



Response to the Draft Final Regional Assessment Report for Nova Scotia

The following information was provided by DFO Maritimes and Gulf Regions. It includes feedback, comments and suggestions from multiple sectors and branches within the department, Ecosystems and Oceans Science, Marine Planning and Conservation, Fish and Fish Habitat Protection, Species at Risk, Policy and Economics, Resource Management, and the Canadian Coast Guard. In preparing its response, the DFO Ecosystems and Oceans Science sector drew upon its knowledge of marine ecosystems, species, and marine industrial activities, science literature, previous responses provided to the RA Committee, and its expertise gained from similar reviews of other marine industries, including review of the submarine cable, offshore petroleum, and tidal power sectors. The below information therefore does not represent peer reviewed DFO Science advice but rather information currently available within the department and its subject matter experts. The Committee is encouraged to follow up directly with DFO for any additional information or to seek points of clarification. As the RA Study Area encompasses areas that fall within both the DFO Maritimes and Gulf Region's administrative boundaries, commentary from DFO Gulf Region is also included in this submission.

The response below consists of background information on topics of particular importance for offshore wind planning, namely the DFO Maritimes Marine Conservation Network, Marine Protected Areas, Marine Refuges, Critical Habitat and Species at Risk, Fish and Fish Habitat, and the implications of each for the identified Potential Development Areas (PDAs). General comments on the report are then provided, followed by specific comments on particular portions of the report. Finally, a series of annexes are included as supporting information for the Committee's consideration.

Given the depth and breadth of the information provided, DFO recognizes that the Committee will likely be limited in its capacity to consider all feedback ahead of the publication of its final report at the end of January 2025. As a result, the key considerations in Section 1 below are reflective of the topics that DFO has determined to be of high priority to address and for which to ensure accuracy in the final report.

DFO is glad to provide the below information to support the ongoing Regional Assessment and looks forward to the Final Report's release in January 2025.

1. Key Considerations

Marine Conservation Areas:

- Existing *Oceans Act* Marine Protected Areas (MPAs) do not provide exceptions for offshore wind development. Similarly, future *Oceans Act* MPAs are not likely to be compatible with



offshore wind development due to the general prohibitions on disturbance, damage, destruction or removal in the MPA (see Section 3).

- Based on DFO's understanding of primary versus secondary constraints, *Fisheries Act* Marine Refuges should be treated as primary constraints given their status for long-term protection of marine biodiversity (see Section 4).
- The overlap between the Western and Emerald Banks Marine Refuge and the Western/Emerald Bank PDA should be removed (see Section 4).
- With the exception of Pemsik, DFO acknowledges that there is no other overlap between any PDAs and Tier 1 sites of the Scotian Shelf/Bay of Fundy Marine Conservation Network. DFO encourages avoidance of Pemsik and other Tier 1 sites as site-specific implementation activities are anticipated during the 2025-2030 period. However, Tier 2 sites, which require further study, may be adjusted to account for future offshore wind siting.

Fish Habitat and Species at Risk:

- DFO will have a regulatory role in the review of any offshore wind projects based on provisions in the *Fisheries Act* (FA) and the *Species at Risk Act* (SARA) to protect and conserve fish and fish habitat and species at risk (see Section 6). Exceptions to provisions are based on several factors in determining whether to issue a FA authorization (FA section 34.1) or a SARA permit or agreement (SARA section 73).
- The PDAs are within the distribution range of the following Endangered species (Schedule 1 – SARA): blue whale, northern bottlenose whale, North Atlantic right whale, white shark, leatherback sea turtle.
 - SARA Section 32(1) provisions against the killing, harming, harassing, capturing or taking of individuals apply everywhere that these species are found in Atlantic Canadian waters.
- The Committee should review the definitions of important habitat and critical habitat (CH) under the SARA and consider the implications of these for offshore wind development going forward (see Section 5), particularly the current inclusion of CH as a primary constraint. While current CH is spatially limited, it is anticipated that additional CH, including for migratory species, will be designated in the future.
- Potential impacts of offshore wind development on CH for listed species at risk are not well understood. For this reason, decisions on the compatibility of offshore wind with CH under SARA will be undertaken on a case-by-case basis through DFO's regulatory review process.
- Additional considerations are required around Sydney Bight as an important area for migratory marine species listed under SARA Schedule 1 and the implications for the Sydney Bight PDA (see Section 5).
- The leatherback sea turtle (LBST) important habitat data layer used in figure 4.11 of the report was not provided or endorsed by DFO. The depiction of LBST and northern bottlenose whale important habitat should be corrected in figure 4.11 based on recent information provided by DFO.



Spatial Analysis and Planning:

- DFO maintains comprehensive data and information on commercial fisheries and other uses/activities occurring in the RA Study Area, along with spatial planning, analytical and mapping capabilities (e.g., Marxan with Zones analysis in Nagel et al. 2024¹).
- DFO tools and approaches can be scaled, updated and applied to characterize interactions among multiple marine use activities, environmental features, and associated management and regulatory measures (e.g., management zones). This information should be used in conjunction with more specific/localized industry and other sources of data and knowledge to provide detailed analysis and guidance for avoiding and/or limiting negative interactions in early offshore wind planning and siting processes.
- A marine spatial planning approach using authoritative sources of data and repeatable methods should be used to inform offshore wind site selection. The selection and use of limited data sources or criteria does not reflect the complexity involved in planning and management of a new marine activity sector in this region (see general comments in Section 7).
- Although DFO maintains data and information on Indigenous activities in the RA Study Area, direct consultation with Indigenous communities and organizations is required to fully address these activities.

Southern Gulf of St. Lawrence:

- Information provided by DFO Gulf Region throughout the course of the RA should be reflected in the report, and further justification provided for the decision to focus the report on the Atlantic coast and offshore of Nova Scotia portion of the RA Study Area (see general comments in Section 7).

Adaptive planning:

- Areas identified for future offshore wind development should be revisited on a regular basis based on new or updated information and knowledge as it becomes available.

2. Marine Conservation Network

Background Information

- Fisheries and Oceans Canada (DFO) is leading the development of a Marine Conservation Network Plan for the Scotian Shelf-Bay of Fundy Bioregion.
- The network is composed of a series of individual conservation areas that include marine protected areas and other effective area-based conservation measures such as marine refuges.
- Conservation network planning is a systematic approach that helps offer greater protection for marine species, habitats and ecosystems and support conservation over the long term, while also aiming to minimize impacts on ocean users.

¹ Nagel, E.J., Pardy, G., Gordon, K., and Long, M.-A. 2024. Application of Marxan with Zones as a marine spatial planning decision-support tool: a case study for offshore wind planning in Nova Scotia. Can Tech. Rep. Fish Aquat. Sci. 3601: xi + 91 p.



- The creation of the Marine Conservation Network Plan can help Canada meet its conservation target of protecting 30% of Canada’s coastal and marine areas by 2030.
- The conservation objectives of the network are to:
 - protect unique, rare, or sensitive ecological features,
 - protect representative examples of all ecosystems,
 - contribute to the maintenance of ecosystem structure, function and resilience,
 - contribute to the recovery of depleted species; and
 - support the maintenance of healthy populations of species of Aboriginal, commercial, and/or recreational importance.
- The network plan was developed through a rigorous scientific process that analyzed ecological and human use information. The plan aims to protect conservation priorities, such as highly sensitive species and habitats, depleted species, and habitats, while minimizing overlap with human uses.
- The Marine Conservation Network Plan is currently undergoing revisions after public engagement that took place over the spring and early summer of 2024 as well as ongoing engagement with First Nations, other government departments, and stakeholders during fall 2024. The Network Plan will be finalized by the end of 2024 after extensive engagement over multiple years.
- Sites that are part of the Network Plan have been characterized as either Tier 1 or Tier 2 sites.
 - Tier 1 sites have confirmed high conservation value, and any sites advanced for 2030 will be selected from this tier.
 - Tier 2 sites are important for a representative network but will not be advanced for 2030. These sites require more research on their ecological features and/or information on current or future human uses.
- The creation of tiered sites provides more transparency to marine users on the Government of Canada’s short-term conservation.

Implications for PDAs

- DFO recommends that Tier 1 network sites be avoided. DFO would consider changes to the Tier 2 network sites to minimize overlap with prospective OSW areas, but OSW is not compatible with federal statutory protected areas (e.g., Oceans Act MPAs) and would require application of the federal protection standard for marine other effective area-based conservation measures (OECMs).

3. Marine Protected Areas (MPAs)

Background Information

- Marine protected areas (MPAs) are defined marine spaces that are legally protected and managed for the long-term conservation of nature.
- DFO establishes MPAs by regulations under the *Ocean Act*.
- The Government of Canada has adopted [protection standards](#) for all new MPAs in Canada. For all MPAs established after April 25th, 2019, the following activities will not be permitted within MPA boundaries:



- o Oil and gas exploration, development and production.
- o Mineral exploration and exploitation.
- o Bottom-trawl gear.
- o Disposal at sea of waste and other matter, dumping of fill, deposit of deleterious drugs and pesticides.
 - This standard also includes enhanced measures for vessel discharges.
 - For MPAs established before or after April 25th, 2019, permits will not be issued for the dumping of fill in MPAs.
 - Exceptions are made only for restoration or conservation purposes as identified by MPA governance and in alignment with the MPA's conservation objectives, determined on a case-by-case basis.
- In addition to prohibiting these four categories of activities, additional activities may be prohibited or allowed to occur based on the risks they pose to achieving the MPA's conservation objectives.

Implications for PDAs

- For **existing** *Oceans Act* MPAs, OSW is **not permitted** as this activity has not been listed as an exception in the regulations under the *Oceans Act*.
 - o Furthermore, OSW has not been scoped into consideration for current Areas of Interest (AOIs) (Fundian Channel-Browns Bank and Eastern Shore Islands).
- Potential consideration of OSW in future *Oceans Act* MPAs will involve the application of the federal MPA protection standard for ocean dumping and, if applicable, site-specific ecological risk assessment and design processes. It is highly unlikely that an industrial scale activity such as OSW would be compatible within a new *Oceans Act* MPA given the standard general prohibition on activities that disturb, damage, destroy or remove habitat.

4. Other Effective Area-based Conservation Measures (OECMs) & Marine Refuges

Background Information

OECMs

- OECMs are similar to MPAs in that they are geographically defined areas managed and governed in ways to achieve positive outcomes for the conservation of biodiversity. Their purpose is to protect marine biodiversity through the provision of long-term biodiversity conservation benefits (BCBs)².
- Marine refuges are the only type of OECM currently recognized in Canada; however, OECMs could potentially include other areas including historical sites such as shipwrecks, Indigenous-led protection/conservation areas, marine mammal management areas, and more.
- In 2022, the Government of Canada published [Guidance for Recognizing Marine Other Effective Area-Based Conservation Measures](#) and announced federal protection standards for OECMs which requires that “all existing and foreseeable activities in an OECM are assessed on a case-

² A BCB is the net positive change in biodiversity or prevention of its loss, resulting from the governance decisions and management actions within an area. Source: DFO. 2016. Guidance on Identifying “Other Effective Area-Based Conservation Measures” in Canadian Coastal and Marine Waters. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2016/002. Available from: <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/365364.pdf>



by-case basis to ensure that the risks they pose to the BCBs are effectively avoided or mitigated.”³

Marine Refuges

- Marine refuges are established through the *Fisheries Act* and in the Scotian Shelf-Bay of Fundy bioregion, are established where fisheries may pose a risk to sensitive, vulnerable, or unique marine areas and/or species.
- Marine refuges can offer targeted protection to species, as well as conserve other important species and their habitats including unique and significant aggregations of cold-water corals and sponges that are only found in the Scotian Shelf-Bay of Fundy bioregion.
- Marine refuges are designated by variation orders and amendments to fishing license conditions. Functionally, license conditions determine the gear type, species capture, bycatch limit and areas where harvesting is not permitted while using the license.
- In the Scotian Shelf-Bay of Fundy bioregion, marine refuges make up 13.4% of the Bioregion’s 14.8% marine conservation target accomplishment.
- The Marine OECM Protection Standard requires evidence that an activity will not adversely impact biodiversity conservation benefits (BCBs). Enhanced management and mitigation likely required to enable an activity to proceed.
- Due to the bottom contacting elements often associated with infrastructure development (pile driving, mooring, anchoring, etc.), OSW development is likely to negatively interact with the benthic focused BCBs associated with the Scotian Shelf-Bay of Fundy marine refuges.
- Any future consideration of OWE in a marine refuge will require completion of dedicated assessment process, with requisite levels of information on OSW technology, interactions and impacts relevant to the marine refuge, and will involve enhanced management, mitigation and monitoring.
- If OSW is determined to have an adverse effect on BCBs that cannot be mitigated, and a decision is taken to proceed, affected portions of that site will be removed from national Marine Conservation Targets (30% by 2030).
- Final determination by federal government (DFO lead) will take into consideration of overall impact to site integrity.
- DFO has published a regional management plan for all of its marine refuges in the Scotian Shelf-Bay of Fundy bioregion which provides general guidance for marine refuge management and monitoring, along with detailed site profiles available here:
https://publications.gc.ca/collections/collection_2024/mpo-dfo/Fs23-752-2024-1-eng.pdf

Western and Emerald Banks Marine Refuge

- Western and Emerald Bank Marine Refuge (WEBMR) was initially designated as a fisheries closure in 1987 (recommended by the commercial fishing industry) due to its importance for juvenile groundfish, notably haddock. The area is also part of the Emerald-Western-Sable Island Bank Complex Ecologically and Biologically Significant Area (EBSA) because of its

³ Government of Canada. 2022. Guidance for Recognizing Marine Other Effective Area-Based Conservation Measures. Available from: <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/41110468.pdf>



importance as habitat for several species of benthic fish, the presence of high larval fish diversity, its importance as a juvenile fish nursery area, and its high concentrations of eggs and larvae of several species.⁴

- Due to the area's importance for groundfish, WEBMR is closed to all bottom-contact fishing gear (Figure 1).

