manuscript. Last, the authors provide a sincere thank you to the assigned DFO peer reviewers whose comments helped fill important information gaps and bring greater accuracy to the final manuscript.

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APPENDIX A: INFORMATION TABLES

Table A1. Existing and proposed sites in the Marine Conservation Network Plan for the Scotian Shelf-Bay of Fundy. See Figure 5 for site locations in relation to each of the four Wind Energy Areas (WEA). Additional information on the marine conservation network can be found at: Marine Conservation Network Plan for the Scotian Shelf-Bay of Fundy. EBSA = Ecologically and Biologically Significant Area; FSC = food, social, and ceremonial.

No.	Name	Description	Features	Species	Uses
1	Emerald Basin Extension (Proposed)	Emerald Basin Extension is a 254 km^2 Tier 2 network site immediately adjacent (west) to the existing Emerald Basin Marine Refuge.	The Emerald Basin Extension aims to protect additional concentrations of *Vazella pourtalesi* glass sponges. Emerald Basin in general supports significant aggregations of *Vazella pourtalesi* that are not found in other areas where the species occurs. The site is also representative of a shelf-basin habitat.	Sponge-dominated communities modify bottom currents and create habitat. Glass sponge aggregations provide a link between benthic (bottom layer) and pelagic (upper layer) environments, play an important role in carbon and nitrogen processing, and act as a silica sink. Sponge aggregations offer important structural habitat that provides refuge and nursery areas for a variety of marine species.	Current fisheries include groundfish (fixed and mobile gear), Hagfish, Herring (mobile gear), Lobster, Mackerel (mobile gear), Swordfish, and Tuna. There is currently a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf. First Nations can access marine resources in this area for food, social, and ceremonial (FSC) purposes. Shipping traffic is moderately-high due to the site's proximity to Halifax Harbour.
2	Emerald Basin Marine Refuge (Existing)	Emerald Basin Marine Refuge is an existing Marine Refuge established in 2017 pursuant to the *Fisheries Act*. Prohibition on commercial bottom-contact gear and/or fishing gear. Emerald Basin Marine Refuge is 259 km^2.	Species of regional importance include a significant concentration of *Vazella pourtalesi* glass sponges; aggregations of *Vazella pourtalesi* that are not found in other areas where the species occurs.	Sponge-dominated communities modify bottom currents and create habitat. Glass sponge aggregations provide a link between benthic (bottom layer) and pelagic (upper layer) environments, play an important role in carbon and nitrogen processing, and act as a silica sink. Sponge aggregations offer important structural habitat that provides refuge and nursery areas for a variety of marine species.	Prohibition on bottom-contact fishing gear can protect not only sponges, but a diversity of other species of fish and invertebrates that utilize the complex structural habitat that the sponges provide. This area can act as a natural refuge area that may contribute to increased species productivity and in turn potentially lead to increased abundance within and adjacent to the area.
3	Inner Shelf Sea Pen Field Tier 2 site (Proposed)	The Inner Shelf Sea Pen Field is a Tier 2 network site. It is located northeast of Emerald Basin on the Scotian Shelf, approximately 90 km east of Halifax, Nova Scotia. The Inner Shelf Sea Pen Field site is 260 km^2.	Significant concentrations of sea pens, important habitat for White Hake, area of high fish and invertebrate diversity, and is a representative example of shelf habitat.	Depleted groundfish populations, including White Hake. Sea pens help create complex, structural habitats on the seafloor, providing refuge habitat and nursery areas for a diverse range of fish and invertebrate species.	Fisheries include groundfish (fixed and mobile gear), Hagfish, Herring (fixed and mobile gear), Lobster, Mackerel (mobile gear), Scallop, Swordfish, and Tuna. There currently is a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf. First Nations can access marine resources in this area for FSC purposes. Shipping traffic is high due to its proximity to Halifax Harbour.
4	Eastern Shore Islands (Area of Interest)	The Eastern Shore Islands Area of Interest for potential designation as a Marine Protected Area pursuant to the *Oceans Act* includes nearshore waters surrounding the dense archipelago on the eastern shore of Nova Scotia. The site stretches from Clam Bay near Jeddore Harbour to Barren Island near Liscomb Point and extends approximately 25 km from the mainland. The Eastern Shore Islands Area of Interest is approximately 2,000 km^2.	Highly natural area that includes rich beds of eelgrass, kelp, and salt marsh that provide important habitat for many marine species, including commercial fishery 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. This area is part of a coastal migratory corridor for many species, including sharks, Tuna, groundfish, Atlantic Salmon, and Leatherback Turtle. The dense archipelago of hundreds of islands has been identified as a coastal EBSA that provides important nesting and foraging ground for many colonial seabirds and shorebirds. Many of the islands are protected through provincial and private conservation efforts, including current efforts by the Nova Scotia Nature Trust's "100 Wild Islands Legacy Campaign."	Significant concentrations of kelp beds and eelgrass; area used by juvenile Cod, White Hake, and Pollock (*Pollachius virens*); spawning area for Herring; important habitat for Atlantic Salmon; and significant foraging area for a variety of sea- and shorebirds, including Harlequin Duck (*Histrionicus histrionicus*), Purple Sandpiper (*Calidris maritima*), and Roseate Tern (*Sterna dougallii*).	Fisheries include Groundfish, Herring, Lobster, and Scallop; seaweed harvesting also occurs in the area. First Nations can access marine resources in this area for FSC purposes.
5	St. Mary's (Napu'saqnuk) River and Estuary Tier 1 Site (Proposed)	The St. Mary's River (Napu'saqnuk) and estuary is a Tier 1 network site and has been approved by DFO as an Ecologically Significant Area (ESA) candidate under the *Fisheries Act*. ESAs are not intended to regulate fishing. The site includes the river, estuary, other wetted areas, and potentially riparian zones on Crown Land. It does not include the entire watershed area. The St. Mary's	Highly important river for Nova Scotia Southern Upland Atlantic Salmon (the river is used as an index river by DFO Science to monitor this population); large populations of at-risk freshwater turtles; presence of salt marsh, marine plants and lichens; nearby terrestrial protection, including Archibald Lake Wilderness Area; high relative naturalness;	Southern Upland Atlantic Salmon; Brook Floater (*Alasmidonta varicosa*); American Eel; Wood Turtle (*Glyptemys insculpta*); Brook Trout (*Salvelinus fontinalis*); Gaspereau (*Alosa pseudoharengus* and *Alosa aestivalis*); Rainbow Smelt (*Osmerus mordax*); American Lobster; Eelgrass (*Zostera marina* and *Rupia martima*); Mainland Moose (*Alces alces americana*; and at-risk bird species, including: Bank	The Mi'kmaq have historically used the river for travel, fishing, hunting, and living. Napu'saqnuk is a place of cultural importance for the Mi'kmaq. Fisheries include: Lobster and coastal fishing for Gaspereau. There are 219 active mineral exploration licenses in the watershed, but no active mines. Recreational activities include: boating, kayaking, and recreational angling. There is a DFO Small Craft

