

ECCC Comments on Draft Report: Regional Assessment of Offshore Wind Development in Newfoundland and Labrador October 1, 2024

7.2 Air Quality and GHGs

Comment 1: The Final Report should include wording referencing the Strategic Assessment of Climate Change (SACC) and associated Technical Guides, including methodologies related to estimating and mitigating GHG emissions.

Recommendation: ECCC recommends the inclusion of the following wording under Table 7.2.6: "Offshore wind projects, if designated, would need to follow all applicable climate change and greenhouse gas (GHG) guidance presented in the SACC and the Technical Guides, which may include consideration of the GHG emissions from the construction (including pre-construction), operations, and decommissioning phases of off-shore wind projects, as well as mitigation measures."

Comment 2: ECCC notes that section 7.2.1.4 refers to 2021 emissions values, however 2022 data is now available.

Recommendation: ECCC recommends updating this section to include values from the 2024 NIR (1990-2022) and NL latest emissions summaries (1990-2022). The report can be found here - [National inventory report : greenhouse gas sources and sinks in Canada.: En81-4E-PDF - Government of Canada Publications - Canada.ca](#)

Comment 3: In section 7.2.3 on mitigation measures, the draft Report states one mitigation measure: "Regulate emission levels by using high-quality fuel that contains low sulfur levels to the extent practicable." While the use of high-quality fuels can reduce emissions of other air pollutants, it is not a mitigation measure for GHG emissions. This mitigation measure should also mention the use of other fuel types such as low GHG emission biofuels or hydrogen to reduce GHG emissions.

Recommendation: Clarify that the use of high quality, low sulphur fuels can reduce some air pollutants but not GHGs. ECCC recommends adding a sentence to refer to other fuel types such as hydrogen or biofuels as a GHG mitigation measure.

7.8.3 Mitigation and Other Measures

Comment 4: In the Siting and Design section of Table 7.8.3 there is a mitigation description of "Offshore wind farms should be developed >5 km from a weather radar." ECCC guidance for wind farm development in Canada recommends that wind turbines should not be installed in the 0-10km distance from a Radar, with consultation and mitigation measures recommended for all installations within 60km of any Radar.

Recommendation: The mitigation description of installation distance requirements from a Radar should be updated to reflect the distances within the *ECCC Guidelines for Wind Turbine and Weather Radar Siting* (link below).

Recommended text:

- Wind turbine height and distance from weather radar are key parameters when considering potential interference with the functioning of ECCC weather radars.
- Proponents should write to radarsmeteo-weatheradars@ec.gc.ca in order for ECCC to conduct a preliminary visibility analysis.
- For more information, please consult [Guidelines for Wind Turbine and Weather Radar Siting - Canada.ca](https://www.canada.ca/en/environment-climate-change/services/weather-general-tools-resources/radar-overview/wind-turbine-interference/guidelines-for-wind-turbine-weather-radar-siting.html) (<https://www.canada.ca/en/environment-climate-change/services/weather-general-tools-resources/radar-overview/wind-turbine-interference/guidelines-for-wind-turbine-weather-radar-siting.html>)

9.1.1 Wind

Comment 5: On Page 781 it is stated “Between 1973-2022, the Focus Area experienced 44 severe storms (ranging from less than hurricane force to Category 2 hurricanes)”. There should be a clarification on what is considered a “severe storm” as the discussion is only talking about storms of tropical origin, “tropical and post tropical”. Many non-tropical synoptic storms with similar or stronger wind speeds have also passed across the region.

Recommendation: The author should change “severe storms” to “severe tropical or post tropical storms” for clarity and note that non-tropical storms passing through the focus area can also produce similar or stronger wind speeds.

Comment 6: Figure 9.2 contains severe storms of tropical origin since 1985, and contains storm trajectories after 2022, however the body of the text in section 9.1.1 uses the reference period 1973-2022.

Recommendation: The author should ensure that there is clarity in the reference period that is represented in Figure 9.1 and if that differs from the body of the text in 9.1.1.

9.3 Mitigation and Other Measures

Comment 7: Section 5.1.1 *Considering Icebergs* outlines research on potential ice interactions with turbines and has the statement: “The Committee is therefore of the view that a precautionary approach should be taken whereby commercial offshore wind development should not be allowed in regions where icebergs could be present, until demonstration projects provide proof of concept.” Given this, the “Icebergs, Sea Ice & Atmospheric Icing” mitigation in Table 9.5 should refer only to sea ice and atmospheric ice and should not have any mitigation information about icebergs.

Recommendation: Unless mitigation for icebergs is proposed, the mention of icebergs should be removed from the “effect” column in Table 9.5.

4.3.5 Activities and Vessel Support for All Phases of Development

Comment 8: There are no mentions of pre-construction activities in this section. Initial surveys to collect baseline data would require the presence of vehicles and equipment to support these activities.

Recommendation: ECCC recommends expanding to include pre-construction activities.

Table 6.1. Constraints Analysis Used to Identify Offshore Wind Licencing Areas

Comment 9: On page 87, it is stated “ECCC is currently developing a risk assessment model to aid in project- and species- specific setback distance determinations.”

ECCC will not be developing a specific risk assessment model that will be applied to setback distances. Instead, ECCC can be contacted by proponents to provide advice on appropriate colony or species-specific metrics based on best available data and subject-matter expert opinion.

Recommended text: ECCC recommends rephrasing to “ECCC should be contacted by proponents to provide advice on appropriate colony or species-specific metrics based on best available data and subject-matter expert opinion”.

7.3: Aerofauna

Comment 10: In addition to the Eastern Canada Seabirds at-Sea (ECSAS) phalarope data, newly provided addendum from the Shorebird Collective includes information on the distribution of Red and Red-necked phalaropes and their potential interactions with offshore wind developments. Out of all shorebird species, these are most similar to seabirds in habitat use and behaviour. As a result, these species are potentially most at risk in terms of collision and displacement. Phalaropes use upwelling zones to forage and are often found in the company of foraging whales around Brier Island. Follow-up research should be conducted to determine if there are similar upwelling zones used by these species in NL.

Recommendation: ECCC recommends expanding to include information from the Shorebird Collective addendum (attached).

7.3.1 Legislative Background

Comment 11: On page 148, the first paragraph states "MBS are listed under the Schedule in the Migratory Bird Sanctuary Regulations, which prescribe rules and prohibitions regarding the taking, injuring, destruction. No MBS currently occur in the Regional Assessment Focus Area."

MBS is not previously defined. Please define the term before using the abbreviation. Additionally, the first sentence appears to be cut short "... rules and prohibitions regarding the taking, injuring, destruction."