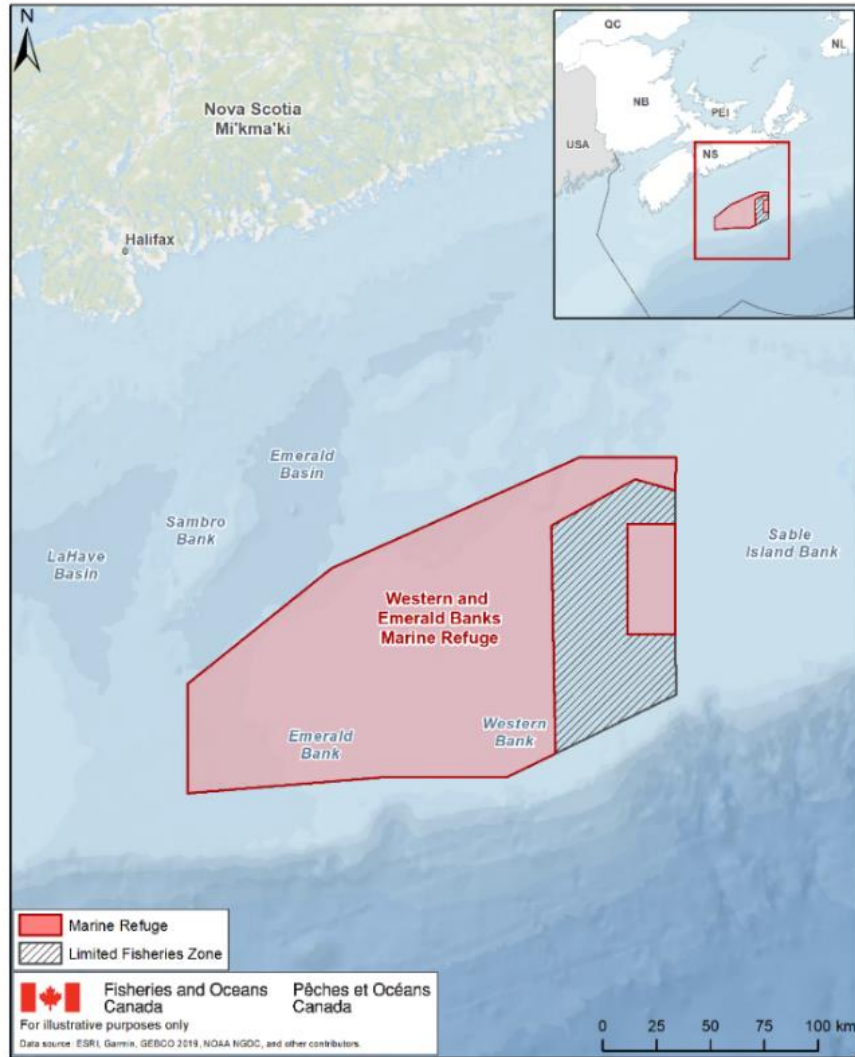


Figure 1: Map of the Western and Emerald Banks Marine Refuge.

- In addition to important fish habitat, WEBMR is characterized by large bank habitat with diverse sediment types and a unique gyre area that enhances the retention of pelagic larvae and their food.⁵ The combination of a large bank area, high habitat heterogeneity, and a large partial gyre

⁴ King, M., Fenton, D., Aker, J. and Serdynska, A. (2016). Offshore Ecologically and Biologically Significant Areas in the Scotian Shelf Bioregion. DFO Canadian Science Advisory Secretariat Research Document, 2016(007), viii-92 p. Available from: <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/363946.pdf>

⁵ Shackell, N. L., & Frank, K. T. (2000). Larval fish diversity on the Scotian Shelf. Canadian Journal of Fisheries and Aquatic Sciences, 57(9), 1747-1760. <https://doi.org/10.1139/f00-111>.



results in WEBMR having high representativity with relatively high species richness and abundance.

- WEBMR is an area of high benthic diversity containing multiple species recognized to contribute to key ecosystem functions. Specifically, structure-forming benthic biogenic species such as sea pen fields, horse mussel reefs, and benthic bioturbating species such as sand dollar beds have been identified within WEBMR. Additionally, WEBMR has been identified as important spawning and nursery habitat for the Scotian Shelf haddock stock, as well as many other fish species^{6,7}.
- Finally, depleted species such as Atlantic cod, American plaice and winter skate all use the area as habitat,^{3,8} while the Western Gully feature of WEBMR may be important to various species of cetaceans like the blue whale (listed as Endangered under SARA) and sei whale³ (assessed as Endangered by the Committee on the Status of Endangered Wildlife in Canada).
- The Western Emerald Banks Marine Refuge is a designated protected area with regional ecological importance, accounting for 2.2% of the bioregion's 14.8% conservation accomplishment.
- While the impacts of OSW on the specific ecosystem of WEBMR are not well understood at this time, existing published studies provide some indication of the types of risks that exist. These include:
 - Physical changes due to abrasion/damage, change of habitat structure/morphology, changes in siltation, and flow rate changes.
 - Biological disturbance due to electromagnetic changes and noise.
 - Biological disturbance due to changes in flora/fauna.
 - Behavioural impacts to cetaceans from an increase in ambient noise from the operation of wind turbines and increase in ship traffic.
 - Sublethal and lethal impacts to cetaceans from ship strikes due to increase in vessel traffic to the area.
- These impacts pose risks to the BCBs and conservations objectives of the site and could diminish the benefits that the ecosystem has sustained since the site's establishment in 1987.
- DFO continues to recommend taking a marine spatial planning approach to informing the siting of new human activities, and prioritizing areas that are not already set aside for conservation purposes.

⁶ Beazley, L., Kenchington, E., and Lirette, C. (2017). Species Distribution Modelling and Kernel Density Analysis of Benthic Ecologically and Biologically Significant Areas (EBSAs) and Other Benthic Fauna in the Maritimes Region. Canadian Technical Report of Fisheries and Aquatic Sciences, 3204, vi-159.

⁷ Kenchington, E., Beazley L., Lirette, C., Murillo, F.J., Guijarro, J., Wareham, V., Gilkinson, K., Koen-Alonso, M., Benoît, H., Bourdages, H., Sainte-Marie, B., Treble, M., and Siferd, T. (2016). Delineation of coral and sponge significant benthic areas in eastern Canada using kernel density analyses and species distribution models. DFO Canadian Science Advisory Secretariat Science Research Document, 2016(093), vi-178. Available from : https://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs70-5-2016-093-eng.pdf

⁸ Shackell, N. L., Keith, D. M., & Lotze, H. K. (2021). Challenges of gauging the impact of area-based fishery closures and OECMs: A case study using long-standing Canadian groundfish closures. *Frontiers in Marine Science*, 8, 612859. <https://doi.org/10.3389/fmars.2021.612859>



Implications for PDAs

- **The overlap between the Western and Emerald Banks Marine Refuge and the Western/Emerald Bank PDA should be removed.**
- At minimum, the Western/Emerald Bank PDA should be changed to Tier 2 status to reflect the need for more information to properly assess this area and the potential risks posed by future development. Classifying Emerald Bank PDA as a Tier 2 PDA would align with the definition provided in the report: “Tier 2 PDAs are viewed as requiring additional investigation and/or stakeholder/rightsholder engagement before being elevated to the Tier 1 category or designated as WEAs”.

5. Species at Risk, important habitat, and critical habitat

Definitions and legal protections

- **Critical habitat (CH)** is defined in the *Species at Risk Act* (SARA) as “...the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species’ critical habitat in the recovery strategy or in an action plan for the species.”⁹
- SARA also defines **habitat** for aquatic species as: “... spawning grounds and nursery, rearing, food supply, migration and any other areas on which aquatic species depend directly or indirectly in order to carry out their life processes, or areas where aquatic species formerly occurred and have the potential to be reintroduced.”⁸
- Critical habitat is described in the recovery strategy or action plan both biophysically and geographically. For the biophysical description, three main terms are used to describe critical habitat, in addition to its geographic boundaries: Functions, Features, and Attributes.
 - **Functions** are life-cycle processes of the listed species taking place in critical habitat (for example, spawning, nursery, rearing, feeding and migration). Each life-cycle function is supported by one or more **features**, which are the essential biophysical components of the critical habitat.
 - **Attributes** are measurable properties or characteristics of a feature. Attributes describe how the identified features support the identified functions necessary for the species’ life processes.
- Legal protection of critical habitat means that the functions, features, and attributes of the identified critical habitat are protected from destruction by a provision(s) in, or measure(s) under SARA or another Act of Parliament.
- Legal protection of critical habitat may be achieved in several ways including a Critical Habitat Order pursuant to subsections 58(4) and (5) of SARA, which brings into force the subsection 58(1) prohibition against the destruction of any part of critical habitat.
- **Important habitat** is often used in CSAS Science Advice (or primary publications directly related to work reviewed in a CSAS process) to describe habitat that may be considered necessary for the survival or recovery of a species.

⁹ *Species at Risk Act*, SC 2002, c-2(1).



- Important habitat is not recognized under SARA and is not afforded protection under the Act.
- The important habitat described in a CSAS process is used to inform the identification of critical habitat under SARA, and therefore may be useful information for project proponents and regulators for planning purposes; however, important habitat will not necessarily equate directly to critical habitat once identified under SARA.

Activities likely to destroy critical habitat

- When critical habitat for a species is identified, SARA requires that the recovery strategy or action plan includes examples of activities likely to destroy critical habitat (ALTD CH).
- ALTD CH are typically provided in a table in the recovery strategy or action plan. Older recovery documents may simply list threats or activities that could destroy CH.
 - The ALTD CH table includes known human activities that are likely to occur in and around critical habitat and that could result in the destruction of critical habitat if unmitigated.
 - These can include single or multiple activities occurring at one point in time or recurrently, that result in immediate or cumulative habitat loss, either temporarily or permanently.
 - Critical habitat destruction would render the area unsuitable to a point where it would no longer serve its function when needed by the species.
- The list of ALTD CH is neither exhaustive nor exclusive and its development is guided by the threats described in the recovery strategy.
- The absence of a specific human activity from the ALTD CH does **not** preclude or restrict DFO's ability to regulate that activity under SARA.
- Furthermore, the inclusion of an activity does **not** result in its automatic prohibition and does not mean the activity will inevitably result in destruction of critical habitat.
 - Every proposed activity must be assessed on a case-by-case basis.
 - Where information is available, thresholds and limits have been developed for critical habitat attributes to better inform management and regulatory decision-making.
 - However, in many cases knowledge of a species and its critical habitat's thresholds of tolerance to disturbance from human activities is lacking and must be acquired.
 - If new or proposed activities have been identified that could lead to the destruction of critical habitat, site-specific mitigation measures will be applied where reliable and available, or reasonable alternatives to the activity may need to be developed.

Leatherback sea turtle, Atlantic population, important habitat

- The Atlantic population of leatherback sea turtle (LBST) is listed as Endangered under Schedule 1 of SARA and therefore, the Section 32(1) provisions against the killing, harming, harassing, capturing or taking of individuals apply everywhere that LBST is found in Atlantic Canadian waters.
- Threats to the LBST population when in Canadian waters, as listed in the species' [recovery strategy](#) (2007) and [threat assessment](#) (2020), include, among others, entanglement,



vessel strikes, climate change, marine pollution (heavy metals and PCBs, plastics, oil, contaminants), and acoustic disturbances/underwater noise^{10,11}.