No.	Name	Description	Features	Species	Uses
		(Napu'saqnuk) river and estuary site is approximately 160 km^2 of water (including 11 km^2 of the estuary).	no dams impeding fish passage; and no known freshwater aquatic invasive species.	Swallow (*Riparia riparia*), Chimney Swift (*Chaetura pelagica*), Common Nighthawk (*Chordeiles minor*), and Evening Grosbeak (*Coccothraustes vespertinus*).	Harbour in the Sonora estuary. Forestry and agricultural practices take place in the watershed. First Nations can access marine resources in this area for FSC purposes.
6	Country Island Tier 2 Site (Proposed)	Country Island is a Tier 2 network site. It spans from Drum Head to Goose Point and includes waters around Goose Island, Harbour Island, Country Island, Coddles Island, and other nearby small islands. The Country Island size is 113 km^2.	Important foraging area for seabirds, sea ducks, and shorebirds; significant nesting area for birds; identified as an Important Bird Area and Critical habitat for Roseate Terns. Presence of eelgrass. Nearby terrestrial protection, including Country Island National Wildlife Area.	Seabirds, sea ducks, and shorebirds, such as: Roseate Tern, Leach's Storm-petrel (*Hydrobates leucorhous*), and American Black Duck (*Anas rubripes*); and Eelgrass.	Current fisheries include Bluefin Tuna, groundfish (fixed gear), Lobster and Scallop; seaweed harvesting also occurs in the area. First Nations can access marine resources in this area for FSC purposes.
7	Canso Ledges-Sugar Harbour Islands Tier 1 Site (Proposed)	Canso Ledges-Sugar Harbour Islands is a Tier 1 network site that includes the waters around the Canso Peninsula, from Sugar Harbour Islands to Fox Bay. It also extends into Chedabucto Bay. The Canso Ledges-Sugar Harbour Islands site is 524 km^2.	Feeding area for whales, dolphins and porpoises; important foraging area for seabirds, sea ducks, and shorebirds; presence of rockweed (*Ascophyllum nodosum*); overwintering area for Atlantic Herring; juvenile/nursery area for Sand Lance and Grubby (*Myoxocephalus aenaeus*); area of high fish and invertebrate diversity; nearby terrestrial protections, including: Canso Coastal Barrens Wilderness Area, Sugar Harbour Islands Nature Reserve, Black Duck Cove Provincial Park, Andrews Island Provincial Park, and Canso Islands National Historic Site; area of high productivity; and unique bay in size and depth.	Cetaceans, such as: Fin Whale, Harbour Porpoise, Minke Whale, Atlantic White-sided Dolphin, and White-beaked Dolphin (*Lagenorhynchus albirostris*); Atlantic Herring, Sand Lance, and Grubby; groundfish, such as: Atlantic Cod, Winter Skate, Atlantic Wolffish, Acadian Redfish, and Thorny Skate; seabirds, sea ducks and shorebirds, such as: Roseate Tern and Harlequin Duck; and Rockweed.	Fisheries include Bluefin Tuna, Crab, Groundfish (fixed and mobile gear), Hagfish, Lobster, Mackerel, Scallop, Sea Cucumber, Sea Urchin (dive), Shrimp (mobile gear), and Swordfish. There is a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf. There was an important winter purse seine fishery for Herring, although this has not been active in recent years. Recreational activities include: kayaking and hiking. There is high shipping traffic due to proximity to the main shipping lanes to the Strait of Canso Superport. A marine terminal is planned at the proposed Black Point quarry. Green hydrogen and ammonia facilities and a marine cargo terminal are proposed for the Strait of Canso area. A commercial spaceport has been proposed near Canso. First Nations can access marine resources in this area for FSC purposes.
8	Canso Bank and Channels Tier 2 Site (Proposed)	Canso Bank and Channels is a Tier 2 network site located approximately 45 km southeast of Canso. This area encompasses a portion of Canso Bank and some of the surrounding basin, channels, holes, and mounds. The Canso Bank and Channels size is 3,150 km^2.	Significant concentrations of sponges and sand dollars (*Echinarachnius parma*); foraging habitat for seabirds; important habitat for groundfish; area of high larval, fish and invertebrate diversity; area of high primary productivity; diverse habitat types include sandy banks, small channels, deep holes, and mounds; and representative examples of bank and basin habitats.	Sand Lance; groundfish, such as: Cod, American Plaice, Thorny Skate, and Atlantic Wolffish; and sponges and sand dollars.	Fisheries include groundfish (fixed and mobile gear), Clam, Lobster, Sea Cucumber, Sea Urchin (dive), Snow Crab, Shrimp (mobile gear), Swordfish, and Tuna. There is a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf; high amount of shipping traffic. First Nations can access marine resources in this area for FSC purposes.
9	Western and Emerald Banks Marine Refuge (Existing)	Western and Emerald Banks is an existing Marine Refuge established in 2017 pursuant to the Fisheries Act. There is a prohibition on all commercial and recreational fisheries using bottom-contact gear and/or gear known to interact with groundfish. The Western and Emerald Banks Marine Refuge is 10,234 km^2.	Complex benthic-shelf habitat that supports significant spawning and nursery ground for Haddock, as well as other demersal species.	Fish species including Atlantic Cod, Herring, Halibut, Silver Hake, American Plaice, Redfish, Winter Skate, and Yellowtail Flounder inhabit this area. The presence of a partial gyre near the refuge leads to increased retention of larval fish and locally-increased zooplankton diversity, a primary larval food source. Historically, larval fish diversity has been exceptionally high compared to other areas on the Eastern Scotian Shelf.	Prohibition on bottom-contact fishing gear can protect not only the spawning and juvenile Haddock, but a diversity of other groundfish and invertebrate species that use the complex bank habitat. This area can act as a refuge that may contribute to increased species productivity, which in turn, could potentially lead to increased abundance within and adjacent to the area.
10	Sable Island Bank North Tier 2 Site (Proposed)	Sable Island Bank North is a Tier 2 network site. It is located approximately 80 km west of Sable Island and includes a small portion of Sable Island Bank. This site is directly northeast of the Western and Emerald Banks Marine Refuge. The Sable Island Bank North site is 944 km^2.	Presence of sea pens, Horse Mussels (*Modiolus modiolus*), and sand dollars; spawning and nursery area for groundfish, particularly Haddock; important fish habitat; area of high invertebrate, fish and larval fish diversity; Western and Emerald Banks Marine Refuge is located to the west; representative example of bank habitat; and unique oceanography (part of the largest gyre on the Scotian Shelf).	Groundfish such as: Cod, Roundnose Grenadier, Winter Skate, White Hake, and Smooth Skate; Ocean Pout; sea pens, Horse Mussels and sand dollars.	Fisheries include Bluefin Tuna, Crab, groundfish (fixed and mobile gear), Hagfish, Scallop, Sea Cucumber and Swordfish. There is a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf. First Nations can access marine resources in this area for FSC purposes.

No.	Name	Description	Features	Species	Uses
11	Sable Island Bank South Tier 2 Site (Proposed)	Sable Island Bank South is a Tier 2 network site. It is located approximately 60 km southwest of Sable Island and includes a small portion of both Sable Island Bank. This site is immediately east of the Western and Emerald Banks Marine Refuge. The Sable Island Bank South site is 1,087 km^2.	Presence of Horse Mussels and sand dollars; spawning and nursery area for groundfish, particularly Haddock; important fish habitat; area of high invertebrate, fish and larval fish diversity; Western and Emerald Banks Marine Refuge is located to the west; representative example of bank habitat; and unique oceanography (part of the largest gyre on the Scotian Shelf).	Groundfish such as: Cod, Roundnose Grenadier and Winter Skate; Horse Mussels and sand dollars.	Fisheries include Bluefin Tuna, Crab, groundfish (fixed and mobile gear), Scallop, and Swordfish. There is a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf. First Nations can access marine resources in this area for FSC purposes.
12	Logan Canyon Tier 2 Site (Proposed)	Logan Canyon is a Tier 2 network site and is located approximately 40 km south of Sable Island on the central Scotian Shelf. The Logan Canyon size is 2,299 km^2.	Suspected concentrations of bubblegum coral (*Paragorgia arborea*), sea pens, soft coral, and small gorgonian coral; important habitat to support coral connectivity; area of high finfish diversity; and one of several shelf-incising submarine canyons on the central Scotian Shelf.	Groundfish such as: Cusk (*Brosme brosme*), White Hake, Acadian Redfish, and Roundnose Grenadier (*Coryphaenoides rupestris*); bubblegum coral, sea pens and soft corals.	Fisheries include Crab, groundfish (fixed and mobile gear), Hagfish, Herring (mobile gear), Mackerel (fixed and mobile gear), Swordfish and Tuna. There is a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf. There is low shipping traffic. First Nations can access marine resources in this area for FSC purposes.
13	Gully Marine Protected Area (Existing)	The Gully is an existing Marine Protected Area. It was designated as an MPA in 2004 pursuant to the *Oceans Act*. The Gully MPA Regulations prohibit any activities that disturb, damage, destroy or remove living marine organisms or any part of their habitat, unless the activity is listed as an exception in the regulations or approved by the Minister. The Gully MPA size is 2,363 km^2. Conservation priorities for the Gully MPA include: 1) protecting whales and dolphins from the impacts of human activities; 2) protecting seafloor communities and habitat from alterations caused by human activities; 3) maintaining or restoring the quality of the water and sediments of the canyon; and 4) protecting aquatic species.	Shallow sandy banks; deep-water canyon environment; and portions of the continental slope and abyssal plain.	Northern Bottlenose Whale (*Hyperoodon ampullatus*); fifteen other species of whales and dolphins; tiny plankton; variety of fish such as sharks, Tunas and Swordfish, Halibut, Skates, Cusk, and Lanternfish (*Myctophidae*); seabirds; and ocean floor supports: crabs, sea pens, anemones, brittle stars, and approximately 30 species of cold-water corals.	Marine navigation; select fishing activities; and other activities subject to an approved activity plan.
14	Bras d'Or Lake Tier 1 Site (Proposed)	Bras d'Or Lake is a Tier 1 network site. Potential Bras d'Or Lake conservation network sites will be determined in coordination with the Unama'ki Institute of Natural Resources. It is a large inland sea on Cape Breton Island. The Bras d'Or Lake site is 1,457 km^2.	Cultural significance for the Mi'kmaw communities of Unama'ki (Cape Breton); provincially-significant numbers of nesting bald eagles; presence of salt marsh and eelgrass; distinct marine algae including regionally rare species; spawning habitat for Atlantic Salmon and Herring; identified as an Important Bird Area and watershed designated as a UNESCO Biosphere Reserve; nearby terrestrial protection (e.g., Spectacle Island Game Sanctuary); unique oceanographic characteristics, including large temperature changes, stratification (distinct horizontal water layers), and limited exchange with the open ocean, supports relict warm and cold-water species; and unique inland estuarine ecosystem.	American oyster (*Crassostrea virginica*) beds; polychaete worms; Eastern Cape Breton Atlantic Salmon; Herring; Alewife (*Alosa pseudoharengus*), Mackerel, and Three-spined Stickleback (*Gasterosteus aculeatus*); groundfish, such as: Cod, American Plaice, Winter Skate, and White Hake; seabirds and shorebirds, such as: Barrow's Goldeneye (*Bucephala islandica*) and Bald Eagles (*Haliaeetus leucocephalus*); and salt marsh, eelgrass and marine algae.	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. Fisheries include Bluefin Tuna, Crab, groundfish (fixed gear), Lobster, and Scallop. Shellfish harvesting also occurs. There are shellfish and finfish aquaculture leases. Recreational fisheries, including: Eel, Mackerel, Smelt, and Atlantic Salmon (catch and release only); recreational activities, including: boating, sailing, and beachgoing. Coastal development, forestry and mining occur in the watershed. There is some shipping traffic from mining operations and a small cable ferry. First Nations can access marine resources in this area for FSC purposes.
15	Aspy Bay Tier 2 Site (Proposed)	Aspy Bay is a Tier 2 network site. It is located off the northern coast of Cape Breton. It spans the coast from White Point to Pollys Brook and includes North Harbour, Middle Harbour, and South Harbour. The Aspy Bay site is 54 km^2.	Feeding area for whales; important foraging area for seabirds and shorebirds; presence of salt marsh, kelp and eelgrass; overwintering area for Herring; important spawning river for Atlantic Salmon drains into Aspy Bay; identified as an Important Bird Area and Critical Habitat for Piping Plover (*Charadrius melodus*); nearby terrestrial protection, including: Polletts Cove (Aspy Fault Wilderness Area) and Yellow Head Conservation Lands; and high productivity due to lagoons.	Cetaceans, such as: Fin Whale, Humpback Whale, Minke Whale, and Pilot Whale; Eastern Cape Breton Atlantic Salmon; Atlantic Herring; seabirds and shorebirds, such as: Piping Plover and Great Blue Heron (*Ardea herodias*); and salt marsh, kelp, and eelgrass.	Current fisheries include Crab, groundfish (fixed gear), Lobster, Herring (fixed gear) and Mackerel (fixed gear). There is a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf. Shellfish harvesting occurs. There are shellfish and finfish aquaculture leases. Recreational activities include: hiking, beachgoing, and whale watching. First Nations can access marine resources in this area for FSC purposes.