Recommended text: "Migratory Bird Sanctuaries (MBS) are listed under the Schedule in the Migratory Bird Sanctuary Regulations. **These regulations prohibit activities that could harm migratory birds, their nests or their eggs.** No MBS currently occur in the Regional Assessment Focus Area."

Comment 12: While it is true that "no MBS currently occur in the Regional Assessment Focus Area", there are various MBS found within the broader NL study area and along the coast of Quebec. It is important to highlight the existence of these sites as there are direct implications for birds that possibly migrate through the focus area to reach the MBS.

Recommendation: ECCC recommends including mention of MBS adjacent to the NL focus/study areas, particularly their importance for migratory species, as well as the importance of maintaining the connectivity between these sites.

Comment 13: There is no mention of National Wildlife Areas (NWAs) in this section. Although none exist on the island of NL, there are areas under consideration for establishment as NWA, such as Lawn Island Archipelago.

Recommendation: ECCC recommends including mention of National Wildlife Areas, given their importance to conservation and the potential for implication in future developments.

7.3.2 Existing Conditions

Comment 14: Generally, it is accepted to refer to “Newfoundland” as the island of Newfoundland. This statement “Newfoundland hosts the greatest” (page 148) refers to waters off the island of Newfoundland.

Recommendation: ECCC recommends using the first mention to capture the following "the island of Newfoundland (hereafter Newfoundland)."

Comment 15: On page 149, the first paragraph begins with "birds that breed in temperate regions (e.g., shearwaters, gannets, and storm petrels)." Please note, these waters also support species that breed in sub-tropical regions (like great shearwaters breeding in southern hemisphere).

Recommended text: ECCC recommends revising to "birds that breed in temperate and sub-tropical regions..."

Comment 16: On page 149, the second paragraph states, "A variety of aerofauna may be found throughout the Regional Assessment Focus Area, and in adjacent marine and coastal areas. Depending on the taxa, species may have important habitat here (e.g., for breeding, foraging, roosting, overwintering etc.) and many species fly through or use stopover sites in and adjacent to the Focus Area."

The term 'non-breeding' should be used instead of overwintering. Some birds, during their non-breeding phase, are here during summer months. Staging and moulting sites are also important areas to capture.

Recommended text: "A variety of aerofauna may be found throughout the Regional Assessment Focus Area, and in adjacent marine and coastal areas. Depending on the taxa, species may have important habitat here (e.g., for breeding, foraging, roosting, **non-breeding**, etc.) and many species fly through or use stopover sites, **staging areas, and moulting areas** in and adjacent to the Focus Area."

7.3.2.1.1 Marine Birds

Comment 17: On page 149, the report clarifies information provided by ECCC in a footnote. ECCC recommends including this information in the main body of the text.

Comment 18: On page 149-150, it is stated “this may suggest the Focus Area is important for these species. However, distribution and density information alone does not necessarily convey significance of an area for a species. Specific habitat characteristics, for example, are also important to consider”.

It is unclear what point this text is intended to convey. Distribution and density information does convey the significance of an area for a species. If the birds are present in high density, then it is an important area regardless of habitat characteristics or what activity they are undertaking in that location. It should also be noted that the predictive density maps that ECCC provided are in fact based on models that use habitat characteristics as predictors as is noted in the footnote on page 150.

Recommended text: ECCC recommends revising to "While distribution and density information are key considerations, specific habitat characteristics, the sensitivity of a species to development, and conservation status are also important to consider."

Comment 19: On page 157, the third paragraph states "Bird colonies support high densities of marine birds, shorebirds and waterfowl during sensitive life periods, like breeding."

Please confirm which shorebird species are being classified as 'colonial'. Shorebirds may migrate in large flocks, but are not considered colonial. See attached reference from Florida Fish and Wildlife Conservation Commission on beach nesting birds:

<https://chnep.wateratlas.usf.edu/upload/documents/FWCBeachNestingBirdsReferenceGuide.pdf>

Recommended text: "Bird colonies support high densities of waterbirds and waterfowl during sensitive life periods, like breeding."

Comment 20: On page 157, the third paragraph states "Birds congregate and nest at colonies and use the surrounding area for foraging." While breeding, birds are also tied to the colony, which further restricts where they can forage.

Recommended text: "During breeding, nesting, and chick-rearing, large congregations of birds are tied to the colony, restricting their foraging to the surrounding waters. These restricted movements may cause individuals to be more at risk of displacement or collision within their natural foraging range around colonies."

Comment 21: On page 158, an additional limitation for species such as Puffin and Storm-petrel, is that the large colonies make it difficult to distinguish foraging patterns from smaller colonies. This is captured for Storm-petrel in the footnote.

Recommended text: ECCC recommends moving the footnote into the body of the text and including Puffin. "An additional limitation for species such as Puffin and Storm-petrel, is that the foraging patterns of smaller colonies are difficult to distinguish from larger colonies."

Recommended text for footnote: "Due to the difficulties in distinguishing foraging patterns of smaller colonies, ECCC advised using the Dynamic Brownian Bridge Movement Models specific to Leach's Storm-petrel, rather than predictive or theoretical foraging radii."

Comment 22: Figure 7.3.18 (page 170) is of Black Guillemot but first line of text says Tern species. Please revise to "Black Guillemot".

Comment 23: On page 173, it is stated, "ECCC, with input from BRI, developed offshore wind vulnerability models for marine birds known to occur in the offshore environment of Canada's Atlantic Region."

Recommendation: Please add a clarification of the two exposure groups used in the vulnerability models: marine birds vs coastal and offshore migrants. The marine birds group include those species that are known to use marine habitats during their annual life history cycle. This means that seabirds, waterfowl, and some shorebirds are included in this exposure definition.

Recommended text: "ECCC, with input from BRI, developed offshore wind vulnerability models for marine birds known to occur in the offshore environment of Canada's Atlantic Region. In this vulnerability model, species are classified using two exposure groups: marine birds and coastal/offshore migrants. Vulnerability models have been developed for marine birds, which includes those species known to use marine habitats during their annual life history cycle. Seabirds, waterfowl, and some shorebirds are considered in the marine exposure group. ECCC is currently developing models for the coastal/offshore migrant exposure group."

Table 7.3.2. Marine Bird Characteristics Influencing Vulnerability to Offshore Wind

Comment 24: In table 7.3.2 (page 174), there is inconsistency in what factors are listed for each species group. For example, the entry for Leach's Storm-Petrel indicates that they only return to their colonies during the breeding season. This is true for many of the taxa in the table, but it is not mentioned elsewhere. In addition, the characteristic listed for Loons states "provide their young with biparental care". It is unclear how this characteristic influences vulnerability to offshore wind development. Many of the species in this table also provide bi-parental care but it is not mentioned for them.