- **Important habitat** for this species was described in science advice published in 2020¹². Important habitat will be used to inform the identification of CH in Atlantic Canadian waters in an amended LBST Recovery Strategy, which is in development. Once CH is identified in the final recovery strategy, the CH must be legally protected from destruction within 180 days.
 - Published science advice did not include a polygon delineating important habitat, but rather weighted location estimates to map spatial habitat use (see: <https://waves-vagues.dfo-mpo.gc.ca/library-bibliotheque/40966033.pdf>). This advice represents the best representation of LBST IH at this time and should be used for any assessment (Figure 2).

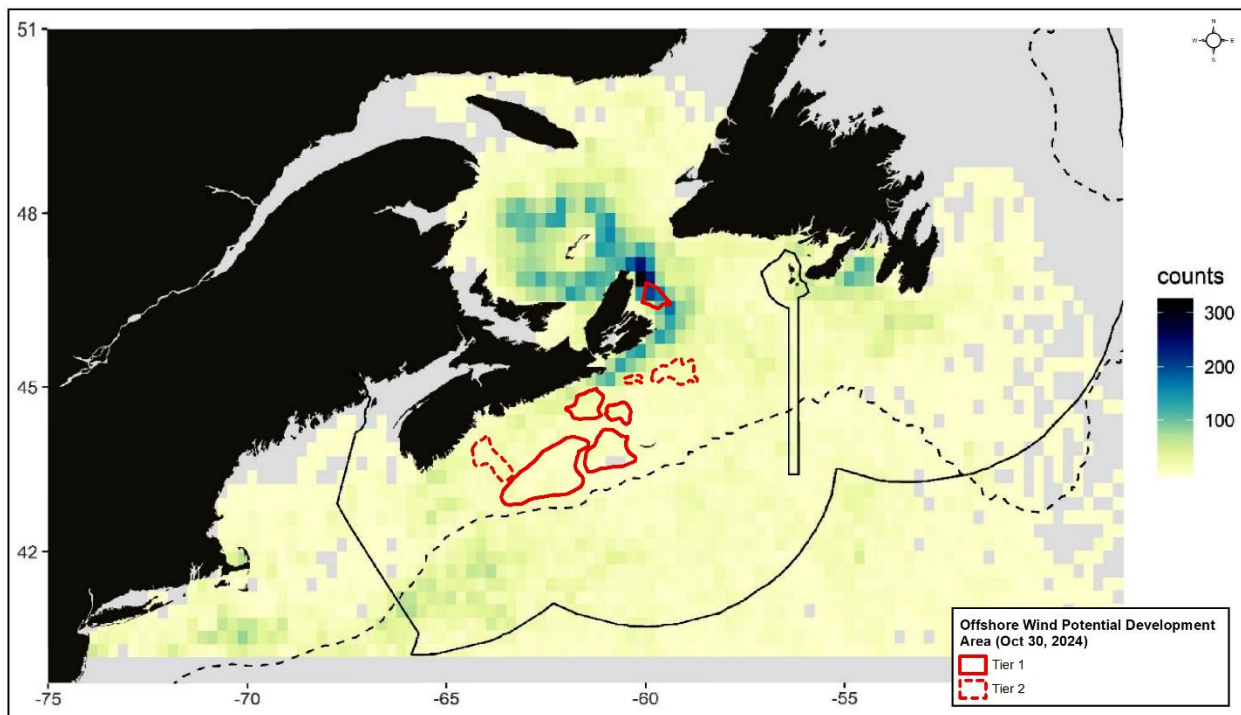


Figure 2: Overlap between the PDAs and leatherback sea turtle spatial use as described in DFO 2020¹².

Blue whale, Atlantic population, important habitat

- The Atlantic population of blue whales is listed as Endangered under Schedule 1 of SARA and therefore, the Section 32(1) provisions against the killing, harming, harassing, capturing or taking of individuals apply everywhere that blue whales are found in Atlantic Canadian waters.

¹⁰ Atlantic Leatherback Turtle Recovery Team 2006. Recovery Strategy for Leatherback Turtle (*Dermochelys coriacea*) in Atlantic Canada. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa, vi + 45 pp.

¹¹ DFO. 2020. Threat Assessment for the Leatherback Sea Turtle (*Dermochelys coriacea*), Northwest Atlantic Subpopulation. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/039.

¹² DFO. 2020. Using Satellite Tracking Data to Define Important habitat for Leatherback Turtles in Atlantic Canada: 2019 Update. DFO Can. Sci. Advis. Sec. Sci. Resp. 2020/041.



- Underwater noise and food availability are high-risk threats to blue whales as identified in the [recovery strategy \(2009\)](#)¹³.
 - Medium-risk threats include contaminants and collisions with vessels while low-risk threats include toxic spills.
- Important habitat for this species was described in [science advice published in 2018](#)¹⁴ (Figure 3).
- Important habitat will be used to inform the identification of CH in Atlantic Canadian waters in an amended blue whale recovery strategy, which is in development. Once CH is identified in the final recovery strategy, the CH must be legally protected from destruction within 180 days.

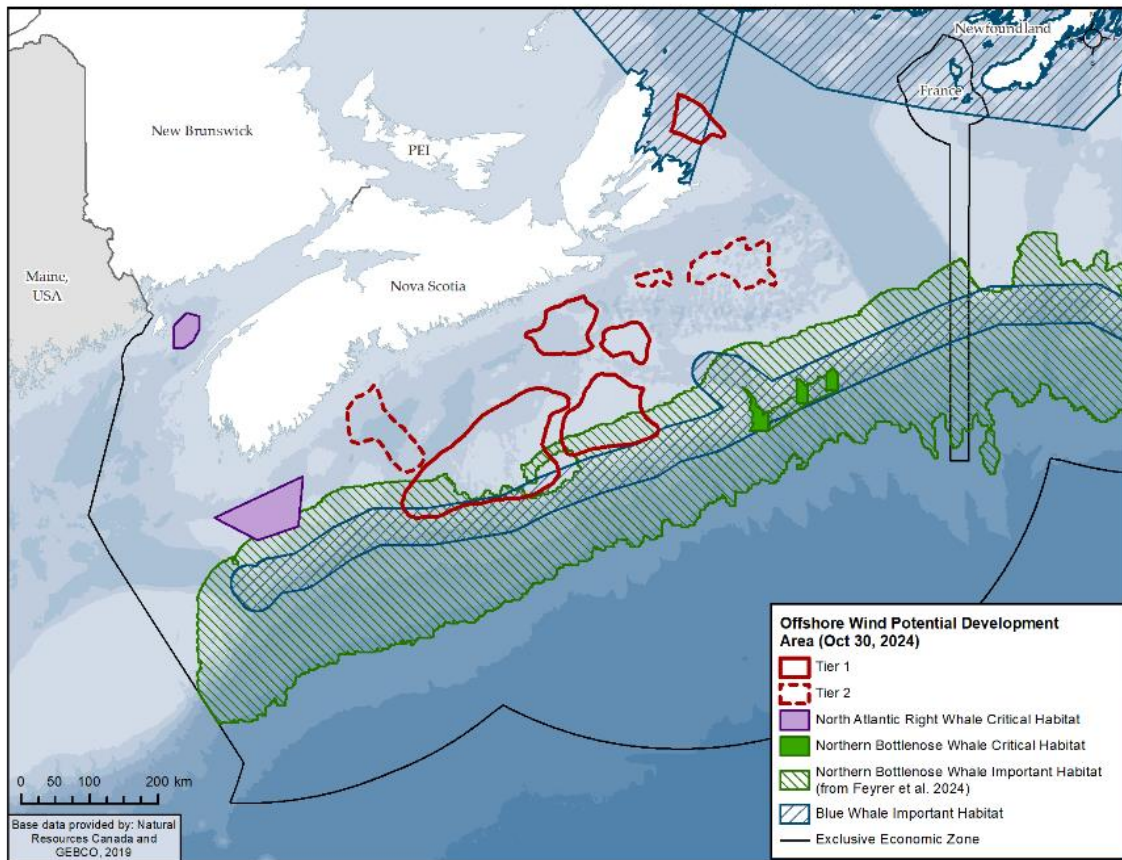


Figure 3: PDAs along with North Atlantic right whale critical habitat, northern bottlenose whale critical habitat and important habitat, and blue whale important habitat. NBW IH based on Feyrer et al. 2024¹⁵.

¹³ Beauchamp, J., Bouchard, H., de Margerie, P., Otis, N., Savaria, J.-Y., 2009. Recovery Strategy for the Blue Whale (*Balaenoptera musculus*), Northwest Atlantic population, in Canada [FINAL]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. 62 pp.

¹⁴ DFO. 2018. Identification of habitats important to the blue whale in the western North Atlantic. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2018/003

¹⁵ Feyrer, L. J., Stanistreet, J. E., Gomez, C., Adams, M., Lawson, J. W., Ferguson, S. H., ... & Moors-Murphy, H. (2024). Identifying important habitat for northern bottlenose and Sowerby's beaked whales in the western North Atlantic. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 34(1), e4064.



North Atlantic right whale, Critical and important habitat

- The North Atlantic right whale (NARW) is listed as Endangered under Schedule 1 of SARA and therefore, the Section 32(1) provisions against the killing, harming, harassing, capturing or taking of individuals apply everywhere that NARW is found in Atlantic Canadian waters.
- Threats to NARW identified in the [recovery strategy](#) (2014) include vessel strike, causing both lethal, serious, and sublethal injuries; disturbance and habitat reduction or degradation, such as through contaminants, acoustic disturbances, vessel presence disturbances, and changes in food supply¹⁶.
- CH for this species includes Grand Manan Basin in the Bay of Fundy and Roseway Basin off southwest Nova Scotia (Figure 3).
- Activities identified in the 2014 recovery strategy with the potential to destroy NARW CH include acoustic disturbance like vessel noise, pile driving, and sonar, alteration of physical and biological oceanographic conditions, and contaminants such as dumping, discharges and industrial developments.
- NARW are widely distributed, and some individuals make long migrations between the southern United States and feeding grounds in Atlantic Canadian waters,^{17,18} though the species is detected in Atlantic Canadian waters year-round.
- Changes in NARW habitat use have been observed in recent years, with a greater number of individuals using the Gulf of St. Lawrence and moving into and out of those waters.^{19,20}
- In the spring of 2024, a NARW Recovery Potential Assessment (RPA) was undertaken following the Canadian Science Advisory Secretariat peer-review process and policies. The resulting science advice (not yet published) will include information on species abundance, distribution, threats, and habitat use. This science advice will inform the development of an amended recovery strategy for the species, including additional CH.
- While no WEAs are currently proposed in areas identified as NARW CH, any OSW project proposed within or near NARW CH would be subject to an assessment to determine if the activity will result in destruction of that CH.

Northern bottlenose whale, Scotian Shelf population, Critical and important habitat

- The Scotian Shelf population of NBW is listed as Endangered under Schedule 1 of SARA and therefore, the Section 32(1) provisions against the killing, harming, harassing, capturing or taking of individuals apply everywhere that the Scotian Shelf population of NBW are found in Atlantic Canadian waters.
- Threats to NBW Scotian Shelf population identified in the [recovery strategy](#) (2016) include acoustic disturbance, contaminants, changes to food supply and vessel strikes²¹.

¹⁶ Fisheries and Oceans Canada. 2014. Recovery Strategy for the North Atlantic Right Whale (*Eubalaena glacialis*) in Atlantic Canadian Waters [Final]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. vii + 68 pp.

¹⁷ Firestone, J., Lyons, S. B., Wang, C., & Corbett, J. J. (2008). Statistical modeling of North Atlantic right whale migration along the mid-Atlantic region of the eastern seaboard of the United States. *Biological Conservation*, 141(1), 221-232.

¹⁸ Winn, H.E., Price, C.A., and Sorensen, P.W. 1986. The distributional ecology of the right whale *Eubalaena glacialis* in the western North Atlantic. Report of the International Whaling Commission (Special Issue 10): 129-138.

¹⁹ Davies, K. T., Brown, M. W., Hamilton, P. K., Knowlton, A. R., Taggart, C. T., & Vanderlaan, A. S. (2019). Variation in North Atlantic right whale *Eubalaena glacialis* occurrence in the Bay of Fundy, Canada, over three decades. *Endangered species research*, 39, 159-171.

²⁰ Meyer-Gutbrod, E. L., Davies, K. T., Johnson, C. L., Plourde, S., Sorochan, K. A., Kenney, R. D., Ramp, C., Gossetin, J-F., Lawson, J., & Greene, C. H. (2023). Redefining North Atlantic right whale habitat-use patterns under climate change. *Limnology and Oceanography*, 68, S71-S86.

²¹ Fisheries and Oceans Canada. 2016. Recovery Strategy for the Northern Bottlenose whale, (*Hyperoodon ampullatus*), Scotian Shelf population, in Atlantic Canadian Waters [Final]. Species at Risk Act Recovery Strategy Series. Fisheries and Oceans Canada, Ottawa. vii + 70 pp.