No.	Name	Description	Features	Species	Uses
16	Ingonish Bays Tier 2 Site (Proposed)	Ingonish Bays is a Tier 2 network site. It is located off the northern coast of Cape Breton. It spans the coast from Ingonish to Cape Smokey Provincial Park and includes the waters of North Ingonish Bay and South Ingonish Bay. The Ingonish Bays site is 117 km^2.	Feeding area for whales; important foraging area for seabirds and shorebirds; significant nesting area for Great Cormorants (*Phalacrocorax carbo*); presence of kelp; two spawning rivers for Atlantic Salmon drain into the Ingonish bays; identified as two Important Bird Areas; and nearby terrestrial protection, including: Cape Smokey Provincial Park and Cape Breton Highlands National Park.	Cetaceans, such as: Fin Whale, Humpback Whale, Minke Whale, and Pilot Whale; Eastern Cape Breton Atlantic Salmon; seabirds and shorebirds, such as: Great Black-backed Gull (*Larus marinus*), Great Cormorant, and Herring Gull (*Larus smithsonianus*); and kelp.	Fisheries include Crab, groundfish (fixed gear), Herring (fixed gear), Lobster, Mackerel (fixed gear) and Scallop. There is a moratorium on fishing Cod and Haddock on the Eastern Scotian Shelf. Recreational activities include: hiking, beachgoing, golfing, boating, and whale watching. First Nations can access marine resources in this area for FSC purposes.
17	Birds Island Tier 1 Site (Proposed)	Birds Island is a Tier 1 network site. It includes the waters surrounding Ciboux and Hertford Islands, which are located off of the northern coast of Cape Breton near Cape Dauphin. The Birds Island site is 11 km^2.	Area of high cultural significance to the Mi'kmaq people; important foraging area for seabirds and shorebirds; area of high bird diversity; overwintering area for Herring; juvenile/nursery area for Cod and White Hake; high abundance of Scallop; identified as an Important Bird Area; nearby terrestrial protection, including: Bird Islands Wildlife Management Area and Hertford Island (managed by the Nova Scotia Nature Trust as a bird sanctuary); and isolated island (unique geomorphological feature).	Herring; groundfish such as: White Hake, Cod, and Winter Skate; seabirds and shorebirds, such as: Northern Gannet (*Morus bassanus*), Atlantic Puffin (*Fratercula arctica*), Great Cormorant, and Black-legged Kittiwake (*Rissa tridactyla*).	The nearby Kluskap sea cave is a very important Mi'kmaw site of strong cultural and spiritual significance; fisheries include Lobster, Rock Crab, and Scallop. Recreational activities include: hiking, boat and kayak tours, bird and whale watching. First Nations can access marine resources in this area for FSC purposes.
18	Big Glace Bay Lake Migratory Bird Sanctuary (Existing)	Big Glace Bay Lake Migratory Bird Sanctuary is managed by the Canadian Wildlife Service. It is located on the northeastern coast of Nova Scotia. The Big Glace Bay Lake Migratory Bird Sanctuary size is 3.93 km^2.	Gravel beach (5%), mixed woodland (23%), salt marsh (5%), shallow coastal water, and eelgrass flats (67%).	Piping Plover; other key bird species include: American Black Duck, Canada Goose (*Branta canadensis*), Common Goldeneye (*Bucephala clangula*), Bufflehead (*Bucephala albeola*), and Common Tern (*Sterna hirundo*).	Largely recreational activity (e.g., bird watching); restrictions on hunting and pet animals.
19	St Anns Bank Marine Protected Area (Existing)	St Anns Bank is an existing Marine Protected Area (MPA). It was designated as an MPA in 2017 pursuant to the *Oceans Act*. The St Anns Bank MPA Regulations prohibit any activities that disturb, damage, destroy or remove living marine organisms or any part of their habitat, unless the activity is listed as an exception in the regulations or approved by the Minister. The St. Anns Bank MPA size is 4,364 km^2. Conservation priorities for the St Anns Bank MPA include: 1) conserve and protect all major benthic, demersal (i.e., close to the sea floor) and pelagic (i.e., in the water column) habitats within the MPA, along with their associated physical, chemical, geological and biological properties and processes; 2) conserve and protect marine areas of high biodiversity at the community, species, population and genetic levels within the MPA; and 3) conserve and protect biological productivity across all trophic levels so that they are able to fulfill their ecological role in the ecosystems of the MPA.	St. Anns Bank is an exceptional habitat that has many ecologically and biologically significant features. It has the highest annual sea surface temperature range on the Scotian Shelf and provides important habitat for many commercial and non-commercial marine species; there is a wide variety of habitat types that support biodiversity, from the shallows of St. Anns Bank to the depths of the Laurentian Channel.	Marine species include: Cod, Acadian Redfish, White Hake, Witch Flounder, and a variety of sponges, corals, and sea pens; scientific surveys have recorded more than 100 species in this area; endangered, threatened, and/or special concern marine species, such as Leatherback Turtles, Atlantic Wolffish, Cod, American Plaice, and Acadian Redfish, are also present in the area; in addition, St. Anns Bank is part of an important migration corridor for fish and marine mammals, including whales, moving in and out of the Gulf of St. Lawrence and St. Lawrence Estuary.	Marine navigation; select fishing activities; and other activities subject to an approved activity plan.

Table A2. Summary of at-risk and/or depleted aquatic species that utilize or may be found in proximity to the four Wind Energy Areas (WEA). For purposes herein, 'at-risk' are those species assessed by the Committee on the Status of Endangered Wildlife in Canada (or COSEWIC) as being of 'special concern', 'threatened', or 'endangered' in Canada and/or listed pursuant to the *Species at Risk Act* (SARA). 'Depleted species' are considered those species that are currently at a very low abundance, but were much more abundant at some point in the past. Many, but not all, depleted species have been assessed as at-risk by COSEWIC. The list of select CSAS publications only includes recent or relevant science publications to provide a starting point to understand the species; it is not inclusive of all science publications that may be relevant. CSAS = DFO Canadian Science Advisory Secretariat; DU = Designatable Unit; RS = Recovery Strategy; AP = Action Plan; MP = Management Plan; SAR = Science Advisory Report; RD = Research Document; (—) = no information.

Species	SARA Status	COSEWIC Assessment Status and Report (Date Last Assessed)	Recovery Potential Assessment	SARA Recovery Documents	Other Select CSAS Publications	Species Description	Limiting Factors and/or Primary Threats in Atlantic Canadian Waters
Diadromous Fish							
Bass, Striped (Bay of Fundy)	No Status	Endangered (11/1/2012)	2014/053	—	2001/007	A diadromous species. The natural range of Striped Bass extends along the Atlantic coast of North America from the St. Lawrence Estuary to the St. Johns River in northern Florida. In Atlantic Canada, the only known native Striped Bass populations spawn in five rivers in eastern Canada are: the St. Lawrence, Miramichi, Shubenacadie, Annapolis and Saint John rivers. The Atlantic Canadian Striped Bass populations migrate upstream in the fall and overwinter in fresh or brackish water. The reason for this behaviour appears to be to avoid low ocean temperatures in winter.	Limiting factors and primary threats include directed fisheries, illegal fishing, commercial fishery bycatch, habitat alteration and loss (e.g., causeways, hydroelectric facilities etc.), and changes to habitat water quality.
Bass, Striped (Southern Gulf of St. Lawrence)	No Status	Special Concern (11/1/2012)	—	—	2021/018 2025/001	A diadromous species. The natural range of Striped Bass covers the Atlantic coast of North America from the St. Lawrence River to the St. Johns River in northeast Florida. The southern Gulf of St. Lawrence DU occurs in the southern Gulf of St. Lawrence, primarily on the east coast of New Brunswick, but also part of the coast of Nova Scotia, Prince Edward Island, and eastern Québec (Chaleur Bay and Gaspé). There is only a single spawning population (Northwest Miramichi River). The population migrate upstream in the fall and overwinter in fresh or brackish water. The reason for this behaviour appears to be to avoid low ocean temperatures in winter.	Limiting factors and primary threats include directed fisheries, illegal fishing, commercial fishery bycatch, habitat alteration and loss (e.g., causeways, hydroelectric facilities etc.), and changes to habitat water quality.
Eel, American	No Status	Threatened (5/1/2012)	2013/078	—	2013/134 2019/054 2023/013 2024/046	A diadromous species. American Eel spawn only once during their life span and the entire population spawns together in the Sargasso Sea located south of Bermuda. Post-spawning, the eel larvae drift on North Atlantic currents for up to one year before reaching coastal waters. They then metamorphose into a life stage where they leave the open ocean and enter sheltered salt-water bays, brackish estuaries or freshwater. The American Eel range extends from Greenland to northern South America.	Limiting factors and primary threats include directed fishing, bycatch in other fisheries, directed fisheries on potential prey, physical obstructions, water quantity, water quality, pollutants, chemicals and wastewater, habitat alteration, parasites and diseases, changes in ecosystems, boat and ship traffic, underwater electric cables, oil and gas exploration, and scientific research.
Salmon, Atlantic (ECB DU)	No Status	Endangered (11/26/2010)	2013/072	—	2015/058 2023/043	A diadromous species. The Eastern Cape Breton DU of Atlantic Salmon consists of an assemblage of salmon populations that occupy rivers in a region of Nova Scotia extending from the northern tip of Cape Breton Island along the Atlantic coast to the Canso Causeway.	Limiting factors and primary threats include illegal fishing, salmonid aquaculture, disease and parasites, and changing oceanographic conditions.
Salmon, Atlantic (SU DU)	No Status	Endangered (11/26/2010)	2013/009	—	2009/081 2015/058 2023/043 2024/050	A diadromous species. The Southern Upland DU of Atlantic Salmon consists of the salmon populations that occupy rivers in a region of Nova Scotia extending from the northeastern mainland near Canso, into the Bay of Fundy at Cape Split. This region includes rivers on both the Eastern Shore and South Shore of Nova Scotia draining	Limiting factors and primary threats in freshwater systems include: acidification, altered hydrology, invasive fish species, habitat fragmentation due to dams and culverts, and illegal fishing and poaching. Limiting factors and primary threats in estuarine and marine environments include: salmonid aquaculture and marine ecosystem changes.