Comment 25: For more clarity, please revise the following characteristic entries in table 7.3.2. (page 174).

Replace	With
Alcids - Primarily diurnal and rarely fly above 20 m - Relatively high macro avoidance rate - Moderate to high habitat flexibility, wide prey, or habitat specific ranges	Alcids - Primarily diurnal and typically fly low across the ocean surface, <20m - Relatively high documented macro-avoidance rates - Moderate to high habitat flexibility, wide prey, or habitat specific ranges
Aythyinae – Diving Ducks -Primarily nocturnal foragers -Flight heights estimates vary considerably across the literature, with high uncertainty -High avoidance and moderate habitat flexibility	Aythyinae – Diving Ducks -Primarily nocturnal foragers -Flight height estimates vary considerably across the literature, with high uncertainty -High avoidance and moderate habitat flexibility

Gaviidae - Loons - Primarily diurnal and provide their young with biparental care - High macro avoidance rate - Minimal habitat flexibility	Gaviidae - Loons - Primarily diurnal and provide their young with biparental care - High documented macro-avoidance rates - Minimal habitat flexibility
Laridae - Gulls - Relatively active throughout the day and night - Some gull species show high overlap of flight heights with the rotor swept zones of turbines - Most species show limited avoidance behaviour	Laridae - Gulls - Relatively active throughout the day and night - Some gull species show high overlap of flight heights with the rotor swept zones of turbines - Most species show limited avoidance behaviour, however, can show attraction to turbines
Sternidae - Terns - Active during the day with relatively similar nocturnal budgets - Flight height unclear - Moderate prey/habitat range due to their piscivorous diet	Sternidae - Terns - Active during the day with relatively similar nocturnal budgets - Flight height varied with high uncertainty - Moderate prey/habitat range due to their piscivorous diet

Comment 26: Table 7.3.2 identifies bird characteristics influencing vulnerability to offshore wind development. Procellariidae - Petrels and Shearwaters – group spend most of their time in flight (as opposed to Alcids that spend more time on the water). While it is true that when flying in search of food they fly close to the water, flight height is highly variable (and not close to the surface of the water during transits) and is highly dependent on wind conditions. These are wide-ranging predators, and this is a characteristic that will influence vulnerability to offshore wind energy development.

Recommended text: replace the characteristics listed for this group with:

"- Flight height highly variable, dependent on wind conditions. Flight height closer to water surface during foraging.

- Wide-ranging predators with demonstrated high macro avoidance."

Comment 27: Phototaxis (i.e., light attraction) has not been addressed in table 7.3.2. Although all species listed could be attracted to lights to some extent, it will be a particular problem for Storm-petrels, Petrels, and Shearwaters.

Recommendation: ECCC recommends adding light attraction as a consideration for all species, particularly Storm-petrels, Petrels, and Shearwaters

7.3.2.1.2 Shorebirds and Coastal Waterbirds

Comment 28: Not all shorebirds live along the coast. Some species are inland species.

Recommended text:

Replace:

"Shorebirds refer to avian species that live along the coast and use marine edge habitat for feeding, breeding and nesting."

With:

"Shorebirds, **in the context of offshore wind, refer to those avian species in the Scolopacidae family, that use coastal and** marine edge habitat for feeding, breeding, and nesting."

Table 7.3.3. Post-Breeding (Fall) Migration

Comment 29: It is somewhat unclear to have "tags", "Argos locations", and "GPS locations" all referring to the same thing.

Recommendation: Please remove any mention of tags from the text and revise to "Locations Recorded in Focus Area"

Comment 30: Please revise table 7.3.3. Post-Breeding (Fall) Migration with the attached Red Knot addendum.

7.3.2.1.2 Shorebirds and Coastal Waterbirds

Comment 31: On page 182, the first paragraph states, "Limited conclusions can be drawn from the available movement data." While data is limited, these tracking studies provide evidence that shorebirds are using offshore environments, particularly during migratory periods. The data also highlights further questions that can be refined in follow-up studies including defining migratory corridors and times.

Recommended text: Current shorebird tracking studies provide evidence that multiple species use offshore environments during migratory periods (fall and spring). However, targeted tracking programs will be required to provide fine-scale conclusions regarding migratory routes and shorebird flyways in the region.

7.3.2.1.3 Waterfowl

Comment 32: Please expand the definition of waterfowl in this section, and how they might use the study area.

Recommended text:

Replace:

"Waterfowl refers to swimming game birds. They inhabit fresh- and saltwater and spend most of their life on the water's surface. They may use portions of the Focus Area for foraging, migrating or staging."

With:

"Waterfowl refers to those species in the Anatidae family (ducks, geese, swans), and are typically swimming game birds. They **may** inhabit fresh- **and/or** saltwater and spend most

of their life on the water's surface. They may use portions of the Focus Area for breeding, nesting, foraging, migrating, or staging. **Some, for example Common Eider, are colonial nesters within the Atlantic Region."**

Comment 33: Section 7.3.2.1.3 Waterfowl (page 182) concludes from Coastal Blocks and triennial Common Eider survey that low densities are recorded in the Focus Area. However, this contradicts other assessments which have identified the coastal area around the Burin Peninsula as a key wintering site for Common Eiders: https://seaduckjv.org/atlas/pdf/narrative_site49_508.pdf

Moreover, Cape St. Mary's (adjacent to the Focus Area) is a hugely important winter site for Harlequin Duck: <https://www.int-res.com/abstracts/esr/v49/p187-198/>

Recommendation: ECCC recommends that this section acknowledge winter importance and Sea Duck Key Site and make reference to Section 7.3.2.2.2 of the report for more details.

Comment 34: There is some discrepancy in how the findings are discussed when species occur at low densities compared to high densities (pages 182-183). There tends to be more terms like "may" or "suggest" when highlighting results with high densities of waterfowl.

"All coastal blocks with waterfowl observations recorded in the Focus Area had a low relative importance."

"Like findings from coastal waterfowl block observations, low densities of waterfowl were recorded in the Focus Area for most species."

"Relatively high densities of White-winged Scoter (*Melanitta deglandi*) may occur near St. Pierre Miquelon."

"Finally, maps based on data from Lamb et al. (2020) show portions of the Focus Area that may be more suitable habitat for waterfowl species."

Recommendation: ECCC recommends placing equal weight to the findings/information products. Language used should be based on the uncertainty of the methods or quality of data, independent of results.

Comment 35: The Committee has identified several of the ECCC products provided in support of waterfowl. Additional information related to movement has also been provided and is not reflected in the report. Dynamic Brownian Bridge Movement Models were provided for Common Eider, Long-tailed Duck, Red-throated Loon, Surf Scoter, and White-winged Scoter."