- CH for this population includes the Gully, Shortland and Haldimand Canyons along the eastern Scotian Shelf edge.²⁰
- Activities identified in the 2016 recovery strategy with the potential to destroy NBW critical habitat (CH) include acoustic disturbance (such as shipping, sonar, seismic surveys and industrial development), changes to food supply, contaminants (such as ocean dumping, discharges from industrial development, persistent vessel discharges), and alteration of biological and physical oceanographic conditions²⁰.
- The inter-canyon habitat between the three canyons has been described as important habitat for this population in science advice published in [2020](#) and [2021](#). Another CSAS process was held in 2023 to more broadly assess important habitat throughout the range of the Scotian Shelf population. The results of the CSAS process have not yet been published. There is a related primary publication by Feyrer et al. (2024) that is the current best available information on NBW important habitat¹⁴ (Figure 3).
- The CSAS publications on important habitat will be used to inform the identification of additional CH in Atlantic Canadian waters in an amended recovery strategy. Once this additional CH is identified in a final recovery strategy, the CH must be legally protected from destruction within 180 days.

Implications for PDAs

- The following PDAs overlap with important habitat described for species at risk (Figure 3):
 - Sydney Bight (blue whale, LBST)
 - Canso Bank (LBST)
 - Middle Bank (northern bottlenose whale, blue whale)
 - Sable Island Bank (northern bottlenose whale, blue whale)
- As well, all PDAs overlap with the known distribution of North Atlantic right whale.
- Sydney Bight is an area of known distribution and migration area of several marine mammals/animals listed on Schedule 1 of the SARA including blue whale (Endangered), North Atlantic right whale (Endangered), fin whale (Special Concern), white shark (Endangered) and leatherback sea turtles (Endangered).
- DFO will continue to provide information on the identification of CH to the Committee and OSW regulators as it becomes available.
- Any OSW project proposed in or near future CH would be subject to an assessment to determine if the activity will result in destruction of that CH, and/or if the activity would jeopardize the survival or recovery of the species and if all reasonable alternatives and feasible measures were taken to avoid/mitigate the impact of the activity on the species or its critical habitat.
- Any future regulatory review process would consider all impacts on fish, fish habitat and species at risk and projects may be subject to enhanced measures such as avoidance/mitigation during construction and operation.

6. Fish and Fish Habitat

- Under the *Fisheries Act*, “fish” are defined as:
 - (a) parts of fish,



- (b) shellfish, crustaceans, marine animals and any parts of shellfish, crustaceans or marine animals, and
- (c) the eggs, sperm, spawn, larvae, spat and juvenile stages of fish, shellfish, crustaceans and marine animals²².
- Section 34.4(1) of the *Fisheries Act* states that no person shall carry on any works, undertakings or activities (WUA) other than fishing that results in the death of fish.
- Section 35. (1) of the *Fisheries Act* reads “No person shall carry on any work, undertaking or activity that results in harmful alteration, disruption or destruction of fish habitat.”
- The definition of “fish habitat” under the *Fisheries Act* states: “fish habitat means water frequented by fish and any other areas on which fish depend directly or indirectly to carry out their life processes, including spawning grounds and nursery, rearing, food supply and migration areas.”
- The Department will apply a risk-based approach when evaluating the impacts of WUAs on fish habitat. Following from the definition of fish habitat noted above, the Department interprets “harmful alteration, disruption or destruction” as any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat’s capacity to support one or more life processes of fish.
- If, after the application of avoidance and mitigation measures, the proponent’s WUA’s will still result in residual harm to fish or fish habitat, they will need to seek an exception under one of the authorities listed, respectively, in subsections 34.4(2) or 35(2) of the *Fisheries Act* in order for the proposed WUAs to proceed without contravening the Act.
- The Minister will decide to issue or refuse authorizations under paragraphs 34.4(2)(b) and/or 35(2)(b) following a site-specific review for WUAs that pose, respectively, a risk of death of fish or the harmful alteration, disruption or destruction of fish habitat. Proponents should consult the Department’s website for details on information requirements and processes.
- A Ministerial Authorization can act as a permit issued under the SARA provided that certain conditions are met. If the WUAs is likely to result in an impact prohibited under the SARA, the Department’s regulatory review will consider whether the permitting conditions under the SARA can be met. If they can be met, the authorization issued will also act as a permit issued under the SARA. If the conditions cannot be met, the authorization and/or the SARA permit will be refused.

Implications for PDAs

- important habitat would be considered under HADD and that DFO consider first avoidance measures in its hierarchy to reduce risks to biodiversity cf. Fish and fish habitat protection policy.

7. General Comments on the Regional Assessment Draft Final Report

Comments in this section are applicable to the overall structure and/or various parts of the draft final report and are presented here for consideration as appropriate.

²² *Fisheries Act*, RSC 1985, c-2(1).



General approach and scope

The report's structure, level of detail, and citations could be reviewed for consistency, as there is some redundancy in sections and unclear linkages between science points and the associated literature. Further, hyperlinking to specific documents provided by agencies is recommended over links to the IAAC registry.

The draft report does not evaluate or reference the potential impacts of offshore wind development on oceanographic and/or fishery surveys that support ongoing regulator-led ocean research and monitoring program. A general search of the report on 'biological, fisheries, fishery, oceanographic, ocean, science, and DFO' surveys only yielded two references to such surveys under Section 3.2.1 Planning and Development Phase (page 76). Potential impacts on oceanographic and fishery surveys should be considered further in the analysis and viewed as an important ocean use (such consideration is required by federal regulatory assessments conducted in other international OSW jurisdictions).

On page 86, the study area is redefined under the statement "*following the initial engagement process, it was decided that, because of extensive other activities in the area, offshore wind development should not at this time be initiated in the eastern Northumberland Strait and the southern portion of the Gulf of St. Lawrence (see sections 2.1.3 and 2.4). The section of the report, therefore, deals only with the existing conditions in the RA Study Area that apply to the Scotian Shelf and Sydney Bight areas.*" This statement may be more predominant and stated earlier in the document, given the implications of this change for potential development in the eastern Northumberland Strait and the southern portion of the Gulf of St. Lawrence.

Furthermore, there should be greater justification for this statement. Given that Section 4 outlines several existing conditions with supporting maps and descriptions that include some data for Gulf NS, an explanation or acknowledgement for the lack of visual and written analysis of the waters of Gulf Nova Scotia in Section 4 of the report is warranted. Omitting this information may lead readers to assume that the area was not analyzed by the RA Committee, which may contravene the Terms of Reference of the Regional Assessment. It could also lead the reader to conclude that no additional data was submitted to the RA process other than what is displayed in the maps in Section 4 of the draft final report. It should be noted that there was extensive work done by DFO Gulf Region in preparing and updating data layers for commercial fisheries landings for the 2012-2021 period to address important data gaps currently reflected in the Atlantic Marine Planning Atlas (available online)²³

DFO recommends that the RA committee enhance the justification behind the decision and include written and visual information (maps) of all existing Gulf NS commercial fishing data. This could be done directly in Section 4 of the updated report or in an annex. If it is not done directly in Section 4, DFO highly recommends adding footnotes to section 4.5 and to the maps of commercial fishing.

²³ Gulf Region commercial fishing data are housed and collected separately from Maritimes Region commercial fishing data. Gulf has several important fisheries with 0% georeferenced data, meaning that it is a challenge to map the data without applying a data model based on criteria, engagement with fish harvesters and subject matter experts. The Atlantic Marine Planning Atlas currently contains georeferenced data only, and for Gulf Region this is principally snow crab, Atlantic halibut, American plaice, greysole and bluefin tuna. It does not include any data for lobster, Atlantic herring, mackerel, and limited data for sea scallop, Atlantic rock crab, winter flounder. Gulf data submitted through the RA process (October 2023 DFO submission) includes modelled landings for fisheries that do not have geographic coordinates (includes 100% of inshore lobster landings, 100% of Atlantic herring, 100% of mackerel and various % for all other commercial species (see attached methodology document for more details).

As of December 3rd, 2024, Gulf Region had resubmitted the Gulf Commercial Fisheries Landings Data to the RA Committee.



While the breadth and scope of topics covered in the report is appreciated, DFO acknowledges gaps in available data and knowledge that may limit a thorough understanding of the potential impacts of offshore wind. These include:

- available fisheries data in relation to past and future trends.
- life history stages for certain species (particularly for those with planktonic stages such as lobster, scallop, snow crab, finfish, etc.) that depend on the energy and mixing brought about by wind energy.

Conservation Areas and Primary & Secondary Constraints

Primary Constraints (page 205): Marine Refuges should be added to the list of primary constraints identified in the report. These are areas that have been established to achieve long-term effective conservation of biodiversity and contribute to the Government of Canada’s commitment to protect 30 percent of Canada’s land and water by 2030.

Secondary Constraints (Table 6.1): The statement that “coexistence is possible” with the conservation network is a bit misleading, as the network includes existing sites, Areas of Interest (AOIs), and tier 1 and tier 2 sites. Coexistence should not be considered with existing sites. This section should be specific in terms which types of spatial measures may co-exist with offshore wind.

Based on the best available information and advice on sedimentation effects on sensitive benthic species, DFO recommends that a 2km buffer be applied around conservation areas including marine refuges with conservation objectives related to sensitive benthic species. Although this advice was specific to oil and gas activity, the sedimentation from installation of OSW infrastructure would be similar and this should be considered the best available information until specific advice can be produced for OSW development.

Reference: [Oak, T.G. 2020. Oil and gas exploration and production activities in areas with defined benthic conservation objectives: A review of potential impacts and mitigation measures. DFO Can. Sci. Advis. Sec. Res. Doc. 2020/040. vi + 55 p.c](#)

Other General Comments

DFO recommends marine spatial planning (MSP) be used in planning and site selection for offshore wind, to ensure that the approach used is consistent and includes comprehensive data. This approach should include clear objectives for existing and future ocean uses as well as for conservation. DFO has resources and tools available to support future marine planning discussions. MSP can be used to develop multiple scenarios which explore different options to meet economic, social, and ecological targets across different sectors.

The different types of zones identified in the RA should be included in the glossary (i.e. exclusion, safety, navigation). DFO uses terminology such as a “mitigation zone” as an area that is monitored before and during the conduct of a work, undertaking, or activity (WUA) to ensure that marine animals are not present. The mitigation zone boundaries vary depending on the WUA, project location, species and other considerations. The term “safety zone” may be interpreted differently by the life cycle regulator in the future so it is recommended to verify terminology with them as well.

Consider adding to the report the importance of re-evaluating and updating the PDAs (or Wind Energy Areas) when new information is available. For example, when new data and results from the monitoring projects are available, if new species are listed under the Species at Risk Act, or if new or refined critical habitat for species at risk is identified.

From a Canadian Coast Guard perspective, the proposed 25 km coastal buffer should mean that there will not be any major issues with radar/VHF towers; generally, this is a concern for land-based towers. Nevertheless, given the report had made recommendations for further studies within the Study Area, it may be worth suggesting funding for electromagnetic studies to add to the knowledge base on how/if offshore wind turbines may affect radar/radio communications.



St. Ann’s Bank should be corrected to St. Anns Bank throughout the report.
SBAAs should be corrected to SiBAAs (Significant Benthic Areas) throughout the report.

8. Specific Comments on the Regional Assessment Draft Final Report

Comments here are applicable to specific pages and sections of the report, as indicated.

Section	Page	Comment
1.3 – Regulatory context	27	Suggest re-wording the bullet that reads “an authorization pursuant to the Fisheries Act for the harmful alteration, disruption, or destruction of fish habitat” and changing it to: “an authorization pursuant to the Fisheries Act for the death of fish and/or the harmful alteration, disruption, or destruction of fish habitat” and update the footnote to include section 34(1) of the Fisheries Act.
2.1.2.4 – Fisheries engagement	42	The statement “due to the small number of license holders (less than five), their catch data are not incorporated into DFO’s database” is not accurate. DFO has landings data for fisheries with a small number of license holders such as the sea cucumber fishery. However, to comply with the Government of Canada’s privacy policy (known as the “Rule of Five”) these data cannot be shared publicly. These landings were incorporated into the DFO Technical Report “Application of Marxan with Zones as a marine spatial planning decision-support tool: a case study for offshore wind planning in Nova Scotia.” Similarly, scallop fishery data are incorporated into the publicly available database, just not in cases where there are privacy concerns. Suggest clarifying that these catch data are not made publicly available or stating that “database” refers either to the Atlas or the Eastern Canada Commercial Fishing (ECCF) dataset.
2.2.4 – DFO Marxan with Zones Analysis	48	“...but with some larger areas identified, including a section of Middle Bank.” Middle Bank should be changed to French Bank.
4.0 – Existing conditions	86-161	The section includes information on the ecosystem and other human uses on the Scotian Shelf. The section could be subdivided into two separate sections entitled ‘Ecosystem Overview’ and ‘Human-use Overview and Socioeconomics’ to assist the reader.
	86	“The Outer Scotian Shelf region in northern portions of the RA Study Area includes large banks covered in sand and gravel with lesser patches of shell beds and boulders” is inconsistent with common descriptions of the Scotian Shelf. Typically, the Scotian Shelf is referred to as West/Southwest Scotian Shelf and East Scotian Shelf and not northern.
4.1 – Ecosystem overview	86	Physical oceanography of the Scotian Shelf could be described in more detail. The statement “The Scotian Shelf (the Shelf) is a complex, diverse and biologically productive area that has extensive interrelationships both with the adjacent land, and, through the influence of major ocean currents, with much of the North Atlantic Ocean, the Labrador Sea and the Gulf of St. Lawrence” should also reference the Bay of Fundy, Gulf of Maine, and proximity to the Gulf Stream, which make the Gulf of Maine / western Scotian Shelf a convergence / transition zone of warmer waters from the south and colder waters from the north. The interaction is noted in some detail under Section 4.2.7 on P.99 of the report.