Species	SARA Status	COSEWIC Assessment Status and Report (Date Last Assessed)	Recovery Potential Assessment	SARA Recovery Documents	Other Select CSAS Publications	Species Description	Limiting Factors and/or Primary Threats in Atlantic Canadian Waters
						into the Atlantic Ocean, as well as Bay of Fundy rivers south of Cape Split	
Sturgeon, Atlantic (Maritimes Population)	No Status	Threatened (5/1/2011)	2013/022	—	2009/029	A diadromous species. Atlantic Sturgeon occur in rivers, estuaries, nearshore marine environments, and the shelf regions to at least 50 m depths along the Atlantic coast of North America. They range as far north as Ungava Bay, Labrador, into the Gulf of St. Lawrence, southward on the Atlantic coast to Florida and along the coast of the Gulf of Mexico.	Limiting factors and primary threats include directed fisheries, illegal fishing, habitat alteration and loss (e.g., causeways, hydroelectric facilities etc.), and changes to habitat water quality.
Demersal Fish							
Cod, Atlantic (Southern population)	No Status	Endangered (3/9/2010)	2015/069	—	2024/003 2025/017	A demersal (bottom-dwelling) fish that occupies a broad range in Atlantic Canada, from Georges Bank and the Bay of Fundy in the south, northward over the Scotian Shelf, into the Gulf of St. Lawrence, Grand Bank, and Labrador Shelf to Baffin Island. The habitat type for adult Cod is quite diverse.	Limiting factors and primary threats include directed fisheries, discards and bycatch, natural mortality, seal predation, and marine ecosystem changes.
Hake, White (Atlantic & Gulf of St. Lawrence)	No Status	Threatened (11/1/2013)	2016/035	—	2005/058 2025/017	A demersal (bottom-dwelling) fish that occupies a broad range in Atlantic Canada, from Georges Bank and the Bay of Fundy in the south, northward over the Scotian Shelf, into the Gulf of St. Lawrence, and southern Grand Bank. They are found near the bottom and are commonly captured over fine sediment substrates such as mud, but are also reported on sand and gravel. They adjust their depth distribution to find temperatures in the range of 4 to 8° C.	Limiting factors and primary threats include directed fisheries, discards and bycatch, and marine ecosystem changes.
Plaice, American (Maritimes Population)	No Status	Threatened (4/26/2009)	—	—	2025/017	A demersal (bottom-dwelling) flatfish that occupies a broad range in Atlantic Canada, from Georges Bank and the Bay of Fundy in the south, northward over the Scotian Shelf, into the Gulf of St. Lawrence, surrounding Newfoundland and Labrador and along the eastern coast of Baffin Island. They have shown evidence of high natural mortality.	Limiting factors and primary threats include directed fisheries, discards and bycatch, natural mortality, and marine ecosystem changes.
Redfish, Acadian (Atlantic Population)	No Status	Threatened (4/25/2010)	—	—	2023/022	A demersal (bottom-dwelling) fish that occupies a broad range in Atlantic Canada, from the Gulf of Maine to the southern Labrador Sea, including the Gulf of St. Lawrence, Laurentian Channel, and Grand Banks. They have shown long life span, late maturation and slow growth, which are limiting factors to population growth.	Limiting factors and primary threats include directed fisheries, discards and bycatch, long lifespan, and marine ecosystem changes.
Redfish, Deepwater (GSL, Laurentian Channel Pop)	No Status	Endangered (4/25/2010)	—	—	2022/039	A demersal (bottom-dwelling) fish found on both sides of the Atlantic Ocean. In Atlantic Canadian waters its range is from the Grand Banks to Baffin Bay, including the Gulf of St. Lawrence, Laurentian Channel, and Labrador Sea. It has shown long life span, late maturation, and slow growth, which are limiting factors to population growth.	Limiting factors and primary threats include directed fisheries, discards and bycatch, long lifespan, and marine ecosystem changes.
Skate, Smooth (Laurentian Channel / Scotian Shelf)	No Status	Special Concern (5/4/2012)	—	—	2017/011 2025/017	A demersal (bottom-dwelling) fish species that occupies a broad range in Atlantic Canada, from Georges Bank to the Nose of the Grand Bank. They live on the sea bottom and prefer soft mud and clay substrates. They are found over a fairly wide range of depths, although this is narrower at	Limiting factors and primary threats include discards and bycatch, long lifespan, and marine ecosystem changes. The species is not subject to a targeted fishery.

Species	SARA Status	COSEWIC Assessment Status and Report (Date Last Assessed)	Recovery Potential Assessment	SARA Recovery Documents	Other Select CSAS Publications	Species Description	Limiting Factors and/or Primary Threats in Atlantic Canadian Waters
						specific latitudes. The densest concentrations occur between 150 and 550 m. High natural mortality may be a source of decline in some areas.	
Winter Skate (Eastern Scotian Shelf - Newfoundland population)	No Status	Endangered (5/1/2015)	2017/014	—	2025/017	A demersal (bottom-dwelling) fish species that occupies a broad range in the Northwest Atlantic and are found from the northern Gulf of St. Lawrence and Southern Newfoundland to Cape Hatteras, North Carolina. In Canadian waters, they are concentrated in three areas: the Gulf of St. Lawrence, Eastern Scotian Shelf/Southern Newfoundland, and the Western Scotian Shelf/Bay of Fundy/Canadian portion of Georges Bank. They have late maturity and low rates of reproduction.	Limiting factors and primary threats include discards and bycatch, seal predation, and marine ecosystem changes. The species is not subject to a targeted fishery.
Wolffish, Atlantic	Special Concern	Special Concern (11/25/2012)	—	2020	2014/022 2022/044 2024/010 (SAR) 2024/010 (RD) 2025/017	A demersal (bottom-dwelling) fish that occupies a broad range in Atlantic Canada, from Georges Bank and the Bay of Fundy in the south, northward over the Scotian Shelf, into the Gulf of St. Lawrence, surrounding Newfoundland and Labrador and along the eastern coast of Baffin Island.	Limiting factors and primary threats include fishery bycatch.
Pelagic Fish							
Bluefin Tuna, Atlantic	No Status	Endangered (5/6/2011)	2011/056	—	2020/120 (ICCAT)	A large pelagic species that is highly migratory and found across the Atlantic Ocean. The western Atlantic Bluefin Tuna population feeds during the summer in Atlantic Canadian waters and migrates south during the winter months to the Gulf of Mexico where their spawning, larval, and juvenile rearing habitats are located.	Limiting factors and primary threats include overfishing, overfishing of prey species, changing oceanographic conditions, anthropogenic noise, and hydrocarbon development.
Sharks							
Shark, Basking (Atlantic Population)	No Status	Special Concern (11/27/2009)	—	—	2008/036	A large shark found in waters of Atlantic Canada during summer and fall; often detected near the coast in areas like the Gulf of St. Lawrence, Scotian Shelf, and Bay of Fundy. In offshore areas, they are often found near oceanic fronts where temperatures range between 7 and 16°C.	Limiting factors and primary threats include directed fisheries, bycatch, and vessel strikes.
Shark, Spiny Dogfish (Atlantic Population)	No Status	Special Concern (4/1/2010)	—	—	2020/001	A small shark that is widely distributed year-round in Atlantic Canadian waters; particularly in the Bay of Fundy and along the Scotian Shelf, moving inshore in summer and offshore in winter. They are often found in waters between 5 and 15°C.	Limiting factors and primary threats include overfishing and bioaccumulation of toxins.
Shark, Porbeagle	No Status	Endangered (5/1/2014)	2015/048	—	2024/042	A large shark that occurs from Georges Bank and the Bay of Fundy to the Gulf of St. Lawrence, including on the Scotian Shelf. They prefer cool waters between 5 and 10ºC. Immature sharks reside on the Scotian Shelf, with mature sharks migrating along the shelf toward the Grand Banks in spring.	Limiting factors and primary threats include directed fisheries, bycatch, anthropogenic noise, marine pollution, spills from hydrocarbon development, and other large scale marine development, such as pipelines and submarine cables.
Shark, Shortfin Mako	No Status	Endangered (5/3/2019)	2021/050	—	—	A large shark detected around the continental shelf of Nova Scotia, Georges Bank, and Browns Bank in warm (17–22 ºC) offshore waters in summer and fall. They are also detected in the Gulf of St. Lawrence, where they are present in greatest abundance from June to December.	Limiting factors and primary threats include directed fisheries, bycatch, underwater noise, marine pollution, ocean acidification, and climate change