Recommendation: ECCC recommends including in the report that movement models were provided for select waterfowl species that demonstrate use of the Focus Area.

7.3.2.1.4 Landbirds and Non-Avian Species

Comment 36: On page 184, the first paragraph states "landbirds predominately inhabit terrestrial areas but may be migratory or partially migratory across coastal and offshore routes."

It is worth noting that little is known about landbird movement to and from the island of Newfoundland. It is clear, however that these species are undertaking over-ocean flights during the

pre-breeding and post-breeding seasons. What remains unknown is the timing and location of movements. It is assumed that there are movements between the island of NL and Cape Breton, NS, but follow-up work is required.

Recommended text: Landbirds predominately inhabit terrestrial areas. **Any migratory landbird that breeds on the island of Newfoundland must migrate using** coastal and offshore routes. **However, information about where and when these movements occur is limited.**

Comment 37: On page 184, in the last paragraph, ECCC recommends using a reference from a recent publication.

Recommended edits: Hoary Bat and Silver-haired Bat **have been observed offshore** in or adjacent to the Focus Area. Most observations were from the post-breeding migration period, in September, although this area of research is data limited. True et al., (2023) studied Eastern Red Bats along the U.S. east coast and similarly found over water flights peaked late-August to early-September. ECCC cautioned this may not be directly comparable to this region (ECCC, 2024). **For example, Doucette et al. (2024) discovered migratory tree bats and myotis bats active in the Sable Island National Park Reserve from September 22 until December 12, in 2015/2016.**

References cited:

Doucette, K.M., Patriquin, K.J., Broders, H.G. and Horn, A.G., 2024. Soundwaves in the North Atlantic: Detecting the offshore bats of Sable Island. Proceedings of the Nova Scotian Institute of Science (NSIS), 53(2), pp.305-319.

7.3.2.2.1 Critical Habitat and Important Areas for Species at Risk

Comment 38: Table 7.3.4 (page 186) lists aerofauna species at risk known to occur in the Study Area for the Regional Assessment of Offshore Wind Development in Newfoundland and Labrador.

Recommendation: ECCC recommends adding recent IUCN Status updates for Short-billed Dowitcher (VU Decreasing), Hudsonian Godwit (VU Decreasing), and Lesser Yellowlegs (VU Decreasing). (attached)

Recommendation: ECCC recommends adding the Bermuda Petrel *Pterodroma cahow*. COSEWIC is currently assessing the status of the Bermuda Petrel and its foraging range during the breeding season includes waters off NL.

Comment 39: Please add a reference for the Bureau of Ocean Energy Management (BOEM) work on trying to model offshore wind energy collision risk for Piping Plover and Red Knot.

https://espis.boem.gov/Final%20Reports/BOEM_2022-071.pdf

Comment 40: On page 190, ECCC recommends differentiating between migration and overwintering.

Recommended text: Little is known about threats during migration **and** overwintering.

Comment 41: On page 192, paragraph five states “additionally, while maps showing migration tracks for Lesser Yellowlegs and locations of bat and monarch observations did not overlap the Focus Area, data on these species is currently lacking (ECCC, 2023f).”

While locations may not overlap directly with any of the Focus Area, there are Lesser Yellowleg tracks adjacent to the Focus Area as well as bat observations, including within the St. Pierre and Miquelon Exclusive Economic Zone.

Recommendation: ECCC recommends including the following as there is potential for overlap with the NL Focus Area, based on these observations.

Recommended text: "Track locations of Lesser Yellowlegs and observations of bats did not overlap exactly with the Focus Area, as data on these species are limited. However, their presence adjacent to the Focus Area indicates potential for overlap with OSW energy development areas."

Comment 42: Please revise this section (7.3.2.2.1 Critical Habitat and Important Areas for Species at Risk) with Red Knot addendum (attached).

Comment 43: In page 192, the last paragraph states “Avery-Gomm et al., 2024 released the first comprehensive assessment of resulting bird mortality.”

In addition to mortality estimates presented by Avery-Gomm et al. 2024 (page 192), population declines up to 30% were observed at some Northern Gannet colonies (Lane et al. 2023 <https://doi.org/10.1111/ibi.13275>)

Recommendation: ECCC recommends expanding this section to include information from the comment, including the citation.

7.3.2.2.2 Areas Important for Aerofauna

Comment 44: The importance of Sea Duck Key Habitat Site for Common Eider and Harlequin Duck should be captured in the section on Sea Duck Key Habitat Sites (page 196).

Recommended text: "Part of the St. Pierre and Miquelon to Cape St. Mary's Sea Duck Key Habitat Site occurs within the Focus Area, southwest of Bird Island **and is of significant importance for Common Eider and Harlequin Duck during winter.**"

7.3.3.1.1 Behavioural Changes and Changes in Habitat Quality

Comment 45: On page 199, the third paragraph states "Regarding light characteristics, continuous blue, green or white light tends to increase avifauna attraction (Rebke et al., 2019), and some migratory bat species can be more attracted to red LED light compared to warm-white LED light (Voigt et al., 2018)"

There are important implications for consistent vs intermittent flashing lights that should be added to above.

Recommended text: “Flashing red lights reduced attraction and subsequent kills significantly. White lights appear to be better than red lights (birds appear to show an attraction to red light). Towers with no lighting were least attractive.

Minimize artificial light exposure by using flashing light and avoid the use of continuous lighting. Reduced flash durations combined with increased intervals between flashes are recommended (Cook et al., 2011; Evans et al., 2007; Gartman et al., 2016; Gehring et al., 2009; Kerlinger et al., 2010). Additionally, impacts of artificial lighting can be reduced through minimizing permanent lighting by turning off all unnecessary lighting when not in use.”

Summarized via NatureScot: <https://www.nature.scot/doc/information-note-effect-aviation-obstruction-lighting-birds-wind-turbines-communication-towers-and#Colour+and+Mode+of+Lighting>

7.3.3.2 Artificial Structures

Comment 46: On page 199, it is stated “Similar effects could be expected due to vessel presence.” Is this under the assumption that vessels would provide similar opportunities for perching/roosting as the turbines themselves?

Recommendation: Considering these are moving/temporary artificial structures, ECCC recommends expanding on this assumption in the text, and providing a comparison between the anticipated impacts of vessels vs permanent artificial structures.

7.3.3.2.1 Behavioural Responses

Comment 47: On page 200, the first paragraph states "vessels, aircrafts and equipment associated with various stages of offshore wind development can create roosting or perching opportunities and attract aerofauna, especially seabirds and bats"

Similar to previous comment, it seems odd to consider aircrafts as "artificial structures". It is unclear how this could provide a perching opportunity

Comment 48: In the text below (page 200), the terms "micro-, meso-, and macro avoidance" can help clarify this sentence and help with understanding when they are later used.