4.3 – Ecological characteristics and structure	99	<p>The statement “<i>Recently, the spring bloom of phytoplankton has been initiated earlier in the season, apparently in response to global warming (Johnson et al., 2018), and its intensity has varied according to the depth of mixing of the surface water, its turbidity and nutrient levels</i>” does not correctly cite the findings of Johnson et al. (2018). Although Johnson et al. (2018) do note changes in nutrient and plankton dynamics on the Scotian Shelf / Gulf of Maine relative to historical norms, they do not attribute these changes to climate change in the report. Other publications exist that more clearly link marine ecosystem change to climate change, including:</p> <ul style="list-style-type: none"> • Bernier, R.Y., Jamieson, R.E., Kelly, N.E., Lafleur, C., and Moore, A.M. (eds.) 2023. State of the Atlantic Ocean Synthesis Report. Can. Tech. Rep. Fish. Aquat. Sci. 3544: v + 219 p. • Pepin, P. Maillet, G., Lavoie, D., and Johnson, C. 2013. Temporal Trends in Nutrient Concentrations in the Northwest Atlantic Basin. Ch. 10: pp. 127-150. In: J.W. Loder, G. Han, P.S. Galbraith, J. Chassé, and A. van der Baaren (Eds.). Aspects of climate change in the Northwest Atlantic off Canada. Can. Tech. Rep. Fish. Aquat. Sci. 3045: x + 190 p.
4.3.2 - Benthos	102	<p>The statement “<i>Many corals and sponges in this region are recognized as Species at Risk. Since they mostly occur in the deepest waters of the RA Study Area, they are less likely to be directly at risk from OSW and are not discussed further (Campbell and Simms, 2009; DFO, 2010, 2012a)</i>” requires correcting for the following reasons:</p> <ul style="list-style-type: none"> • Corals and sponges are not protected under the <i>Species at Risk Act</i>, but they are considered species of conservation concern within SiBAs and as such, additional planning and/or mitigation should be applied to avoid potential impacts from the placement of infrastructure. • There are areas on the mid- and inner-Scotian Shelf that are known to host sponges, sea pens and, in some instances, large gorgonian corals. For more information see: DFO. 2017. Delineation of Significant Areas of Coldwater Corals and Sponge-Dominated Communities in Canada's Atlantic and Eastern Arctic Marine Waters and their Overlap with Fishing Activity. DFO Can. Sci. Advis. Sec. Sci. Advis. Rep. 2017/007.
4.3.3 – Pelagic organisms	102	<p>The section title “Pelagic Organisms” is misleading, as it implies that only information on species that reside within the water column and not the seabed is included; in contrast, the section also includes information on benthic fish (e.g., lobster, crab, and scallop) and introduced / invasive species, among other types of non-pelagic species. Further, the section contains some inaccuracies and inconsistencies, including the description of Table 4.1 that also appears to be inaccurate. The section could be re-organized given its connection to many important fish stocks that support the Scotian Shelf fishery.</p>
Table 4.1 – Important Fish	103	<p>The text introducing Table 4.1 (page 103) states: “<i>Some species in each category are the basis of important commercial and recreational fisheries in this region and are listed in Table 4.1 with rankings according to the Species at Risk Act (SARA), the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and Fisheries and Oceans Canada (DFO)</i>”, however the sources for the table are limited to SARA and COSEWIC documents and a geodatabase. Suggest clarifying these sources, expanding on how these sources were used to rank these species and adding what additional sources might have been used pertaining to DFO.</p>
Table 4.2 – Important Invertebrates	105	<p>Incorrect listed stock status for Atlantic herring in Table 4.2. The only stock for which formal advice is available is the Southwest Nova Scotia/Bay of Fundy spawning complex which is in the critical zone. Stock status for the Offshore</p>



		<p>Scotian Shelf and Coastal Nova Scotia is uncertain and there are no active science surveys. Recommend using the following wording instead: “Southwest Nova Scotia/Bay of Fundy: critical zone, Offshore Scotian Shelf: uncertain, and Coastal Nova Scotia: uncertain.”</p> <p>In Maritimes Region herring stocks are not broken out into fall and spring spawners. It would appear that Gulf Region numbers/ stocks may have been used here.</p> <p>Some of the species are missing their associated COSEWIC status (e.g. spiny dogfish is designated special concern under COSEWIC). Should also include the specific population for which the SARA and COSEWIC status is for – e.g., spiny dogfish is referring to the Atlantic population. Basking shark is also specific to the Atlantic population and is designated as special concern under COSEWIC. Authors should ensure all species’ status are accurate and not missing. Suggest using the SAR public registry to quickly look up this information.</p>
<p>4.3.4 - Marine Mammals</p>	<p>106-107</p>	<p>This section could include more detail and map(s) showing marine mammal detections in the Study Area. More detailed information on marine mammals was provided by DFO to the RA committee in the Department’s submission dated October 31, 2023.</p> <p>The statement (page 107) “<i>Although the overall abundance of marine mammals in the RA Study Area is highest from late spring to autumn, some species are present year-round (refer to Table 4.6)</i>” should be corrected, as Table 4.6 in the report is related to migratory bird sanctuaries in Nova Scotia (Table 4.6 is on P.121 of the report).</p> <p>The statement “<i>The RA Study Area also includes critical habitat for blue whale, North Atlantic right whale and northern bottlenose whale</i>” is incorrect, critical habitat has not yet been identified for blue whale.</p> <p>Regarding the statement “<i>Many of the larger species of marine mammals are already at risk from human activities in the marine environment, including vessel traffic, fishing activities, e.g., buoys, net and trap lines etc., noise and abandoned fishing gear...</i>”: Marine mammals of all sizes may be affected by the threats listed, including several species at risk ranging from the blue whale to the relatively small Sowerby’s beaked whale.</p>
<p>4.3.7 - Marine Turtles</p>	<p>114-115</p>	<p>The section could include more detail and map(s) showing marine turtle detections in the study area. More detailed information on sea turtles was provided by DFO to the RA committee in the Department’s submission dated October 31, 2023.</p> <p>This section indicates that leatherback sea turtles are protected under SARA however SARA is not mentioned in relation to loggerhead turtles (only COSEWIC status). Ensure that species’ SARA status are consistently referred to throughout the document.</p> <p>The statement (page 115) “<i>Turtles are primarily threatened by human activities such as fishing – especially with nets and long-lines (DFO, 2020a, 2020b) ...</i>” is correct but incomplete. Fishing is a primary threat to sea turtles when in Atlantic Canadian waters, but they are also subject to habitat / nesting threats that exist in the species range outside of Atlantic Canadian waters.</p>



4.3.8 – Ecosystem changes	115	The section on Ecosystem Changes is brief (less than one page in length) and simplistic relative to the information provided by DFO and available in the primary literature. Statements related to Bay of Fundy nodal cycles, Atlantic El Niño-La Niña, and climate change are not well-described and are not clear in context of projected change to the Scotian Shelf ecosystem. Several points also are not substantiated with scientific citations.
Figure 4.11	124	<p>This map has many overlapping and masking layers that cannot easily be differentiated from each other and is not well described within the supporting text of the report. Recommend creating 3 new maps from this figure: one showing conservation sites; a second map showing defined ecological areas; and a third map showing important habitats. Each new map could include the PDAs as a layer. The leatherback turtle Important habitat layer appears to have been cropped/clipped and should be restored to its original extent.</p> <p>Important habitat for northern bottlenose whale (see https://www.researchgate.net/publication/377503590_Identifying_important_habitat_for_northern_bottlenose_and_Sowerby's_beaked_whales_in_the_western_North_Atlantic) has now been approved for publication, however the timeline for this is currently unknown.</p>
Table 4.8 - Federal Legislation and Associated Special Areas	125	<p>This table could include reference to Critical Habitat (CH) pursuant to the <i>Species at Risk Act</i>. Critical Habitat designation serves to ensure that the purpose and function of habitat critical to at-risk species is maintained to serve such species when in Atlantic Canadian waters. If this section was intended to speak to “other effective conservation measures”, then CH may not apply since critical habitat was determined not to meet the criteria. It is acknowledged that Critical Habitat is noted in a separate section on page 132 of the report.</p> <p>The purpose provided for Fisheries Closure Areas and Marine Refuges is accurate for fisheries closures but is inaccurate for Marine Refuges (OECMs). Fisheries closures under the <i>Fisheries Act</i> can be established for a variety of reasons. The purpose of a <i>Fisheries Act</i> marine refuge should be updated to “To protect marine biodiversity through the provision of long-term biodiversity conservation benefits (BCBs).”</p>
4.4.5 - Protected and Special Areas	126	<p>Regarding the statement: “<i>The creation and establishment of MPAs in Canada is facilitated through the federal Oceans Act, with DFO administering the process of identifying, establishing and managing such areas.</i>”</p> <ul style="list-style-type: none"> • This characterization is slightly misleading and not reflective of other federal agencies and legislations with the authority to create MPAs in Canadian waters (marine National Wildlife Areas and National Marine Conservation Areas are also federal MPAs). • If this section is meant to only reflect MPAs designated by DFO, it would be more accurate to read “DFO administers the process of identifying, establishing and managing MPAs established under the <i>Oceans Act</i>.” <p>Please replace the paragraph beginning with the words “<i>In addition to the above list, DFO...</i>” with the following text:</p> <ul style="list-style-type: none"> • “<i>In addition to the above list, Fisheries and Oceans Canada (DFO), continues to develop a draft in collaboration with Parks Canada and the Canadian Wildlife Service (CWS) of Environment and Climate Change Canada has developed a conservation network plan for the Scotian Shelf-Bay of Fundy Bioregion (DFO, 2023c). The current dataset now includes the latest existing and proposed Tier 1 (higher priority for implementation</i>



		<p><i>and are among the sites that could be selected for advancement by 2030) and Tier 2 (important to create a representative conservation network but will not be considered for advancement by 2030) conservation sites. The plan is made up of existing federally designated conservation areas and a suite of proposed network sites for future protection. It was developed using best practices in systematic conservation planning, incorporating ecological and human use data, science information on climate change, spatial analyses, and feedback collected through consultation and engagement. Proposed network sites are classified as Tier 1 (higher priority for implementation and are among the sites that could be selected for advancement by 2030) and Tier 2 (important to create a representative conservation network but will not be considered for advancement by 2030). The boundaries for these sites however are preliminary and subject to change following public consultation through site-specific establishment processes, which include additional consultation with other levels of government, rightsholders and stakeholders. The This section identifies and describes those special areas network sites that are within or around the RA Study Area and are presented on Figure 4.11.”</i></p>
	127	<p>Regarding the statement “For the existing MPAs in Nova Scotia, prohibited activities include disturbing, damaging, destroying or removing living organisms or habitat; or depositing, discharging or dumping substances that may have the same result (DFO, 2023c, 2023d, 2023e, 2023f). Additional permissions or prohibitions for other activities are set out in the regulations specific to the area in question.”</p> <ul style="list-style-type: none"> • Characterization of the Oceans Act is somewhat confusing; it is more accurate to say that there is a prohibition on any activity that disturbs, damages, destroys or removes from a Marine Protected Area any living marine organism or any part of its habitat or is likely to do so. Exceptions to the blanket prohibition for activities that can occur within the sites are then provided. • Recommend replacing the above with: “For the existing MPAs in Nova Scotia, there is a prohibition on any activity that disturbs, damages, destroys or removes from the Marine Protected Area any living marine organism or any part of its habitat or is likely to do so (DFO, 2023c, 2023d, 2023e, 2023f). Exceptions to the blanket prohibition for activities that can occur within the sites are provided within the Regulations.” <p>“Currently, DFO is working to establish a network of MPA areas within the Nova Scotian Shelf Bioregion, which could include additional areas within the RA Study Area (DFO, 2023c, 2023d).”</p> <ul style="list-style-type: none"> • The network will be finalized by the end of 2024. Recommend changing to: “DFO has completed a conservation network plan for the Scotian Shelf-Bay of Fundy that reflects priority areas for future, federally led marine conservation areas”
Table 4.9 and 4.10 – MPAs and Marine Refuges	127 and 130	<p>Similar tables should be included for Species at Risk Critical Habitat.</p> <p>In Table 4.9, the Gully MPA is only “home to the endangered Scotian Shelf population of bottlenose whales” but it also includes identified critical habitat for this population.</p>