Species	SARA Status	COSEWIC Assessment Status and Report (Date Last Assessed)	Recovery Potential Assessment	SARA Recovery Documents	Other Select CSAS Publications	Species Description	Limiting Factors and/or Primary Threats in Atlantic Canadian Waters
Shark, White (Atlantic population)	Endangered	Endangered (4/1/2021)	2005/052	RS (2025)	2017/025	A large shark that is found throughout Atlantic Canada. They are seasonally detected mainly in summer and fall, although there are documented occurrences in winter, within coastal and pelagic (offshore) waters that range between 14 and 25°C.	Limiting factors to the species in Atlantic Canadian waters includes naturally low abundance, low reproductive capacity, slow growth, and late maturation. The primary threat to the species is fishing interactions.
Sea Turtles							
Turtle, Leatherback (Atlantic population)	Endangered	Endangered (12/3/2022)	2020/039 2022/004	RS (2007) AP (2020)	2020/041	The largest of the marine turtles; abundant on the Scotian Shelf in nearshore and offshore waters from June through October; forage on jellyfish. Important habitat for Leatherback Sea Turtle on the Scotian Shelf includes waters off of eastern Cape Breton Island, including Sydney Bight, the Cabot Strait, and adjacent portions of the Laurentian Channel.	Limiting factors and primary threats include bycatch, entanglement in ghost gear, underwater noise, marine pollution, vessels strikes, and climate change (i.e., variables that negatively affect food availability, disrupt migration, or otherwise make Leatherback habitat unsuitable could threaten the function of this habitat).
Turtle, Loggerhead	Endangered	Endangered (4/25/2010)	2010/042	RS (2020)	2017/014	A hard-shelled marine turtle regularly found in Atlantic Canadian waters on and off the continental shelf in spring through fall. Loggerheads are commonly reported on the Scotian Shelf, Northeast Channel, Georges Bank, and the Grand Banks. Habitat use is influenced by ambient ocean temperature, turtle size, and behaviour.	Limiting factors and primary threats include bycatch, vessel strikes, pollution, ingestion of marine debris, entanglement, noise and light from offshore activities, and climate change.
Marine Mammals							
Whale, Blue (Atlantic)	Endangered	Endangered (5/4/2012)	—	RS (2009) AP (2020)	2016/078 2016/080 2018/007	A large baleen whale found throughout Atlantic Canadian waters. They are present on the Scotian Shelf and Slope and in the Laurentian Channel throughout the year. They inhabit coastal and open ocean water and are frequently observed in areas that have a high krill abundance (their primary food source). The entirety of the Scotian Shelf edge, including areas that overlap with the Sable Island Bank WEA, has been identified as important foraging habitat for this species (among other areas off eastern Canada).	Limiting factors and primary threats include anthropogenic noise, climate change, contaminants, vessel strikes, whale watching, entanglement in fishing gear, toxic algal blooms, and toxic spills.
Whale, Fin (Atlantic)	Special Concern	Special Concern (5/3/2019)	—	MP (2017)	—	A large baleen whale found throughout Atlantic Canadian waters. They are present off Atlantic Canada throughout the year and are commonly detected throughout the Scotian Shelf and Slope, as well as in the Laurentian Channel region.	Limiting factors and primary threats include reduced prey availability, chemical pollution, fishery interactions, vessel strikes, acoustic disturbance, and whaling.
Whale, Killer (Northwest Atlantic / Eastern Arctic population)	No Status	Special Concern (12/1/2023)	—	—	2007/062	A large dolphin that is most commonly observed off Newfoundland and Labrador, although sightings are reported further south including in the Laurentian Channel area, on the Scotian Shelf, and in the Bay of Fundy.	Limiting factors and primary threats include natural mortality, dietary limitations, contaminants, acoustic disturbance, oil spills, vessel strikes/disturbance, and fishery interactions.
Whale, North Atlantic Right	Endangered	Endangered (11/1/2013)	2025/078	RS (2014) AP (2021)	2019/028 2020/037 2024/039 2024/040 2024/046 2024/059 2024/077 2025/009 2025/018	A large whale that is primarily distributed in the lower temperate and subtropical waters of the western North Atlantic in winter and migrate northward into temperate waters in the summer. The species range extends from the southern calving grounds off South Carolina, Georgia, and northeastern Florida, to their more northern feedings grounds in the Bay of Fundy, Scotian Shelf, and the Gulf of St. Lawrence. Occasional sightings have also been reported in Bermuda and the Caribbean to the south, and in	Primary threats to the species in Atlantic Canadian waters are entanglement in fishing gear and vessel strikes, with an emerging potential threat being offshore wind development. In general, threats to the species include incidental catch and fishing gear interactions, vessel traffic (including vessel strikes, presence, and associated noise pollution), pollution (including ocean noise and spills), changing ocean-physics (due to climate change), scientific activities, harvesting, and food supply resource depletion.

Species	SARA Status	COSEWIC Assessment Status and Report (Date Last Assessed)	Recovery Potential Assessment	SARA Recovery Documents	Other Select CSAS Publications	Species Description	Limiting Factors and/or Primary Threats in Atlantic Canadian Waters
					2025/049 2025/058 2025/059 2025/077	the coastal waters around Newfoundland and Labrador, the Davis Strait and Iceland to the north, as well as off Norway and the Azores.	Wind energy production (with a focus on the development and operation phases) in the offshore is identified as a potential threat to the endangered North Atlantic right whale. The development and construction phases of wind farms are associated with a number of threats to North Atlantic Right Whales that include pollution from pile driving and seismic surveys, increased vessel operations, and pollution from chemical contaminants released from the sediments. Operational activities of wind energy production may also result in changes in vessel traffic patterns and the associated threats. The threat of noise pollution from wind energy production is expected to be low at an individual level of impact. Indirect effects of offshore wind farms may have a greater impact on North Atlantic Right Whale than direct effects. Given wind is a relatively new ocean industry in the offshore of eastern North America, it is difficult to evaluate potential direct and indirect impacts at individual or population levels.
Whale, Northern Bottlenose (Scotian Shelf population)	Endangered	Endangered (11/28/2024)	2011/031	RS (2016) AP (2017)	2020/008 2024/054	A medium-sized beaked whale that resides year-round in deep waters off the Eastern Scotian shelf-break, including in submarine canyons of the Eastern Scotian Shelf. Zone 1 of the Gully Marine Protected Area , Shortland Canyon, and Haldimand Canyon have been identified as Critical Habitat for this population, while the entirety of the Scotian Slope and edge of the Grand Banks and shelf break off Newfoundland have been identified as important habitat for these whales.	Limiting factors and primary threats include climate change, historical whaling, acoustic disturbance (e.g., sonar, vessels, seismic, etc.), fisheries interactions, vessel strikes, pollution, and marine contaminants.
Whale, Sei (Atlantic Population)	No Status	Endangered (5/3/2019)	—	—	2024/024	A large baleen whale found throughout Atlantic Canadian waters. They are present off Atlantic Canada throughout the year and are detected all throughout the Scotian Shelf and Slope, as well as in the Laurentian Channel region	Limiting factors and primary threats include noise, oil and gas activities, maritime shipping, fishery interactions, military exercises, and offshore energy (e.g., wind and tidal).
Whale, Sowerby's Beaked	Special Concern	Special Concern (5/3/2019)	—	MP (2017)	—	A small beaked whale that resides year-round in deep waters (generally greater than 500 m depth) off Nova Scotia and Newfoundland, including in submarine canyons of the Eastern Scotian Slope.	Limiting factors and primary threats include low reproductive rate, mass standings, acoustic disturbance, seismic activity, other intense underwater sounds, and marine bioaccumulation in blubber.
Harbour Porpoise (Northwest Atlantic population)	No Status	Special Concern (05/11/2022)	—	—	—	A small porpoise species that is widely distributed in coastal waters and across continental shelf waters, including on the Scotian Shelf and in the Laurentian Channel throughout the year. They prefer cooler waters (less than 16 °C).	Limiting factors and primary threats include bycatch in fishing gear. The magnitude of this threat has diminished since the 1990s due to the depletion of groundfish stocks and consequent reductions in fishing effort.

Table A3. Fisheries with a proportion of total landings equal to or greater than 1% (by licensed fishery management unit) occurring within a Wind Energy Area (WEA), based on aggregated total fishery landings (2012–2023). See Figures 6-9 for representation of landings in relation to each WEA; note that the aggregated landings in Figures 6-9 are based on landings data from 2012–2023 with the exception of exploratory Whelk that is based on landings from 2019–2023. (—) = no information; CC = communal commercial; CHP = Conservation Harvest Plan; CFA = Crab Fishing Area; IFMP = Integrated Fishery Management Plan; LFA = Lobster Fishing Area; NAFO = Northwest Atlantic Fishery Organization; SFA = Scallop Fishing Area; SFA = Shrimp Fishing Area. Note that PC refers to 'privacy considerations' whereby the number of active licence holders is less than five, so percentage values cannot be reported publicly for these fisheries pursuant to the *Privacy Act*. In contrast, although NAFO 4W Whelk has limited licence holders it can be reported on publicly given it is an exploratory fishery (and not a commercial fishery).

Fish Stock	Licenced Fishery Management Unit	No. of Licences [1] (No. of CC Licences)	Description of Fishing Gear and Fishing Practice	Stock Status (2023)	Regulated Season [2]	IFMP / CHP	Stock Assessment or Other Science	Stock Update	Portion of Aggregated Total Fishery Landings (2012-2023) Reported from within WEA (%)
French Bank WEA									
Hagfish	NAFO 4W (Midshore)	6 (1)	Targeted using barrels equipped with minimum-sized escape holes.	Uncertain	Apr. 15–Oct. 15	Hagfish CHP	—	2018/048	10.9
Snow Crab	CFA 24 (East)	52 (14)	Targeted using large (6-7') conical or rectangular baited traps that sit on the seabed.	Healthy	Mar. 15–Aug. 31	ENS and 4X Snow Crab IFMP	2024/062	2022/036	1.9
Atlantic Halibut	NAFO 4VsW	555 (2)	Targeted using longline or handline.	Healthy	Apr. 1–Mar. 31	4VWX5 Groundfish IFMP	2024/009	2025/008	1.7
American Lobster	LFA 31B and LFA 32	70 (0)	Targeted using individual Lobster traps in trawls (or strings) up to 10–15 traps that are anchored to the seabed.	Healthy	Apr. 19–June 20	Lobster LFAs 27-38 IFMP	2020/026	2023/014	Undetermined; see text above
Middle Bank WEA									
Sea Cucumber	NAFO 4W (Midshore)	1 (0)	Targeted using a modified scallop drag.	Uncertain	May 1–Mar. 31	Sea Cucumber CHP	2021/007	—	PC
Whelk (Exploratory) [3]	NAFO 4W	2 (0)	Targeted using conical traps that sit on the seabed, deployed on a string approximately 20 fathoms from one another.	Healthy	June 1–Dec. 31	—	2022/043	—	95.9
Sea Scallop	SFA 25	5 (0)	Targeted using steel scallop drags, up to 2–3, towed along the seabed that range from 12–17' in width.	Uncertain	Jan. 1–Dec. 31	Offshore Scallop IFMP	2025/066	—	12.5
Snow Crab	CFA 24 East	52 (14)	Targeted using large (6-7') conical or rectangular baited traps that sit on the seabed.	Healthy	Mar. 15–Aug. 31	ENS and 4X Snow Crab IFMP	2024/062	2022/036	5.5
Northern Shrimp	SFA 13-15 (Mobile)	42 [4] (14)	Targeted using mobile bottom trawl equipped with a Nordmøre separator grate.	Cautious	Jan. 1–Dec. 31	ESS Northern Shrimp IFMP	2022/033	2024/012	1.0
Sable Island Bank WEA									
Sea Cucumber	NAFO 4W Offshore	1 (0)	Targeted using a modified scallop drag.	Uncertain	May 1–Mar. 31	Sea Cucumber CHP	2021/007	—	PC
Sea Scallop	SFA 25	5 (0)	Targeted using steel scallop drags, up to 2–3, towed along the seabed that range from 12–17' in width.	Uncertain	Jan. 1–Dec. 31	Offshore Scallop IFMP	— [4]	—	3.3