"Physical avoidance can include last-second maneuvering to avoid collisions, redistribution of birds within a windfarm due to turbines, and/or redistribution of birds outside the perimeter of wind farms (SEER, 2022; Skov et al., 2018; Cook et al., 2018; May, 2015)."

Recommended text: “Physical avoidance can include last-second maneuvering to avoid collisions (micro avoidance), redistribution of birds within a windfarm due to turbines (meso avoidance), and/or redistribution of birds outside the perimeter of wind farms (macro avoidance) (SEER, 2022; Skov et al., 2018; Cook et al., 2018; May, 2015).”

7.3.3.2.2 Physical Injury or Mortality Due to Collisions

Comment 49: As stated on page 202 "... several bat species may migrate offshore and use offshore structures as stopover sites". ECCC recommends including that any migratory bat species found on the island of NL will require offshore movements.

Comment 50: On page 202, the second paragraph states “diving birds (sea ducks, alcids, loons, gannets, cormorants, and terns) are known to sustain injury when plunge-diving into obstructions such as boat decks or fish holds when foraging (Mowbray, 2002). They may similarly risk collision with underwater mooring systems. This risk is expected to be low as many marine birds favor shallow water for foraging, or dive to relatively shallow depths while pursuing underwater prey, and mooring systems are typically associated with deeper waters.”

Diving birds also include "some shearwaters". While many birds "favor shallow water for foraging", it is also true that many dive in deeper waters in pursuit of their prey, and thus would be vulnerable with infrastructure in deeper waters. Murres, for example, dive regularly to depths exceeding 100 m (Elliott et al. 2007. Canadian J. of Zoology 85:352-361), and many shearwaters are foraging in deep waters.

Recommended text: “Diving birds (sea ducks, alcids, loons, gannets, cormorants, and terns) are known to sustain injury when plunge-diving into obstructions such as boat decks or fish holds when foraging (Mowbray, 2002). They may similarly risk collision with underwater mooring systems. While this risk is expected to be low as marine birds favor shallow water for foraging, many dive in deeper waters in pursuit of their prey, and thus would be vulnerable to collisions with underwater infrastructure. Murres, for example, regularly dive to depths exceeding 100 m (Elliott et al. 2007. Canadian J. of Zoology 85:352-361), and many shearwaters are observed foraging in deep waters.”

7.3.3.2.3 Habitat Enhancement

Comment 51: It would be more appropriate to title this section to "habitat alteration" rather than "enhancement". Alterations can still attract wildlife and aerofauna, but the goal is to have net-neutral impacts on wildlife. As stated later in this section, attraction can have broadly negative consequences. The term enhancement should be reserved for when referring to either offset mitigations or habitat restoration.

Comment 52: "Several studies have found offshore wind farms serve as artificial reefs, contributing to the creation of enhanced habitats for birds and marine life" (page 203).

Recommendation: ECCC recommends clarifying the implications of attracting invasive species to this newly created habitat.

Comment 53: Attraction to offshore wind infrastructure for the purposes of roosting or nesting increases collision risk. If birds are nesting within a wind energy development area their exposure to impacts will be elevated as they make repeated foraging trips to and from the nest.

Recommendation: ECCC recommends removing the below section (page 204).

"Finally, elevated structures associated with wind turbines may also have positive effects. Certain species find these structures suitable for roosting or nesting (Dierschke et al., 2016; Lewis, 2023). Height and isolation from ground predators can create safer environments for breeding colonies, particularly for seabirds that nest on cliffs or rocky outcrops (Lewis, 2023)."

7.3.3.3.1 Construction and Vessel Use

Comment 54: On page 205, the last paragraph states “ECCC (August 2024) indicated the following species may be highly sensitive or vulnerable to disturbance by vessels....Sandwich Tern”. The ECCC August 2024 document relates to Pathways of Effects, not vulnerability. It should also be noted that this list of species is not specific to NL. For example, Sandwich Tern do not occur in the NL region.

Recommendation: ECCC recommends modifying the reference to reflect that it is related to Pathways of Effects. Additionally, this list of species could be generalized (similar to Table 7.3.2) indicating that Alcids, Sea Ducks, Loons, and Terns may be particularly impacted by vessel disturbance.

7.3.3.3.2 Displacement and Fragmentation During Operation

Comment 55: Please see below revision to clarify and define feathering.

Replace:

"Similar work done by Stantec (2016) found that bat presence offshore is widespread, but seasonal in nature and that potential impacts on movement could possibly be mitigated by featherings of turbines." (page 207)

With:

"Similar work done by Stantec (2016) found that bat presence offshore is widespread, but seasonal in nature and that potential impacts on movement could possibly be mitigated by featherings of turbines. **Feathering is a curtailment measure that involves adjusting the turbine blade angle so that they no longer produce force that spins the rotor.**"

7.3.6 Data Gaps and Limitations

Comment 56: The section under “Habitat Use Around Colonies” (page 229) could be expanded to highlight that the data gap is related to the collection of tracking data for certain species and colonies.

Recommended text:

Replace:

“understanding actual foraging behaviour around specific colonies remains a limitation”.

with:

“Data gaps remain for certain species and colonies related to the collection of tracking data, and presents a need for follow-up research related to colonial foraging.”

Comment 57: Under the section “Avifauna Movement in the Focus Area” (page 229), it is important to consider what populations are using the focus area to better understand potential population level impacts.

Recommendation: ECCC recommends including that key colonies for species most vulnerable to offshore wind energy development should be monitored (survival, reproductive success, etc.).

Comment 58: Under the section “Waterfowl” (page 229), ECCC recommends including movement models for several waterfowl species were provided by ECCC.

Comment 59: The section “Effects on Terrestrial and Shorebird Species” (page 230) states “research tends to focus on marine birds, migratory bats and passerine species.” Is this specifically in reference to research in the offshore? If so, bat research is greatly lacking. In addition, passerine species fall under the terrestrial bird category and generally are limited in offshore environments.

7.3.7 Committee Conclusions and Recommendations

Comment 60: Bullet 4 on page 231 states "the Committee recommends site assessments and / or project-level impact assessments set appropriate buffer/setback distances that adequately protect Migratory Bird Sanctuaries (MBS) and National Wildlife Areas (NWA)".

This recommendation has not been extended to include IBAs/KBAs, critical habitat, or other important areas (e.g., WHSRN sites). It would be equally important to include recommendations for both federally legislated and other non-federally designated important areas.