<p>4.4.5 - Protected and Special Areas</p>	<p>129</p>	<p>“Fisheries Closure Areas” should be removed from the heading “<i>Marine Refuges and Fisheries Closure Areas.</i>” Fisheries closures under the Fisheries Act can be established for a variety of reasons and only those found to fulfill the OECM criteria are afforded the title of marine refuge and count towards Canada’s marine conservation target.</p> <p>Regarding the statement “<i>To date, DFO has designated six Marine Refuge Areas within the Scotian Shelf Bioregion; all are located wholly or partially within the RA Study Area.</i>”:</p> <ul style="list-style-type: none"> • Please remove the word “areas.” • Table 4.10 includes the Scallop Buffer Zones. While it is correct to say that the Scallop Buffer Zones fall in part within the RA Study Area, it is incorrect to state that they are part of the Scotian Shelf Bioregion. They are located within the Estuary and Gulf of St. Lawrence Bioregion (as is all data for Gulf NS). The Estuary and Gulf of St. Lawrence Bioregion and the Scotian Shelf Bioregion are two distinct bioregions. More information can be found here: DFO Bioregions webpage <p>Regarding the statement “<i>Marine Refuges are considered by DFO as “Other Effective Area Based Conservation Measures”, which are complementary to MPAs to help protect coastal and marine areas”:</i></p> <ul style="list-style-type: none"> • Marine Refuges are considered other effective area-based conservation measures (OECMs) based on their alignment with the international definition of OECMs, as outlined by the Convention on Biological Diversity. See, for example, https://www.cbd.int/protected/partnership/vilm/presentations/15_oecm_mackinnon.pdf • Recommend changing the above wording to “Marine Refuges are area-based <i>Fisheries Act</i> closures that have been recognized as Other Effective Area Based Conservation Measures that are complementary to MPAs to help protect coastal and marine areas.” • Add “and protect marine biodiversity through the provision of long-term biodiversity benefits (BCBs)” to the definition of a Marine Refuge. <p>The marine refuge criteria cited in this section of the report is the interim guidance that was published in 2017 and should be replaced with the 2022 OECM Guidance which can be found here: https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/guidance-eng.html</p> <ul style="list-style-type: none"> • Accordingly, the marine protection standard for MPAs and OECMs should be added to this section: “All existing and foreseeable activities in an OECM are assessed on a case-by-case basis to ensure that the risks they pose to the biodiversity conservation benefits are effectively avoided or mitigated.” • Updated criteria are also provided in appendix I.
<p>Table 4.10 - Marine Refuges and Fisheries Closure Areas</p>	<p>130</p>	<p>Lophelia Coral Conservation Area should be removed from Table 4.10. Eastern Canyons Marine Refuge encompassed and replaced LCCA when it was established in 2022.</p>
	<p>130-131</p>	<p>The names and conservation objectives for the existing marine refuges should be updated to reflect the newly published Marine Refuge Management Plan. The Management Plan can be found here: https://publications.gc.ca/site/eng/9_943238/publication.html</p>



		The correct names and conservation objectives can be found in Table 1 of the plan.
4.4.6 - Critical Habitat	132	<p>Would the section on Critical Habitat (4.4.6) be better suited as part of “Protected and Special Areas” (section 4.4.5)?</p> <p>Please replace the existing text of section 4.4.6 (page 132) with the following as it aligns more closely with SARA: “Critical habitat is defined in subsection 2(1) of SARA as “the habitat that is necessary for the survival or recovery of a listed wildlife species and that is identified as the species’ critical habitat in the recovery strategy or in an action plan for the species”. For aquatic species, SARA defines habitat as “spawning grounds and nursery, rearing, food supply, migration and any other areas on which aquatic species depend directly or indirectly in order to carry out their life processes, or areas where aquatic species formerly occurred and have the potential to be reintroduced”. Subsection 58(1) of SARA includes a prohibition against the destruction of any part of critical habitat, and the provisions for protecting the critical habitat are described in SARA section 58(5).”</p>
4.5 - Commercial Fishing	132	<p>“... <i>there are six invertebrate species, lobster, scallop, snow crab, shrimp, sea cucumber and whelk that are harvested commercially (MacLean et al., 2013).</i>” This list is incomplete. Other commercially harvested invertebrate species on the Scotian Shelf include Surf Clams, Quahogs, and Other Crabs (e.g., Rock, Jonah, Spider crab, etc.).</p> <p>“<i>Some fishing strategies such as those for scallop and sea cucumber are more akin to farming, where areas that are fished in one year are allowed to lie fallow for successive years to allow stocks to rebuild...</i>” This analogy is not quite correct for the situation described. Management areas are not left to “lie fallow” as suggested. Management is done on annual cycles based on scientific surveys and population analyses. The option to not harvest an area is based on a myriad of variables. Also, DFO would not exceed reasonable fishing levels in any given year to later leave a stock to rebuild over years.</p> <p>Remove “shrimp trawls” in this sentence as it not considered groundfish gear: “<i>In other mobile fisheries, e.g., groundfish, many different gear types can be used, e.g., baited longline, gillnets, shrimp trawls, bottom trawls, dredge, handlines, harpoon and spear.</i>”</p> <p>Also, baited longline, gillnets, handlines, and harpoon/spear are all fixed gear fisheries, not mobile gear. This should be corrected.</p> <p>The sentence “<i>The area falls within 4 Northwest Atlantic Fisheries Organization (NAFO) fisheries management areas: 4X, 4W, 4Vs and 4Vn.</i>” <u>should be corrected to:</u> “<i>The area falls within five Northwest Atlantic Fisheries Organization (NAFO) fisheries management areas: 4X, 4W, 4Vs, and 4Vn and 5Ze.</i>”</p>
	132-138	It would be preferred that the modelled DFO Gulf Region data be added to Figures 4.12-4.14 and included in the text and Table 4.11. Note that Gulf Region has its own fishing management areas.



	133	<p>Two sentences incorrectly refer to longlining as Mobile gear; it is classified as Fixed gear as defined in DFO's Groundfish IFMP:</p> <ol style="list-style-type: none"> “...some of the techniques used are specific in terms of the species captured, e.g., ‘fixed gear’ such as crab and lobster pots, whereas other mobile techniques (longlining and trawling) can capture a variety of species” and: “... whereas pelagic fish may be pursued by mobile gear (longlining, trawling) over many areas from the near shore to the edge of the Scotian Shelf;”
Table 4.11 – Summary of NS Fisheries	137	<p><u>General comments</u></p> <ul style="list-style-type: none"> There seem to be species included here that are not fished in the region or do not occur in Maritimes Region waters. Below comments have tried to correct these errors but DFO recommends that this table be reviewed for accuracy to ensure TACs, number of licences and species are accurate. The Integrated Fisheries Management Plans can help provide this information: https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/index-eng.html Under the “Techniques” column, there are some errors in the gear types that are used to catch fisheries. Bottom gillnets are not used for small or large pelagic species; there is no clam diver fishery; there is no trawling for crab; and no scallop trawling, only scallop dredges are used. Lobster and mackerel are missing from this table. There is overlap between some of the PDAs and some Lobster Fishing Areas (LFAs). The number of licenses in Table 4.11 does not include Gulf Region data, and therefore is an incomplete picture of the number of licenses in the RA study area. If it is intended to not include Gulf Region data in this table, please add a footnote to explain the justification to readers or include the additional information in an annex. <p><u>Bluefin tuna & swordfish</u></p> <ul style="list-style-type: none"> Bottom gillnets are not authorized for bluefin tuna fishing and should be removed from that row. Other bluefin tuna fishing gears include rod and reel, electric harpoon, tended line and green stick. There are no gillnets, drift nets, or grappling devices allowed on the swordfish fishery. The TAC for swordfish should be 1,348 tons. <p><u>Clam</u></p> <ul style="list-style-type: none"> The clam information is likely incorrect and appears to be referring only to the offshore clam fishery. There are likely around 900 inshore licences for clam, in addition to mid-shore licences (though only a handful of these). <p><u>Crab</u></p> <ul style="list-style-type: none"> It is important to specify which species are being referred to. The TACs presented seem to refer to snow crab, but other species are fished as well including Jonah, rock, red and green crab. Given this, the number presented in the table for crab is not correct. <p><u>Groundfish</u></p> <ul style="list-style-type: none"> Sole, barracuda, mullet, rockfish, seabass, shad, sturgeon are not part of the region’s groundfish fishery.



		<ul style="list-style-type: none"> The numbers presented here for groundfish should be reviewed. Most groundfish TAC information can be found at this link: https://www.dfo-mpo.gc.ca/fisheries-peches/decisions/fm-2022-gp/atl-10-eng.html Note that the cod TAC is from bycatch only; there is no directed fishery. There is no active midwater trawl in Maritimes Region at the moment. <p><u>Herring</u> The herring TAC here is assumed to be offshore Scotian Shelf. The TAC for the offshore Scotian shelf herring component has been changed from 8,000 t to 4,000 t. It should read “4,000 t (2024)”. There are also TACs for Georges Bank, herring boxes, and Southwest Nova Scotia and the Bay of Fundy that are not shown. As a result, herring landings in the Maritimes Region are larger than what is shown in table. There are over 3,500 licenses issued although not all of these have been active, and the combined TACs for the region is closer to 35,000 tons. Fisheries Management Decisions on the DFO website can provide more accurate information. For herring in 2024 see here: Fisheries Management Decisions for Atlantic Canada, Quebec and the Arctic - 2024</p> <p><u>Scallop</u> The text from the <i>Atlantic Fishery Regulations, 1985</i>, specify that “No person shall fish for scallops by any means other than by a scallop drag, by diving, by dip-netting or by tongs.” Bottom trawl and dredge are not permitted, the correct terminology is “drag.”</p> <p><u>Shrimp</u> There are 56 shrimp licenses in shrimp fishing areas (SFAs) 13-15</p> <p><u>Other</u></p> <ul style="list-style-type: none"> There is no conch fishery in the region. Cod and various flatfish are considered groundfish and should be grouped there.
4.5 – Commercial Fishing	138	<p>Similar to above, note the error in referring to longline gear as Mobile gear. Longline is classified as Fixed gear: “<i>Fisheries using mobile gear such as a trawl or long lines could, for example, become entangled with the anchor lines of a floating OSW turbine.</i>”</p> <p>Regarding the statement: “<i>The Committee was advised that longlines, which may be many kilometres in length, cannot be effectively controlled, may drift considerable distances from the original target line...</i>”, this is true for pelagic longline (as opposed to groundfish longline), so it is important to specify this here.</p>
	139	<p>Regarding the statement: “<i>...probably the most important cause of changes in fish stocks of the Scotian Shelf has been the overexploitation of the fisheries, particularly, but not only of groundfish, during the decades prior to the 1990s...</i>”, it’s important to note that other factors are also at play including climate change.</p>
4.6.3 – Other Users	148	<p>This section does not include reference to oceanographic or fisheries surveys, which are only briefly noted in Section 5.6.5 (see page 189) and Table 5.7 (see page 191).</p>
5.5 & 5.6 – IPFs and Valued Components	167-194	<p>The description of the Impact Producing Factors is inconsistent and unclear. For example, atmospheric emissions are an impact, while exclusion zones could be considered both an impact producing factor (e.g., fishing or ocean monitoring) and a mitigation measure (vessel safety). The content of each sub-section differs in the level of detail in terms of describing the impact and any associated</p>