Fish Stock	Licenced Fishery Management Unit	No. of Licences [1] (No. of CC Licences)	Description of Fishing Gear and Fishing Practice	Stock Status (2023)	Regulated Season [2]	IFMP / CHP	Stock Assessment or Other Science	Stock Update	Portion of Aggregated Total Fishery Landings (2012-2023) Reported from within WEA (%)
Whelk (Exploratory) [3]	NAFO 4W	2 (0)	Targeted using conical traps that sit on the seabed, deployed on a string approximately 20 fathoms from one another.	Healthy	June 1–Dec. 31	—	2022/043	—	1.1
Sydney Bight WEA									
Snow Crab	CFA 20-22	78 (0)	Targeted using large (6-7') conical or rectangular baited traps that sit on the seabed.	Healthy / Cautious [5]	Apr. 10–Aug. 18	ENS and 4X Snow Crab IFMP	2024/062	2022/036	2.8
Atlantic Halibut	NAFO 4Vn	457 (6)	A combination of fixed gear and mobile gear by fleet sector.	Healthy	Apr. 1–Mar. 31	4VWX5 Groundfish IFMP	2024/009	2025/008	1.5
Hagfish	NAFO 4Vn	3 (1)	Targeted using barrels equipped with minimum-sized escape holes.	Uncertain	Apr. 15–Oct. 15	Hagfish CHP	—	2018/048	1.4
American Lobster	LFA 27	477 (19)	Targeted using individual Lobster traps in deployed as single traps, strings of more than one trap, or both. Average trawl length is 3.7 traps that are anchored to the seabed.	Healthy	May 15–Jul. 15	Lobster LFAs 27-38 IFMP	2020/026	2023/014	Undetermined; see text above

[1] Commercial fishery licences may be held by Indigenous-based fishery interests, which are different than communal commercial fishery licences.

[2] Many fisheries have shorter, active fishing periods within the regulated season that are often defined by market conditions or Total Allowable Catch rates, so the timing of active fishing periods may change year-over-year.

[3] The Whelk fishery is considered to be an exploratory fishery (not a commercial fishery) but is included here due to its overlap with the Middle Bank WEA and Sable Island Bank WEA.

[4] Northern Shrimp fishery consists of 42 mobile licences, 28 of which are DFO Maritimes Region-based mobile licences (primarily less than 65 ft length overall) and 14 of which are DFO Gulf Region-based mobile licences (65-100 ft length overall).

[5] In 2024, the N-ENS (CFA 20-22) snow crab stock was in the Cautious zone (see: Maritimes Region Snow Crab Stock Assessment for 2024).

APPENDIX B: LIST OF AVAILABLE DATASETS

The following list of DFO geospatial datasets align with the Eastern Scotian Shelf area and may be applicable to any future offshore wind development planning both in the offshore and inwards to the coast of Nova Scotia. The following list only includes DFO datasets that are currently published on the Government of Canada Open Data information portal. The following list does not include all available DFO data, some of which is not currently posted publicly, nor be representative of the most up-to-date datasets found on the Open Data portal.

No.	Theme	Dataset Title and Open Data Link	Dataset Description
Administrative Boundaries			
1	Administrative Boundaries	Federal Marine Bioregions	Boundaries of 13 ecologically defined bioregions that cover Canada's oceans and the Great Lakes.
2	Administrative Boundaries	Eastern Canada Marine Spatial Planning Areas	Three marine spatial planning areas are delineated in Eastern Canada to define the spatial extents of marine spatial plans being led by DFO.
3	Administrative Boundaries	NAFO Divisions and Subdivisions	Northwest Atlantic Fisheries Organization (NAFO) subareas, divisions, and sub-divisions.
4	Administrative Boundaries	Marine Protected Areas	Oceans Act Marine Protected Area (MPA) boundaries.
5	Administrative Boundaries	Oceans Act Areas of Interest	Area of Interest (AOI) that marks the beginning of the Oceans Act Marine Protected Area (MPA) establishment process.
6	Administrative Boundaries	Other Effective Area-Based Conservation Measures	Area-based management measures that have been recognized as 'other effective area-based conservation measures'..
7	Administrative Boundaries	Critical Habitat	Species at Risk Act Critical Habitat (CH) for aquatic at-risk species.
8	Administrative Boundaries	Canada Coast Guard Regions	Four administrative regions in Canadian Coast Guard regions: Western; Arctic; Central; and Atlantic.
9	Administrative Boundaries	Oceans Protection Plan Regional Response Planning Extents	Spatial boundaries for the Port Hawkesbury and Saint John pilot areas within the Oceans Protection Plan (OPP) Area Response Plan (ARP) project.
10	Administrative Boundaries	Small Craft Harbours Locations and Information	Map of harbours critical to fishing and aquaculture industries managed by harbour authorities (Core fishing harbours), harbours that support fishing and aquaculture industries that aren't managed by harbour authorities (Non-core fishing harbours), and harbours that support the recreational community (Recreational harbours).
Oceanography, Surficial Geology, and Ecosystem			

No.	Theme	Dataset Title and Open Data Link	Dataset Description
11	Oceanography, Surficial Geology, and Ecosystem	Fetch and relative wave exposure indices for the coastal zones of the Scotian Shelf-Bay of Fundy and Newfoundland-Labrador Shelves bioregions	Two measures of fetch (unweighted fetch, effective fetch) and three fetch-derived indices of wave exposure (sum fetch, minimum fetch, and a relative exposure index) covering the coastal zones of the Scotian Shelf-Bay of Fundy and Newfoundland-Labrador Shelves bioregions.
12	Oceanography, Surficial Geology, and Ecosystem	Fetch and relative wave exposure indices for the coastal zone of the Scotian Shelf-Bay of Fundy bioregion	Relative exposure index (REI) for wind-driven waves covering the coastal zone of the Scotian Shelf-Bay of Fundy bioregion.
13	Oceanography, Surficial Geology, and Ecosystem	A climate risk index for marine life across the Canadian exclusive economic zone	A climate risk index for marine life across the Canadian exclusive economic zone.
14	Oceanography, Surficial Geology, and Ecosystem	A substrate classification for the Inshore Scotian Shelf and Bay of Fundy, Maritimes Region	A coastal surficial substrate layer for the coastal Scotian Shelf and Bay of Fundy.
15	Oceanography, Surficial Geology, and Ecosystem	BioChem: SAHFOS continuous plankton recorder E and Z lines - Maritimes	Plankton (i.e., zooplankton and large phytoplankton) are collected using the Continuous Plankton Recorder (CPR) in the Northwest Atlantic along tracks transited by container ships.
16	Oceanography, Surficial Geology, and Ecosystem	Canadian Extreme Water Level Adaptation Tool (CAN-EWLAT)	A science-based planning tool for climate change adaptation of coastal infrastructure related to future water-level extremes and changes in wave climate.
17	Oceanography, Surficial Geology, and Ecosystem	Vertical allowance gridded dataset for Canada	The vertical allowance is the recommended height that the infrastructure needs to be raised in future years relative to year 2010. The vertical allowance depends on (1) statistics of historical storm surge and tides, and (2) the best estimate and associated uncertainty of future sea level rise.
18	Oceanography, Surficial Geology, and Ecosystem	Chemical and Biological Oceanographic Conditions on the Scotian Shelf and in the Eastern Gulf of Maine during 2023	Nutrient and plankton metrics assessed in the context of physical conditions observed in the Maritimes region in 2023.
19	Oceanography, Surficial Geology, and Ecosystem	Coastal Environmental Exposure Layer	A climate change adaptation tool that supports management decisions regarding the long-term infrastructure planning for DFO small craft harbour sites.
20	Oceanography, Surficial Geology, and Ecosystem	Future hydrographic state of the Scotian Shelf and Gulf of Maine from 23 CMIP6 Models	Data from the analysis of sea surface temperature, sea surface salinity, bottom temperature, and bottom salinity, over the Gulf of Maine and Scotian Shelf.
20	Oceanography, Surficial Geology, and Ecosystem	Characteristics of Environmental Data Layers for Use in Species Distribution Modelling in the Maritimes Region	Physical and chemical variables obtained from a broad range of physical and biological data sources and spatially interpolated using geostatistical methods to support Species Distribution Models (SDM).

No.	Theme	Dataset Title and Open Data Link	Dataset Description
21	Oceanography, Surficial Geology, and Ecosystem	Maritime region grainsize data	Sediment grain size data from sediment and water column samples using bottle samples, sediment cores, and sediment grabs from various research projects in the Atlantic provinces and some projects worldwide.
22	Oceanography, Surficial Geology, and Ecosystem	Maritimes Region Atlantic Zone Monitoring Program 1991 to 2020 Hydrographic Transect Climatology	Hydrographic 1991 to 2020 climatology for the DFO Maritimes Region Atlantic Zone Monitoring Program core transects lines that support annual reporting on seasonal variability.
23	Oceanography, Surficial Geology, and Ecosystem	Monthly Currents Climatology of the Northwest Atlantic Ocean from BNAM model (1990-2015)	Monthly mean currents from North Atlantic Model (BNAM) results averaged over 1990 to 2015 to create monthly mean climatology for the Northwest Atlantic Ocean.
24	Oceanography, Surficial Geology, and Ecosystem	Monthly Salinity Climatology of the Northwest Atlantic Ocean from BNAM model (1990-2015)	Monthly mean salinity from North Atlantic Model (BNAM) results averaged over 1990 to 2015 to create monthly mean climatology for the Northwest Atlantic Ocean.
25	Oceanography, Surficial Geology, and Ecosystem	Monthly Temperature Climatology of the Northwest Atlantic Ocean from BNAM model (1990-2015)	Monthly mean temperature from North Atlantic Model (BNAM) results averaged over 1990 to 2015 to create monthly mean climatology for the Northwest Atlantic Ocean.
26	Oceanography, Surficial Geology, and Ecosystem	Near-seafloor drift transect video imagery and high-resolution digital still images from a two-year survey in support of Marine Protected Area monitoring of St. Anns Bank, Atlantic Canada	Two-year optical imagery benthic survey captured 41 drift-camera transects in the St. Anns Bank Marine Protected Area (MPA) and four coastal transects west of the MPA.
27	Oceanography, Surficial Geology, and Ecosystem	Ocean Data Inventory	An inventory of all of the oceanographic time series data held by the DFO Ocean Science Division located at the Bedford Institute of Oceanography, Dartmouth, NS.
28	Oceanography, Surficial Geology, and Ecosystem	Upwelling indices derived from GLORYS12 Model and ERA5 surface wind on the Scotian Shelf during 1993-2022	Estimates of wind-driven upwelling of colder water on the Scotian Shelf along the Nova Scotia coastline from 1993 to 2022.
29	Oceanography, Surficial Geology, and Ecosystem	Ecological Production Units	Ecological Production Units (EPU) that consist of a combination of ecoregions that represent elements with different physical and biological characteristics.
30	Oceanography, Surficial Geology, and Ecosystem	Estimates of anthropogenic nitrogen loading and eutrophication indicators for the Bay of Fundy and Scotian Shelf	Estimates of anthropogenic nitrogen loading and eutrophication indicators for the Bay of Fundy and Scotian Shelf.
31	Oceanography, Surficial Geology, and Ecosystem	Calanus spp. size and lipid content metrics in North Atlantic, 1977-2019	Zooplankton *Calanus* species size and lipid content metrics in North Atlantic, 1977-2019.