Recommendation: ECCC recommends including additional important areas for setback considerations such as IBA/KBA, WHSRN, and Sea Duck Key Habitat Sites.

7.6.1.2 Bioregions

Comment 61: Please add a brief description of the two bioregions to provide context and define the importance of these areas.

Comment 62: In figure 7.6.2 (page 461), is the blue area an error. If not, it should be captured in the legend.

7.6.1.8 National Wildlife Areas, Marine Wildlife Areas, and Migratory Bird Sanctuaries

Comment 63: “On page 470-471, it is stated "Currently, there are no NWAs or MNWAs located within Newfoundland and Labrador and therefore none within or adjacent to the Focus Area."

"Currently, there are three MBSs within Newfoundland and Labrador... These three MBSs are not located within the current Focus Area.”

There are important considerations for NWAs and MBSs beyond whether they are located within the Focus Area. It is reasonably assumed that there will be movement and connectivity implications for birds/aerofauna using these areas, including foraging in the waters around the site, and travelling between them. These areas should be flagged for further considerations in terms of buffering activity, tracking migration periods, etc.

There are several NWAs just outside the focus area including Pointe de l'Est National Wildlife Area, which is less than 150km from the nearest proposed leasing area. There are multiple MBSs along the coast of Quebec that range from approximately 50-80 km from proposed leasing areas.

Recommendation: ECCC recommends adding considerations for NWA and MBS adjacent to the Focus Area.

7.6.6 Committee Conclusions and Recommendations

Comment 64: There is value in adding recommendations regarding MBS and NWAs. While these areas will always be land based, there are implications for habitat use around these sites, including in offshore environments as well as movement to and from the areas. As well, future NWAs or MBSs have the potential to be established along the coast adjacent to the Focus area. It would be important to include recommendations at this stage of the industry.

8. Cumulative Effects

Comment 65: ECCC recommends the Committee include a definition for Cumulative Effects Assessment alongside the definition of Cumulative Effects. For example, “*Cumulative effects assessment is a systematic process of identifying, analyzing, and evaluating cumulative effects.*” This definition is from the Canada-wide definitions from the Canadian Council of Ministers of the

Environment (CCME, 2014, available from <https://ccme.ca/en/res/cedefinitionsandprinciples1.0e.pdf>).

Comment 66: Although detailed in a later section, ECCC recommends that the limitation of the constraints analysis as a sole approach for avoiding cumulative effects be highlighted in the introduction.

Recommended text:

“The term “cumulative effects” generally refers to the combined effects from past, present, and reasonably foreseeable future activities and natural processes.” The term “cumulative effects assessment (CEA)” refers to systematic process of identifying, analyzing, and evaluating cumulative effects (CCME, 2014). “Cumulative effects may be individually minor but collectively significant and can be adverse or positive (Government of Canada, 2023). The effects of on-offshore wind projects can overlap and interact with each other, with effects of other anthropogenic activities (e.g., other offshore wind projects, offshore oil and gas projects, commercial fishing), and with natural (e.g., hurricanes) and human-induced processes (e.g., climate change) in a region to bring about cumulative effects.

The Agreement has multiple references to the identification, consideration, and analysis of cumulative effects within this Regional Assessment. It does not request the completion of a CEA and gives the Committee flexibility in determining how to address cumulative effects.

This section summarizes available guidance on consideration of cumulative effects regional assessments under the IAA, acknowledges the challenges of CEA, and presents federal authority input and Indigenous and public engagement outcomes relevant to cumulative effects. This section also describes how the Committee’s constraints analysis approach and resulting licencing areas is the primary means of considering cumulative effects in this Regional Assessment. Finally, the Committee makes recommendations in support of planning, licencing, and impact assessment processes that improve cumulative effects knowledge and management.”

8.1 Guidance on Cumulative Effects in IAA Regional Assessments

Comment 67: This section highlights that while the IAAC has issued guidance on assessing cumulative effects under the IAA, it is specific to project assessments and does not address regional assessments (IAAC, 2023). In doing so, the Committee has highlighted a need for guidance which could be reflected in the Recommendations found later in the RA Report.

Although federal guidance was not available on request, ECCC did prepare and provide the Committee with a report that was a synthesis of best practices, informed by a comprehensive review of CEA approaches in regions with advanced offshore wind industries (ECCC, 2024b; Ferguson et al., 2024). The report distills the complex process of conducting a CEA into a coherent, detailed, and comprehensive framework. It not only synthesizes the fundamental steps but also provides a practical roadmap that can be understood by practitioners, managers, and stakeholders, making it accessible and applicable across diverse contexts and regions.

While Ferguson et al., (2024) is referred to in Table 8.3.1, the guidance from Ferguson et al., (2024) is not referenced in this Draft Final Report. ECCC recommends that Section 8.1 be expanded with an additional paragraph to help direct future readers towards the guidance that was available to the Committee. There is no one right way to assess cumulative effects, as illustrated by the diversity of approaches described by the Committee as a challenge. However, ECCC recommends that this diversity of approaches is in fact an asset and should be reframed (as recommended in next comment).

Recommended text:

“Although there is currently no formal guidance from the IAAC on assessing cumulative effects under Regional Assessments, there are several relevant documents that can provide guidance and examples to support the assessment of cumulative effects at a regional scale (Curren et al. 2022, Griffiths et al. 2020, Judd et al. 2015, Murray et al. 2014, 2020). The diversity of approaches reflect the diversity of management objectives that may underpin any given CEA. For example, a sector-based CEA will address different management objectives than a species-based CEA (Murray et al., 2020). Where a species-based approach is desirable, Ferguson et al., (2024) have distilled the complex process of conducting a CEA into a coherent, detailed, and comprehensive framework that accommodates different types of information about species and pressures. Supported by a comprehensive review of CEA approaches in regions with advanced offshore wind industries, this document synthesizes the fundamental steps for implementing a CEA, providing a practical roadmap.”

8.2 Challenges to Cumulative Effects Analysis

Comment 68: There is no one right way to assess cumulative effects, as illustrated by the diversity of approaches described by the Committee as a challenge. However, ECCC recommends that this diversity of approaches is in fact an asset and should be reframed (as recommended in Section 8.1).

Comment 69: The reference to the Regional Assessment of Offshore Oil and Gas Exploration identifies that there were challenges carrying out a cumulative effects assessment under tight timelines even when there is a long history of work and monitoring data, but the increased challenges of attempting to do so in a new sector with very limited historical data should be highlighted.

Comment 70: There are many other challenges to Cumulative Effects Analysis that could be highlighted in this section. The text below outlines a few of these and integrates the paragraph about the Project Envelope Approach and the challenges with mitigation testing and knowledge sharing. In Comment 78 below, ECCC recommends that the Committee recommend measures to overcome the specific challenges outlined in Sections 8.1 and 8.2 in Section 8.6. ECCC has provided recommendations for how to address these challenges in Section 8.6. Specific recommendations are included in that section.