		mitigation measures. It is acknowledged that the following Section 5.6 speaks to some of these details, although the structure adopted between Section 5.5 and 5.6 lends itself to redundancy and separation of relevant and connected material.
5.5.4 – Noise and vibrations	170	<p>The organization/structure of this section is difficult to follow. It jumps between noise and vibrations and between the various phases of OSW farm development (e.g. pile driving/construction vs operation). To ensure key messages are clear to the reader, re-organization is recommended.</p> <p>While this section represents a very high-level overview (i.e., only refers to ‘marine life’ or ‘marine species’ in general), the scope of each paragraph seems inconsistent. It directly addresses only one of the impacts of noise on marine species (auditory injury) and does not include others such as behavioral effects. This section also does not consider differences around the impacts of vessel noise, helicopter noise, pile driving, seismic surveys (only touching on vibrations from seismic).</p> <p>While this section considers impacts on marine species, the surrounding sections (e.g. 5.5.2 – artificial lighting and 5.5.5 vessel activity) do not consider impacts on marine species. The scope and level of details across these sections should be consistent.</p>
5.5.7 – Electrification of subsea power cables	171-172	<p>With regards to electrification of power cables, suggest additional context to describe potential impacts on aquatic life. Some information for consideration:</p> <ul style="list-style-type: none"> • EMFs may cause sensitive species to become attracted, deterred, or disoriented due to these produced fields, impacting their feeding or migration success (Westerberg and Lagenfelt 2008; Gill and Bartlett 2010; Tricas and Gill 2011; Hutchison et al. 2020, Gillson et al. 2022, Walker et al. 1992), • If organisms spend extended periods of time near cables, they may have direct negative effects on health (Öhman et al. 2007); sublethal effects. • Further research is needed to fully understand these impacts on key sensitive species, acknowledging this is discussed in section 9.3.5
5.5.8 – Presence of infrastructure and Table 5.4	172-171, 181	<p>With regards to the effects of presence of infrastructure, consider including potential impacts as follows:</p> <ul style="list-style-type: none"> • Spread of aquatic invasive species (AIS) that may adhere and colonize artificial reef structures (De Mesel et al. 2015; Riefolo et al. 2016; Degraer et al. 2020). • Change in food supply. • Change or loss of habitat structure or cover. • Behaviour changes (i.e., species assemblages, aggregation, trophic interactions). <p>For mitigation, avoidance of sensitive habitats (i.e. corals, sponges, eelgrass, other submerged aquatic vegetation) is of primary importance.</p>
5.5.9 – Movement of turbine blades	174-175	<p>Offshore wind farms may affect physical oceanographic conditions, including impacts to ocean circulation both vertically and horizontally. Research has looked at the mixing of oceans and turbulence created by offshore wind farm foundations (see: Schultze et al. 2020) but the effects of blade operation will need to be studied within Canadian waters under varying conditions and array designs.</p> <p>Additional potential impacts to consider during operation:</p>



		<ul style="list-style-type: none"> Cumulative effects - Change in circulation/hydrodynamics; change in stratification and upwelling dynamics; changes in food web, productivity, and distribution of food
5.5 – IPFs, and Table 5.2	177	<p>Consider adding aquatic invasive species as a potential impact to section 5.5.</p> <p>“Atmospheric emissions” was seemingly not evaluated against marine mammals and sea turtles and fish and fish habitat, however potential increases in emissions could contribute to ocean acidification which would affect these valued components.</p>
5.6.2 - Fish and Fish Habitat, Marine Mammals and Sea Turtles	180	<p>In addition to “<i>noise and vibrations associated with site assessment surveys (e.g., sonar and high resolution geophysical/seismic surveys)</i>” it should be noted that there is also the potential for noise and vibration impacts generated by the construction phase (e.g., pile driving and installation of wind turbines) and operations (see above).</p> <p>In addition to “disrupted migration routes”, consider other important fish, fish habitat and marine mammal functions that might also be impacted, including but not limited to spawning, foraging, and breeding.</p> <p>Regarding the potential for entanglements with mooring lines and cables, it should be noted that this is likely referring to secondary entanglement, as the risk for a marine mammal or sea turtle to be come directly entangled in large, high-tension cables is unlikely as compared to entanglement in fishing gear.</p>
Table 5.4 - Fish and Fish Habitat, Marine Mammals and Sea Turtles – Effects, Mitigation and Monitoring Measures	181-183	<p><u>Table organization</u></p> <ul style="list-style-type: none"> It is difficult to distinguish which key mitigation and monitoring measure is associated with each Impact Producing Factor. Consider adding rows to Table 5.4 for clarity. In the Note section of Table 5.4, clarify the meaning of “(P).” DFO recommends consideration of all aspects of OSW development including cabling to land and overland to the power grid. This will reveal other Impact Producing Factors (IPFs) to include in Table 5.4, such as removal of materials and detonation in or near water. “<i>Physical and psychological injury</i>”, replace with “Physical injury and physiological impacts.” <p><u>Mitigation and monitoring</u></p> <ul style="list-style-type: none"> An additional mitigation measure to consider: Develop and implement a shutdown plan to be used for planned or unplanned breaks in the sequence of piling including for when marine mammal and sea turtle species are detected within or approaching the mitigation zone. The underwater noise and vibration mitigation listed should include monitoring for marine mammals prior to start-up / ramp-up of noise generating activities. Acoustic modelling should be included as a key planning and monitoring measure. See appendix II for recommended measures for consideration. Consider adding mitigation and monitoring measures regarding the deposit of deleterious substances. See additional information provided in appendix II for DFO recommended best practices for the consideration for the protection of fish and fish habitat. “<i>Exclusion buffer zones during pile driving activities</i>” is listed as a noise and vibration mitigation measure. In addition to pile driving activities, also



		<p>consider mitigation zones for possible seismic surveys: https://www.dfo-mpo.gc.ca/oceans/publications/seismic-sismique/index-eng.html</p> <ul style="list-style-type: none"> • In addition to following Canada’s Ocean Noise Strategy, please consider the following mitigation measure for vessel traffic: Refer to Notices to Mariners; Section A2 - “Marine Mammal Guidelines and Marine Protected Areas” (or any relevant updates) available here: https://www.notmar.gc.ca/annual. • If cables cannot be adequately buried to reduce EMF to an acceptable level (on a case-by-case basis), an effective monitoring program should be implemented to measure EMF outputs during operation. • “Changes in habitat quality/quantity...etc.” are identified in the Potential Effects column. However, there are no Key Mitigation or Monitoring Measures associated with this Potential Effect, other than monitoring the long-term reef effects. DFO recommends adding research and monitoring measures for the turbulence in the air above the sea caused by turbine blades affecting mixing processes and biological productivity (i.e., circulation/hydrodynamics, change in stratification, upwelling dynamics, etc.). • The only reference to SARA or Species at Risk considered under the key mitigation and monitoring measures for fish/marine mammal/sea turtles is “Baseline surveys to identify critical habitats, seasonal species distribution and monitoring protocols (SA)”. Monitoring in existing critical habitat areas or areas considered important for species at risk could be added. Additionally, avoidance of SARA species/habitat should be included. • The following monitoring measure is unclear: “<i>monitoring of moorings for entanglement of marine debris, e.g. passive technologies (O&M).</i>” Can this be clarified? • Recommend replacing “<i>coral and sponge hotspots</i>” with “coral and sponge significant benthic areas”. Significant benthic areas are defined by DFO Science and are available online: https://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs70-5-2016-093-eng.pdf
Table 5.6 – Fisheries effects, mitigation and monitoring	187	Not every impact appears to have a corresponding mitigation or monitoring measure. For example, no measures appear to apply to waste management. In addition, aquatic invasive species is an impact worth considering for inclusion here.
6.0 - PDAs	202	The PDA-specific tables summarize relevant information, although it is unclear if potential impacts on communal Indigenous fisheries have been considered.
Table 6.1 - Key Secondary Constraints	208	In the Marine conservation network row “Coexistence is possible” should be replaced with “Coexistence may be possible” to align with the language that is used for the rest of the secondary constraints.
6.4 and Recommendation T3-1	209 and 331	Each of these parts of the report refer to the establishment of a 25-km coastal buffer that takes into consideration “established marine shipping routes and areas of heavy vessel traffic.” However, it should be noted that in the case of Marine Atlantic Inc.’s ferry routing across the Sydney Bight PDA, the density and patterns along the vessel routing are the same both inside and outside the 25-km buffer. Thus, shipping navigation risks in the PDA would be greater beyond the 25-km buffer due to increased wind exposure, wave heights, and sea ice combined



		with the potential presence of offshore wind infrastructure. In light of increased shipping risks, international guidance and standards on shipping route avoidance by offshore wind development should be considered in the RA Committee’s report. See appendix III for additional resources on this topic from other jurisdictions. As well, the Marine Atlantic Inc. shipping route could be considered as a potential Secondary Constraint to include in Section 6.3 on page 208 of the report.
Figure 6.5 - PDAs and commercial fisheries	214	A description in the text should be added related to Figure 6.5 noting that the lack of fishing activity observed in some of the areas on the map are a result of existing conservation areas (MPAs and Marine Refuges). Specifically, it should be noted that the lack of fishing activity seen within the Emerald Bank PDA is a result of WEBMR.
6.6.1 – Sydney Bight	215	The Sydney Bight PDA is described as being designed to minimize conflict with the inshore lobster fishery; however, Cook et al. (2024) indicates that the LFA 27 fishery extends to the 60-m bathy line which overlaps the Sydney Bight PDA. See Figures 4 to 13 here: https://publications.gc.ca/collections/collection_2024/mpo-dfo/Fs97-6-3602-eng.pdf Also note there are 3 active telecom cables in the Sydney Bight PDA. Active telecom cables are also laid in the PDAs for LaHave Basin, French Bank, Canso Bank and Misaine Bank.
6.6.2 - Middle Bank	224	The text on the Middle Bank PDA does not highlight the shrimp trawl fishery on the northern and eastern parts of the bank.
6.6.3 - French Bank	231	The text on the French Bank PDA does not reference the overlap with the snow crab trap fishery or the hagfish barrel trap fishery.
6.6.2, 6.6.4, 6.6.5 - Middle Bank, SI Bank, W/E Bank		These areas are annually surveyed by DFO under an agreement with the fishing fleet. They show consistent productivity; however, it is variable and currently low, but with consistent settlement. These areas have a history of significance to the fishery that could become important in the future.
6.6.4 - Sable Island Bank	237	In the section that speaks to the overlap with WEBMR (para. 3), it should be stated that if OSW development were to occur within the existing Marine Refuge the area would need to be reassessed to determine if the site is still meeting the OECM assessment criteria, which could result in the site or part of the site no longer contributing to Canada’s Marine Conservation Target initiative. As well, suggest reiterating here one of the conservation objectives of WEBMR that is in Table 4.10: “Manage the disturbance of benthic habitat that supports juvenile and adult haddock and other groundfish species.” Recommend a different word for "utilization" when referring to Marine Refuges as these areas are set aside to provide long-term biodiversity conservation benefits and not to be utilized for industrial scale activity. Suggest the following: “Given the infancy of the OSW industry in NS, the Committee expects that the findings of research undertaken during any initial OSW projects will support decision-making regarding the future compatibility of Marine Refuge areas.”
Table 6.5 – French Bank summary table	235	There is a reference to “Vessels under 45 feet are not required to have AIS...” Note that there are <u>no</u> AIS carriage requirements on Canadian fishing vessels due to an exception in s. 103(2)(a) of the Navigation Safety Regs of the Canada Shipping Act, 2001. This bullet likely refers to exemptions applied to <u>VMS (vessel monitoring system)</u> transponders on Canadian fishing vessels < 45 feet.



Table 6.6 – SIB summary table	244	The link to the NSFAEE feedback takes you to a submission from the NSDFA, not the NSFAEE.
6.6.5 – W/E Bank	246	<p>“...an area of northern bottlenose whale important habitat partially overlaps the PDA (Feyrer et al., 2024)”, however the Feyrer et al. 2024 layer was not displayed in the map of in Figure 4.11. If this habitat layer is referenced, it should also be used in the map.</p> <p>All information related to WEBMR including the description, conservation objectives, and possible implications that is stated under Sable Island Bank PDA (6.6.4) should be repeated under Western/Emerald Bank PDA (Section 6.6.5).</p> <p>“Fishing activity is generally low throughout the PDA; this was reinforced by the NSFAEE who identified large portions of the PDA as “low conflict” areas and supports OSW development in the area.” Additional context should be provided related to this statement to make it clear that the reason this is a “low conflict” area is because it has been closed to various fisheries since 1987 for the protection and conservation of biodiversity.</p> <p>Please provide a definition for “low conflict areas.”</p>
Table 6.8 – Canso Bank summary table	257	Please edit this sentence as follows: “It is hard to estimate the total volume of traffic since vessels under 45 feet are not required to have AIS VMS tracking.” As noted above, Canadian fishing vessels are exempt from AIS carriage requirements in regulations but do use AIS voluntarily.
Table 6.7 - Western/Emerald Bank summary table	249-250	<p>Under the “comment” and “considerations” columns in the DFO row, all information related to WEBMR including the description, conservation objectives, and possible implications stated in Table 6.6 should be repeated in Table 6.7, rather than refer the reader to the Sable Island Bank PDA section. Including the comments in the Sable Island Bank table and not here obscures the important ecological considerations that are directly applicable to the Emerald Bank PDA.</p> <p>“Table 6.7” under the DFO considerations column/row should be changed to “Table 6.6.”</p> <p>Haddock should be added to this table as part of the fish species present within the PDA.</p>
6.6.7 – LaHave Basin	259	Note that the LaHave Basin PDA overlaps with groundfish bottom trawling inside the PDA about 35-40 km from shore and at > 100 m depth.
6.6.8 – Misaine Bank	262	Should include in this section that snow crab is targeted on Misaine Bank within the PDA, and the PDA overlaps with the commercial whelk trap fishing area in 4Vs.
Table 7.1 – Types of activities	275	Effects on oceanographic and fishery monitoring programs should be considered in Table 7.1.
7.2.2 – Federal approaches to CEA	271	Consider using the term “mitigation” in place of minimization under the procedural step “Identification of mitigation measures” to maintain consistency of terminology used throughout the document.