No.	Theme	Dataset Title and Open Data Link	Dataset Description
32	Oceanography, Surficial Geology, and Ecosystem	Past and Future Sea Surface Temperature Changes in the Oceans Surrounding Canada	This study presents changes in the sea surface temperature (SST) in the oceans surrounding Canada using past observations and model projections of future scenarios. The past changes are derived using an SST product, HadISST, in which a recent period (2012-2022) was referenced to a 26-year climatology (1955-1980).
Ecologically and Biologically Important Areas, Species			
33	Ecologically and Biologically Important Areas and Species	Ecologically and Biologically Significant Areas	Ecologically and Biologically Significant Areas (EBSAs) identified through formal scientific assessments as having special biological or ecological significance when compared with the surrounding marine ecosystem.
34	Ecologically and Biologically Important Areas	Significant Benthic Areas	Significant Benthic Areas (SiBA) defined as significant areas of cold-water corals and sponge dominated communities.
35	Ecologically and Biologically Important Areas	Delineating Coral and Sponge Concentrations in the Biogeographic Regions of the East Coast of Canada Using Spatial Analyses	Concentrations of sea pens, small and large gorgonian corals, and sponges on the east coast of Canada identified through spatial analysis of research vessel survey bycatch data.
36	Ecologically and Biologically Important Areas	Delineation of Coral and Sponge Significant Benthic Areas in Eastern Canada (2016)	Maps of the location of significant concentrations of corals and sponges on the east coast of Canada produced through quantitative analyses of research vessel trawl survey data, supplemented with other data sources where available.
37	Ecologically and Biologically Important Areas	Kernel Density Analyses of Coral and Sponge Catches from Research Vessel Survey Data (2016)	Kernel density analyses of coral and sponge catches from research vessel survey data (2016).
38	Ecologically and Biologically Important Areas	Large Gorgonian Coral Fields in the Scotian Shelf (Western IIA Trawl Sample)	Large gorgonian coral fields in the Scotian Shelf (Western IIA Trawl Sample).
39	Ecologically and Biologically Important Areas	Sea Pen Fields in the Scotian Shelf (Western IIA Trawl Sample)	Sea pen fields in the Scotian Shelf (Western IIA Trawl Sample).
40	Ecologically and Biologically Important Areas	Sponge Fields in the Scotian Shelf (Western IIA Trawl Sample)	Sponge fields in the Scotian Shelf (Western IIA Trawl Sample).
41	Ecologically and Biologically Important Areas	Glass sponge grounds on the Scotian Shelf and their associated biodiversity	Glass sponge grounds on the Scotian Shelf and their associated biodiversity.
42	Ecologically and Biologically Important Areas	Predicted distribution of the glass sponge Vazella pourtalesi on the Scotian Shelf and its persistence in the face of climatic variability	Predicted distribution of the glass sponge *Vazella pourtalesi* on the Scotian Shelf and its persistence in the face of climatic variability.

No.	Theme	Dataset Title and Open Data Link	Dataset Description
43	Ecologically and Biologically Important Areas	Species Distribution Modelling of Corals and Sponges in the Maritimes Region for Use in the Identification of Significant Benthic Areas	Species Distribution Modelling (SMD) of corals and sponges in the DFO Maritimes Region for use in the identification of Significant Benthic Areas.
44	Ecologically and Biologically Important Areas	Sponge occurrence and associated species and habitat descriptions derived from the 2021 and 2022 SCUBA diving surveys in the Eastern Shore Islands Area of Interest, Nova Scotia	Sponge occurrence and associated species and habitat descriptions derived from the 2021 and 2022 SCUBA diving surveys in the Eastern Shore Islands Area of Interest, Nova Scotia.
45	Ecologically and Biologically Important Areas	Offshore Ecological and Human Use Information Considered in Marine Protected Area Network Design in the Scotian Shelf Bioregion	Offshore ecological and human use information considered in Marine Protected Area network design in the Scotian Shelf bioregion.
46	Ecologically and Biologically Important Areas	Marine Conservation Targets (MCT) - Camera Surveys of the Subtidal Flora of Nova Scotia and Southwest New Brunswick 2022-2023	Distribution of sub-tidal kelp beds and other macroalgae in Nova Scotia and Southwest New Brunswick from drop camera survey performed from 2022 to 2023 at 140 sites.
47	Ecologically and Biologically Important Areas	Maritimes Regional Application of the National Framework for Assessing the Vulnerability of Biological Components to Ship-Source Oil Spills in the Marine Environment	DFO Maritimes regional application of the national framework for assessing the vulnerability of biological components to ship-source oil spills in the marine environment.
At-risk and Depleted Species			
48	At Risk and Depleted Species	Fisheries and Oceans Canada Species at Risk Distribution (Range)	Spatial database that identifies areas in which aquatic species listed under the SARA may be found. Distribution and range information are identified for species listed as Endangered, Threatened or Special Concern under SARA.
49	At Risk and Depleted Species	The fate of intracoelomic acoustic transmitters in Atlantic Salmon (*Salmo salar*) post-smolts and wider considerations for causal factors driving tag retention and mortality in fishes	The fate of intracoelomic acoustic transmitters in Atlantic Salmon (*Salmo salar*) post-smolts and wider considerations for causal factors driving tag retention and mortality in fishes
50	At Risk and Depleted Species	Salmon Rivers Presence, Maritimes Region	Salmon river presence in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
51	At Risk and Depleted Species	Identifying priority areas to enhance monitoring of cetaceans in the Northwest Atlantic Ocean	Species Distribution Models (SDM) were used to predict and identify priority areas for enhanced monitoring of cetaceans in eastern Canadian waters off Nova Scotia, Newfoundland and Labrador.
52	At Risk and Depleted Species	Marine mammal records collected by the At-Sea Observer program in Arctic, Newfoundland and Labrador and Maritimes regions	Marine mammal records collected by the At-Sea Observer program in Arctic, Newfoundland and Labrador and Maritimes regions

No.	Theme	Dataset Title and Open Data Link	Dataset Description
53	At Risk and Depleted Species	Northern bottlenose whale important habitat in inter-canyon areas on the Eastern Scotian Shelf	Northern Bottlenose Whale important habitat in inter-canyon areas on the Eastern Scotian Shelf
54	At Risk and Depleted Species	Important Areas for Blue Whale	DFO modeling analysis that identified areas as the most suitable habitat for Blue whales: Gulf of St. Lawrence, waters off the southern coast of Newfoundland, the region of Mecatina Trough, the Esquiman Channel and the continental shelf margin off Nova Scotia.
55	At Risk and Depleted Species	Pelagic Shark Satellite Tag data - Basking Shark	Pelagic shark satellite tag data for Basking Shark.
56	At Risk and Depleted Species	Pelagic Shark Satellite Tag data - Blue Shark	Pelagic shark satellite tag data for Blue Shark.
57	At Risk and Depleted Species	Pelagic Shark Satellite Tag data - Mako Shark	Pelagic shark satellite tag data for Mako Shark.
58	At Risk and Depleted Species	Pelagic Shark Satellite Tag data - Porbeagle	Pelagic shark satellite tag data for Porbeagle.
59	At Risk and Depleted Species	Pelagic Shark Satellite Tag data - Spiny Dogfish	Pelagic shark satellite tag data for Spiny Dogfish.
60	At Risk and Depleted Species	Pelagic Shark Satellite Tag data - White Shark	Pelagic shark satellite tag data for White Shark.
61	At Risk and Depleted Species	White Shark (Carcharodon carcharias) sightings in Atlantic Canada (1873 to 2022)	White Shark (Carcharodon carcharias) sightings in Atlantic Canada (1873 to 2022).
62	At Risk and Depleted Species	Recreational Shark & Dart Tag Database	Recreational Shark Fishing Tournament landings records include biological sampling from 4266 animals and the dart tag records include 4138 tagging and 97 recapture events.
63	At Risk and Depleted Species	Likelihood of Presence of Atlantic Cod in Area Response Planning Pilot Areas	Likelihood of presence of Atlantic Cod in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
64	At Risk and Depleted Species	Likelihood of Presence of Atlantic Salmon in Area Response Planning Pilot Areas	Likelihood of presence of Atlantic Salmon in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
65	At Risk and Depleted Species	Likelihood of Presence of Bluefin Tuna in Area Response Planning Pilot Areas	Likelihood of presence of Bluefin Tuna in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
66	At Risk and Depleted Species	Likelihood of Presence of North Atlantic Right Whales in Area Response Planning Pilot Areas	Likelihood of presence of North Atlantic Right Whale in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.