Recommended edits to address these comments are shown below.

8.2 Challenges to Cumulative Effects Analysis

[Complexity of Cumulative Interactions Across Space, Time, and Knowledge Systems](#)

“CEA already presents a practical and theoretical challenge (e.g., Blakley and Franks, 2021). The spatial, temporal, natural, and anthropogenic dynamics of the marine environment creates further complexity for CEA. The variability makes it challenging to predict how ecological systems will react to significant changes. Even within a single government agency methods and management strategies can be inconsistent, stemming from lack of data, unclear definitions of spatial and temporal scales, uneven application of assessment tools, a focus on single-sector or single-species management, and limited understanding of social-ecological interactions in marine environments (Curren et al. 2022, Griffiths et al. 2020, Judd et al. 2015, Murray et al. 2014, 2020). [One of the primary challenges in conducting a CEA at a regional scale is accounting for the complex interactions between various stressors that accumulate over vast geographic areas and extended timeframes to impact valued ecosystem components. Regional assessments must consider not only the direct impacts of individual projects, like offshore wind energy developments, but also how these impacts interact with other human activities \(e.g., shipping, fisheries\) and natural processes \(e.g., climate change, interannual or decadal cycles\). These combined effects can lead to outcomes that are greater than the sum of their parts, making it difficult to predict and assess long-term ecological, social, and economic consequences.](#)

[Additionally, the spatial scale often includes multiple ecosystems, jurisdictions, and diverse ways of knowing, such as Indigenous knowledge and local community insights. Respecting and incorporating Indigenous and local knowledge into the assessment can provide valuable context and historical perspectives, but integrating these systems with Western scientific approaches remains challenging \(but see Tulloch et al., 2024\).](#)

The Regional Assessment for Offshore Oil and Gas Exploratory Drilling East of Newfoundland and Labrador, the first and only regional assessment completed to date, offers a particularly relevant example. Assessment of cumulative effects understandably proved challenging, even with a specific development goal and timeline and decades of data available (Bangay et al. 2020). [When considering the offshore wind sector, with no history of baseline data these challenges become even more daunting.](#)

[Even in addition to these challenges, jurisdictions with offshore wind industries contend with knowledge and data gaps. In areas where offshore wind is new, there is limited knowledge about the localized environmental impacts when the first projects are developed. Where offshore wind is more established, most studies continue to be carried out at the single project or single farm level. Where onshore wind or offshore oil and gas industries are established, the effectiveness of mitigation measures from those industries in offshore wind may remain untested in the offshore wind context. Given the comparatively harsh and inaccessible nature of the offshore environment, it can be both challenging and expensive to collect data and test mitigation strategies. Consequently, mitigation measures implemented in earlier projects might not be as effective as initially anticipated. A related concern amongst stakeholders in the EU is the inadequate sharing of data, which hinders learning from the earlier projects. Without comprehensive data on the impacts and mitigation measures, it becomes more challenging to assess cumulative impacts \(Caine](#)

2022, Declerck et al. 2023, Gill and Hein, 2022, Rezaei et al. 2023, Gulka et al. 2024, Regional Synthesis Workgroup of the Environmental Technical Working Group, 2023).

Data Gaps, Limited Baseline Information, and Knowledge Sharing

A significant hurdle for regional CEAs is the lack of comprehensive, high-quality data across the entire region being assessed. In many cases, baseline information about the condition of ecological and socio-economic systems is incomplete or outdated, making it hard to measure changes over time or identify cumulative impacts accurately. However, federal government initiatives relevant to cumulative effects are underway to help address this challenge (e.g., NRCan Offshore Wind Predevelopment Program; Table 8.3.2)

In addition, there may be gaps in knowledge-sharing processes that hinder the inclusion of Indigenous Knowledge and other community-based insights. Ensuring that all available knowledge systems—whether based in western science, Indigenous ways of knowing, or local community insights—are accessible and used meaningfully can be a key challenge in filling these gaps.

Data Collection Challenges, Mitigation Testing, and Knowledge Sharing

Given the comparatively harsh and inaccessible nature of offshore environments, it is both challenging and expensive to collect data and test mitigation strategies. Even in regions with established industry, the effectiveness of mitigation measures from those industries may remain untested, particularly as most studies focus on individual projects rather than adopting a regional approach. This issue has been raised by stakeholders in the EU, where a lack of comprehensive data on impacts and mitigation measures makes it difficult to assess cumulative effects (Caine, 2022; Declerck et al., 2023; Gill and Hein, 2022; Rezaei et al., 2023; Gulka et al., 2024; Regional Synthesis Workgroup of the Environmental Technical Working Group, 2023). Without coordinated efforts in data collection and sharing, identifying trends and making informed decisions becomes more challenging, hindering the ability to accurately assess cumulative impacts at a regional scale.

Time Constraints, Resource Limitations, and Inclusive Engagement

Resource limitations—such as time, funding, technical expertise, and administrative capacity—can significantly undermine efforts to complete a comprehensive CEA. CEAs at the regional scale, require collaboration between various partners, including federal and provincial government agencies, industry, Indigenous governments, and local communities.

Additionally, meaningful engagement with Indigenous and local communities requires time to build trust, co-develop management objectives, and ensure the shared knowledge is treated with respect and integrated effectively (Adams et al., 2023).

The Project Envelope Approach and the Challenge of Assessing Future Scenarios

Finally, ~~the~~ The Project Envelope Approach poses a unique challenge for CEA.⁸² The Project Envelope Approach is necessary to accommodate the rapid evolution of offshore wind technology. ~~It enables developers to describe their projects using broad parameters, including technology options (e.g., more than one proposed foundation type).~~ This approach

[allows developers to describe their projects using broad parameters to accommodate rapid technological advancements, including various technology options \(e.g., different foundation types such as fixed versus floating or monopile versus gravity-based\).](#) While this flexibility is required from an [evolving](#) project design and engineering standpoint, it poses a challenge for CEA. As described in Section 4 of this Report, there are multiple technology options for offshore wind, and those technologies are ever-changing. Section 7 of this Report ties project effects to technology used (e.g., fixed versus floating, gravity based versus monopile foundation, etc.). A project assessment therefore considers the potential effects of all project design options. While modelling the “worst case” (i.e., the project design with the potential for the most significant impact) may not be problematic for a project-level CEA, doing so where multiple developers propose projects in the same licencing area may result in overly negative predictions of the combined impacts of all the proposed projects. In turn, this could affect overall growth of the sector [by overestimating cumulative environmental impacts.](#)