7.3 – IPFs	274	Suggest that the bullet “DFO’s ongoing evaluation of the conservation objectives of the Marine Refuge within the Emerald Bank and Sable Bank PDAs” be reworded to “DFO’s ongoing evaluation of the conservation objectives of the Western Emerald Bank Marine Refuge, now encompassed by the Sable Island Bank and Emerald Bank PDAs.”
9.2.1 – Commercial fisheries data and knowledge gaps	308-309	<p>“While DFO provides information related to commercial fish landings from the Eastern Canadian Commercial Fishing Dataset...” Note that DFO provided additional fisheries data to the Committee that are not mentioned. There is a later statement about “other datasets, such as the VMS recordings of vessel activity” but it is not clear what dataset is being referred to.</p> <p>Also note that all fisheries except for marine plants have logbooks, so data do exist within DFO’s Commercial Data Division regardless of what vessel is being used (though privacy constraints remain).</p> <p>Regarding bullet point #4, commercial fisheries data is grouped (e.g. over a ten-year period) likely due to privacy/sensitivity screens applied. It may be possible to provide further subsets of data to consider seasonality. The Committee is welcome to contact DFO directly to discuss any further data needs.</p> <p>The statement “Only logbook data from 2012 up to and including the 2021 season are included meaning that there is a 2-to-3-year lag before recent trends in the fishery are identified”, could be refined to be more accurate. The data are available, but they are not considered official until quality control checks are performed. Nevertheless, it is possible to observe trends in available data.</p> <p>Regarding the statement “Data do not include vessels under 35 ft. that may be fishing in the region, which means that all data are not fully captured.” While this is true for the ECCFD, note that all fisheries do require logbook data.</p> <p>Regarding the statement “...DFO, as the primary regulator of the resource, should be required to review their management regimes and regulatory processes in light of the changes that have and are taking place, including the likelihood of a new industry competing for space in the rich waters of the RA Study Area”:</p> <ul style="list-style-type: none"> • This recommendation appears out of scope of the Regional Assessment’s Terms of Reference. Further clarification on this recommendation would be helpful for DFO to respond. • DFO is consistently reviewing management and regulatory frameworks regarding the management of fisheries through fishery Advisory Committees and other policy meetings.
9.3.3 - Noise data and knowledge gaps	312-313	<p>While it is undoubtedly challenging to summarize all the knowledge gaps associated with offshore wind, this section could benefit from additional information on the specific and priority knowledge gaps that exist in better understanding the impacts of underwater noise on marine life, given the breadth of research available on the topic and the level of engagement the Committee has achieved. The Ocean Noise Strategy will be important to guide future action, but the strategy itself acknowledges that there are many knowledge gaps surrounding ocean noise in general. Consider pointing to work done elsewhere (Europe, USA), on offshore wind farm noise monitoring and the main knowledge gaps that remain.</p> <p>Also, note that the ONS is currently considered draft, and will be finalized after all public feedback is considered and incorporated.</p>



Recommendation T1-3	320	<p>This recommendation is interesting, but it aligns with and potentially duplicates the purpose of existing data repositories, e.g., the Open Data Portal, the Open Science Data Platform, the Nova Scotia Open Data Portal, and the Canadian Integrated Ocean Observing System. A separate data repository exclusively for offshore wind planning may not be justified, but rather identified data gaps should be filled and shared on public platforms.</p> <p>DFO would request that data collected as a result of recommendations in this report (e.g., increased PAM efforts, page 307), be shared with DFO and/or added to any shared repository.</p>
Recommendation T1-6	322	<p>Consider collecting data on other marine species (e.g., fish and sea turtles) and their habitats in addition to marine mammals. More information is also needed for species sensitive to EMF (e.g., sharks).</p> <p>Consider making this recommendation applicable to all species at risk that occur within the study area (not just marine mammals).</p>
Recommendation T4-1	336	<p>Such a regime would require significant legislative development, new regulations, and the identification of a lead federal authority. Have there been thoughts on who would fulfill that authority role?</p>
Recommendation T6-4	341-342	<p>Suggest rewording the first sentence as this is copied verbatim and not referenced: https://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs114-21-2015-eng.pdf</p> <p>It's worth noting that requiring VMS would come at a large cost to the fishing industry. Many operate smaller vessels with relatively lower incomes.</p> <p>Regarding the statement “<i>Not all commercial fishing vessels, i.e., lobster and groundfish vessels less than 45 feet, are required to participate in this program, and currently there is some discrepancy in mandatory participation between DFO regions...</i>”, note that the evaluation of each fishery and its corresponding monitoring requirements is made on a case-by-case basis. In some cases, VMS is simply not required.</p> <p>Regarding the statement “<i>It appears to the Committee that the lack of mandatory fishing vessel participation in these programs needs to be addressed...</i>”: Note that the need for monitoring in the management of fisheries is part of the Integrated Fisheries Management Plan process. This is reviewed regularly through Advisory Committee meetings. Furthermore, DFO is incrementally implementing the Fisheries Monitoring Policy in fisheries. While DFO understands the benefits of greater VMS requirements in an offshore wind planning context, it is not necessary for the management/monitoring of all fisheries. Management of fisheries is determined on a case-by-case basis and VMS viewed as one tool in the toolbox.</p> <p>This recommendation does not fall under the mandates of the Ministers receiving this report. It is best directed to the Ministers of Transport Canada and Fisheries and Oceans Canada. For recommendations aimed at ministries beyond that of the RA report, what will be the mechanism for delivering these?</p>
Recommendation T6-5	342	<p>This recommendation appears out of scope of the Regional Assessment's Terms of Reference. DFO requires additional information about this recommendation before providing an informed response.</p>



		This recommendation does not fall under the mandates of the Ministers receiving this report. It is best directed to the Minister of Fisheries and Oceans Canada. For recommendations aimed at ministries beyond that of the RA report, what will be the mechanism for delivering these?
Glossary	345	Mollusks are not considered mobile species but are normally sessile (re: term Artificial Reef Effects).
Appendix 4.2	451	Regarding the green crab, note that there are active commercial fisheries in Southwest Nova Scotia, Eastern Nova Scotia, and a new fishery that might be approved for Southwest New Brunswick soon. Please follow up directly with DFO for additional information on these fisheries if required.
Appendices 4.1, 4.4, 4.5	439-450, 455-467	Consider including either a 'Life History Characteristics' or 'Habitat and Distribution' column.
Appendix 4.6	468-471	Additional information to include here: <ul style="list-style-type: none"> • Scallop abundance on Browns Bank, Western/Emerald Bank, Sable Island Bank Complex, and Middle Bank. • All these above-mentioned areas have, or have had in the recent past, sufficient productivity for sizable fisheries and annual science surveys.
Appendix 4.6A	470	The Appendix Table states that the Eastern Shoal EBSA supports Atlantic surf clam however in the original documents (King et al. 2013 and Doherty and Horsman 2007), no species is specified. This should be verified. While both Arctic and Atlantic are used, the common name used in recent DFO reports is Arctic Surf Clam (<i>Mactromeris polynyma</i>). See the latest Science Response: https://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2024/2024_038-eng.html Also see: https://www.dfo-mpo.gc.ca/fisheries-peches/ifmp-gmp/clams-palourdes/offshore-hauturieres-eng.html

Appendix I – Marine Refuge Criteria

The marine refuge criteria that has been listed is the interim guidance that was published in 2017 and should be replaced with the 2022 OECM Guidance which can be found here: <https://www.dfo-mpo.gc.ca/oceans/oecm-amcepz/guidance-eng.html>

The updated criteria are as follows:

A. The area-based measure being considered as a candidate OECM is in place for the long term. Its contribution to marine conservation coverage (i.e. meeting marine conservation targets) can only be included once, either as an OECM or as an MPA.

B. The candidate OECM is a spatially defined area and information on its BCBs is collected.

B1. The boundaries, size, and depth, where necessary, are defined and documented.

B2. Existing or anticipated BCBs within the candidate OECM’s ecosystem are identified and documented. At a minimum, these must include:

1. a benefit for an important species AND



2. a benefit for an important habitat AND
3. an additional benefit

B3. The governance decisions and management actions in the area that provide the BCBs are identified and documented.

B4. Information on the ecosystem functions and services in the area is collected and documented.

C. The candidate OECM is governed for the long term by a lead RGA in coordination or co-led with other RGAs.

C1. The RGAs have the jurisdiction to make and enforce long-term decisions with no end date.

C2. The RGAs recognize and respect Aboriginal and treaty rights and consult rights holders.

C3. The RGAs take into account the views of local communities and stakeholders.

C4. The governance approach is tailored to meet the candidate OECM's distinct needs and context.

D. The candidate OECM is managed for the long term by a lead RGA in coordination or co-led with other RGAs.

D1. These authorities undertake long-term management actions that may be adapted, as necessary, over time.

D2. Rights holders and stakeholders are encouraged to participate in the management actions.

E. The candidate OECM is governed and managed in ways that provide BCBs over the long term.

E1. The OECM's governance and management system is adaptive and effectively avoids or mitigates risks from existing and foreseeable activities to the BCBs that the OECM provides.

E2. Monitoring is underway or will take place over time to provide the information to determine the ongoing effectiveness of the governance and management system in providing BCBs.

E3. The OECM governance and management system continues to take into account ecosystem functions and services and other relevant values as it adapts.

Appendix II

1. Acoustic monitoring measures

- a. Conduct acoustic modelling (ensuring that accurate baseline data is used; this may need to be collected at the site) for any underwater noise generating activities to determine soundscape, sound emission characteristics, species interactions, and how the project will implement measures to avoid and/or mitigate impacts such as: avoidance of sensitive time periods for species, reducing the duration of the activity (to extent possible), not operating near critical habitat for marine mammals, sensitive habitats or Marine Protected Areas (MPAs)/Conservation Areas (to extent possible).



- b. Using the results of the modelling, determine the appropriate size of the safety zone and in-field verification to validate zone size. A mitigation zone is defined as an area that is monitored before and during the conductance of a WUA to ensure that marine animals are not present. The mitigation zone boundaries vary depending on the WUA, project location, species and other considerations.

2. Best practices for deposit of deleterious substances

- a. Develop a plan to prevent deleterious substances from entering a watercourse or water body.
 - i. Maintain all machinery on site in a clean condition and free of fluid leaks.
 - ii. Wash, refuel and service machinery in such a way as to prevent any deleterious substances from entering a watercourse or water body.
 - iii. Store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering a watercourse or water body.
 - iv. Plan activities near water such that materials (e.g., paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete or other chemicals) do not enter a watercourse or water body.
 - v. Ensure that building material used in a watercourse or water body has been handled and treated in a manner that prevents the release or leaching of deleterious substances into a watercourse or water body.
 - vi. Dispose of all waste materials on land in a designated area away from the ordinary high-water mark of any watercourse or water body.
- b. Implement a response plan immediately in case of a spill of a deleterious substance (including sediment).
 - i. Stop all works, undertakings and activities.
 - ii. In the event of a spill refer to the [projects near water website](#).
 - iii. Immediately report any spills (e.g., sewage, oil, fuel or other deleterious material), whether near or directly into a waterbody to the 24-hour National Environmental Emergency Centre by calling 1-800-565-1633.
 - iv. Contain water with deleterious substances.
 - v. Clean-up and dispose of water contaminated with deleterious substances.
 1. Use an emergency spill kit.

Appendix III - International Shipping Guidance

- Jurisdictions in Europe and the USA recommend a 2-nautical mile safety avoidance zone around established shipping routes by offshore wind development.
- See: https://maritime-spatial-planning.ec.europa.eu/sites/default/files/7_transport_offshore_wind_kg_1.pdf
 - *“Shipping stakeholders have developed the following recommendations for more suitable wind farm layout: a minimum safety distance of 2 nautical miles between the outside borders of the offshore wind farm and the shipping route;”*



- See: <https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Studies/Renewable-Energy/BOEM-2019-011.pdf>
 - *“Representatives of the shipping industry and other marine vessel navigators suggest that the marine planning guidelines in ACPARS (2 nautical miles [nm] setback from Traffic Separation Schemes [TSS] and a 5 nm setback from the TSS entrance) be adopted widely as minimum planning standards.”*