No.	Theme	Dataset Title and Open Data Link	Dataset Description
67	At Risk and Depleted Species	Likelihood of Presence of Bottlenose Whales in Area Response Planning Pilot Areas	Likelihood of presence of Northern Bottlenose Whales in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
68	At Risk and Depleted Species	Likelihood of Presence of Finback whales in Area Response Planning Pilot Areas	Likelihood of presence of Finback Whales in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
69	At Risk and Depleted Species	Likelihood of Presence of Grey Seal in Area Response Planning Pilot Areas.	Likelihood of presence of Grey Seal in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
70	At Risk and Depleted Species	Likelihood of Presence of Harbour Porpoises in Area Response Planning Pilot Areas	Likelihood of presence of Harbour Porpoise in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
71	At Risk and Depleted Species	Likelihood of Presence of Harbour Seals in Area Response Planning Pilot Areas	Likelihood of presence of Harbour Seals in the Bay of Fundy and Port Hawkesbury Area Response Plan Regions.
Fish and Fish Habitat			
72	Fish and Fish Habitat	Maritimes Spring Research Vessel Survey	DFO Maritimes Region spring research vessel survey data.
73	Fish and Fish Habitat	Maritimes Summer Research Vessel Survey	DFO Maritimes Region summer research vessel survey data.
74	Fish and Fish Habitat	Maritimes Fall Research Vessel Survey	DFO Maritimes Region fall research vessel survey data.
75	Fish and Fish Habitat	Maritimes 4VsW Research Vessel Survey	DFO Maritimes Region 4VsW research vessel survey data.
76	Fish and Fish Habitat	Demersal fish and benthic invertebrate assemblages in the Northwest Atlantic	Demersal fish and benthic invertebrate assemblages in the Northwest Atlantic.
77	Fish and Fish Habitat	eDNA metabarcoding enriches traditional trawl survey data for monitoring biodiversity in the marine environment	eDNA metabarcoding enriches traditional trawl survey data for monitoring biodiversity in the marine environment.
78	Fish and Fish Habitat	A Soft-Shelled Clam (Mya arenaria) Habitat Suitability Model for the DFO Maritimes Region	Habitat suitability of soft-shelled clams (*Mya arenaria*) in the DFO Maritimes region, and was developed using an interdepartmental approach.
79	Fish and Fish Habitat	Bay Scale Assessment of Eelgrass Beds Using Sidescan and Video - Halifax Harbour	Bay scale assessment of eelgrass beds using sidescan and video in Halifax Harbour.

No.	Theme	Dataset Title and Open Data Link	Dataset Description
80	Fish and Fish Habitat	** Bay Scale Assessment of Habitat in Canso 2008	Bay scale assessment of habitat in Canso.
81	Fish and Fish Habitat	Benthic invertebrates in seagrass and bare soft sediments in Atlantic Nova Scotia	Benthic invertebrates in seagrass and bare soft sediments in Atlantic Nova Scotia.
82	Fish and Fish Habitat	Data of eelgrass (*Zostera marina*) plant size (length, width), cover, and biomass from the Atlantic Coast of Nova Scotia	Data of eelgrass (*Zostera marina*) plant size (length, width), cover, and biomass from the Atlantic Coast of Nova Scotia.
83	Fish and Fish Habitat	Data of eelgrass (*Zostera marina*) traits from the Atlantic Coast of Nova Scotia	Data of eelgrass (*Zostera marina*) traits from the Atlantic Coast of Nova Scotia.
84	Fish and Fish Habitat	Eelgrass (*Zostera marina*) study in the historical goldmining region of Goldboro, Nova Scotia (2020)	Eelgrass (*Zostera marina*) study in the historical goldmining region of Goldboro, Nova Scotia (2020).
85	Fish and Fish Habitat	Likelihood of Presence of American Lobster in Area Response Planning Pilot Areas	Likelihood of presence of American Lobster in the Bay of Fundy and Port Hawkesbury Area Response Plan.
86	Fish and Fish Habitat	Likelihood of Presence of Snow Crab in Area Response Planning Pilot Areas	Likelihood of presence of Snow Crab in the Bay of Fundy and Port Hawkesbury Area Response Plan.
87	Fish and Fish Habitat	Likelihood of Presence of Soft Shelled Clams in Area Response Planning Pilot Areas	Likelihood of presence of Soft Shelled Clams in the Bay of Fundy and Port Hawkesbury Area Response Plan.
88	Fish and Fish Habitat	Likelihood of Presence of Grey Seal in Area Response Planning Pilot Areas.	Likelihood of presence of Grey Seal in the Bay of Fundy and Port Hawkesbury Area Response Plan.
89	Fish and Fish Habitat	Likelihood of Presence of Harbour Seals in Area Response Planning Pilot Areas	Likelihood of presence of Harbour Seals in the Bay of Fundy and Port Hawkesbury Area Response Plan.
Fishery			
90	Fishery	Eastern Canada Commercial Fishing	Dataset of species/gear type commercial fisheries from 2012 to 2021 in the Eastern Canada Regions. Only fish harvested from the DFO NL, Maritimes, Gulf, Quebec and Eastern Arctic regions are included.
91	Fishery	Maritimes Region Fisheries Atlas: Catch Weight Landings Mapping (2014-2018)	Data of commercial fisheries catch weight landings of directed fisheries and bycatch from the Scotian Shelf, the Bay of Fundy, and Georges Bank from NAFO Divisions 4VWX and the Canadian portions of 5Y and 5Z. Five-year composite maps (2014–2018) that aggregate catches for each map series are publicly available.
92	Fishery	Maritimes Region Fisheries Atlas: Catch Weight Landings Mapping (2019–2023)	Data if commercial fisheries catch weight landings of directed fisheries and bycatch from the Scotian Shelf, the Bay of Fundy, and Georges Bank from NAFO Divisions 4VWX and the Canadian portions of 5Y and 5Z. Five-year composite maps (2019–2023) that

No.	Theme	Dataset Title and Open Data Link	Dataset Description
			aggregate catches for each map series are publicly available.
93	Fishery	Fishing Effort within Significant Benthic Areas in Canada's Atlantic and Eastern Arctic Marine Waters	Cumulative fishing effort in Canada's Atlantic and Eastern Arctic waters from 2005-2022, and is based on commercial logbook and vessel monitoring system (VMS) data.
94	Fishery	Fecundity of Herring in Divisions 4WX	Fecundity of Atlantic herring (*Clupea harengus*) was estimated within five spawning areas (German Bank, Scots Bay, Seal Island, Southern Shore Nova Scotia, and Eastern Shore Nova Scotia) in Northwest Atlantic Fisheries Organization (NAFO) areas 4WX.
95	Fishery	Mapping Inshore Lobster Landings and Fishing Effort on a Maritimes Region Statistical Grid (2012–2014)	Maps of inshore Lobster landings and fishing effort on a DFO Maritimes Region statistical grid (2012–2014).
96	Fishery	Mapping Inshore Lobster Landings and Fishing Effort on a Maritimes Region Statistical Grid (2015–2019)	Maps of inshore Lobster landings and fishing effort on a DFO Maritimes Region statistical grid (2015–2019).
97	Fishery	Maritimes Region Fisheries Atlas : Catch Weight Landings Mapping (2019-2023) on a Hexagon Grid	This report shows commercial fisheries catch weight landings maps of directed fisheries and bycatch from the Scotian Shelf, the Bay of Fundy, and Georges Bank from NAFO Divisions 4VWX and the Canadian portions of 5Y and 5Z. Five-year composite maps (2019-2023) that aggregate catches for each map series are publicly available and included in this report. Data to be published on Open Data portal as it becomes available.
98	Fishery	Fishermen and Scientist Research Society (FSRS) Lobster Recruitment Trap Project	Fishermen and Scientist Research Society (FSRS) Lobster recruitment trap project results.
99	Fishery	Maps of Gulf Fishing Areas	DFO Gulf region fishery area maps.
100	Fishery	Charting the Course of the Historical Lobster Fishing Districts in the Maritimes Region: 1899-Present	Maps that track inshore historical Lobster fishing district boundaries from 1899 to present.
Aquatic Invasive Species			
101	Aquatic Invasive Species	Canadian Marine Invasive Screening Tool (CMIST)	A screening-level risk assessment tool for marine invasive species.
102	Aquatic Invasive Species	Species distribution models and occurrence data for marine invasive species hotspot identification	Species distribution models and occurrence data for marine invasive species hotspot identification.
103	Aquatic Invasive Species	Updated Species Distribution Models for Marine Invasive Species Hotspot Identification	Monitoring data from DFO invasive species monitoring programs, along with occurrence information from online databases and the scientific literature, have been paired with high resolution environmental data and oceanographic models in species distribution models that predict present-day

No.	Theme	Dataset Title and Open Data Link	Dataset Description
			and project future distributions of 24 non-indigenous species (NIS) on North America`s east coast, and 31 NIS on its west coast.
104	Aquatic Invasive Species	DFO Maritimes Biofouling Monitoring Program	National Biofouling Monitoring Program (BMP) annual field survey results that monitor the introduction, establishment, spread, species richness, and relative abundance of native and non-indigenous species.
Cumulative Effects Assessment			
105	Cumulative Effects Assessment	Maritimes Region Cumulative Human Impact Map	DFO Maritimes Region cumulative human impact maps (CIM) that combine spatial information on human activities and habitats with a matrix of vulnerability weights, into an intuitive relative 'cumulative impact score' that shows where cumulative human impacts are greatest and least.
Other Marine Activities			
106	Other Marine Activities	Vessel Traffic Routes	Vessel routeing measures such as established (mandatory) direction of traffic flow, recommended direction of traffic flow, separation lines, separation zones, etc.
107	Other Marine Activities	Canadian Anchorages and Anchorage Areas	Canadian anchorage areas (ACHARE) and single ship anchorages (ACHBRT).
108	Other Marine Activities	Vessel Density Mapping of 2023 AIS Data in the Northwest Atlantic	The Automatic Identification System (AIS) is a global, satellite-based and terrestrial-based ship tracking system that uses shipborne equipment to remotely track vessel identification and positional information and is typically required on vessels of 300 gross tonnage or more on an international voyage, of 500 gross tonnage or more not on an international voyage, and passenger ships of all sizes.