[A way to address this challenge is by developing and exploring cumulative effects under alternative foreseeable development scenarios. By analyzing multiple potential development trajectories, it becomes possible to better understand how different combinations of technologies and project designs will impact the environment at a regional scale. This scenario-based approach helps balance the need for flexibility in project design with a more accurate and forward-looking assessment of cumulative impacts, offering a clearer pathway for sustainable sector growth. Through scenario planning, CEAs can provide decision-makers with insights into the trade-offs between different development futures, enabling more proactive avoidance of and adaptive management of cumulative effects. This can help to support the sustainability of the industry and ensure that worst-case predictions do not unnecessarily constrain the overall growth of the sector](#) (Caine, 2022).²²

~~The Project Envelope Approach, commonly used in offshore wind development, presents a unique challenge for conducting CEAs. This approach allows developers to describe their projects using broad parameters to accommodate rapid technological advancements, including various technology options (e.g., different foundation types such as fixed versus floating or monopile versus gravity-based). While this flexibility is essential for adapting to evolving engineering and design needs, it complicates the CEA process, as each project assessment must consider the potential impacts of a range of design options. Modeling the “worst-case scenario” for each project can be effective at the project level but may result in overly pessimistic predictions when multiple developers are proposing projects within the same region. These overly negative predictions could ultimately hinder sector growth.~~

References cited:

Adams, M. S. et al. Inclusive approaches for cumulative effects assessments. *People and Nature* 5, 431–445 (2023). <https://doi.org/10.1002/pan3.10447>

Tulloch, V. J. D. et al. Predicting regional cumulative effects of future development on coastal ecosystems to support Indigenous governance. *Journal of Applied Ecology* 61, 1728–1742 (2024). <https://doi.org/10.1111/1365-2664.14659>

8.3 Federal Authority Input and Initiatives

Comment 71: With regards to Table 8.3.1: Cumulative effects of offshore wind – Federal authority input (page 759), Aerofauna is simply a reference to another table (i.e., Cumulative effects research and approach development underway (see Table 8.3.2)), in contrast to other species or species groups in the table which include a short summary. ECCC recommends that a short summary on each subgroup under the Aerofauna heading be added to enable the reader to understand cumulative effects on Aerofauna.

Comment 72: With regards to Table 8.3.2: Existing and planned federal government initiatives relevant to cumulative effects (Page 765), the table is incomplete and does not accurately reflect the status of projects. Recognizing that some of ECCC’s submissions were sent too late to be considered in the Draft and there are also new status updates, a revision has been recommended that will provide the best available status of the ECCC work described.

Recommended edit to address comment related to *Table 8.3.1: Cumulative effects of offshore wind – Federal authority input*.

Replace:

Aerofauna
<ul style="list-style-type: none"> • Cumulative effects research and approach development underway (see Table 8.3.2)

With:

Aerofauna
<ul style="list-style-type: none"> • As a diverse group which includes migratory birds, migratory bats and Species At Risk (e.g., Monarch butterflies), a diversity of stressors can affect the population structure and size of aerofauna species. • Stressors may include historical persecution, pollution (i.e., DDT), overfishing impacts on predatory prey dynamics, mortality from bycatch, contemporary pollution (e.g., oil spills, mercury, plastic), disease (e.g., white nose syndrome, Highly Pathogenic Avian Influenza), reduced recruitment from colony abandonment, disproportionate avoidance of areas with multiple industries, habitat destruction, and impacts associated with climate change. • How these stressors accumulate over time and will interact with the impacts associated with various stages of offshore wind energy development (i.e., construction, electricity generation, maintenance, accidents, and decommissioning) are not known. • Cumulatively, impacts from OSW and other pressures (both anthropogenic and natural) may be additive, synergistic or compensatory, resulting in significant impacts on some aerofauna species during their use of the marine environment or transit through marine airspace along migratory routes. • Certain species (i.e., marine birds) are exposed primarily to marine and coastal

stressors. However, coastal and offshore migrants may be exposed to terrestrial, coastal, and marine stressors, depending on their life histories.

- Cumulative effects research and approach development for aerofauna are under way (see Table 8.3.2)

Recommended edit to address comment related to *Table 8.3.2: Existing and planned federal government initiatives relevant to cumulative effects.*

Replace:

Federal authority - Initiative	Description	Status
ECCC-STB and ECCC-CWS-ATL (with BRI) - Conceptual Framework	ECCC and BRI are developing a <i>Conceptual Framework for Assessing the Cumulative Effects of Offshore Wind Energy and Other Pressures on Aerofauna</i> (Ferguson et al. 2024). This framework adopts a population- or species-centric approach, is adaptable to various ecological information levels, and is designed for regional application, particularly in Atlantic Canada. The intention of this framework is to allow for standardization of metrics and criteria across cumulative effects processes. This framework is a synthesis of best practices that has been informed by a comprehensive review of CEA approaches in regions with advanced offshore wind industries (ECCC, 2024b).	ECCC plans to issue the Conceptual Framework, as well as submit a manuscript for a peer-reviewed publication, prior to the publication of the Committee’s Final Report (January 2025). Work funded until March 31, 2028 (ECCC, 2024b).
ECCC-STB and ECCC-CWS-ATL (with BRI) - Mitigation: Available evidence and data gaps	ECCC and BRI have conducted an extensive review of the scientific and gray literature to identify approaches for mitigating (e.g., avoiding, minimizing, restoring, or offsetting) the effects of offshore wind energy development on birds and bats and to assess the evidence of the efficacy of these mitigations (ECCC, 2024b). Results indicate a lack of field-testing mitigation for effectiveness, and a lack of effectiveness where tested (Gulka et al. 2024).	ECCC plans to submit a manuscript for a peer-reviewed publication, prior to the publication of the Committee’s Final Report (January 2025). Work funded until March 31, 2028 (ECCC, 2024b).

With:

Federal authority - Initiative	Description	Status
<p>ECCC-STB and ECCC-CWS-ATL (with BRI) - Conceptual framework for assessing cumulative effects of offshore wind energy activities and other pressures on aerofauna</p>	<p>To support decision-making during the initial OSW planning phase (i.e., site selection within regional boundaries), ECCC and BRI have developed guidance on a population- or species-centric approach for assessing the cumulative effects of offshore wind energy developments and other pressures on aerofauna (Ferguson et al., 2024). The framework distills the complex process of conducting a CEA into a coherent, detailed, and comprehensive framework. It not only synthesizes the fundamental steps but also provides a practical roadmap that can be understood by practitioners, managers, and stakeholders, making it accessible and applicable across diverse contexts and regions.</p> <p>The approach and analytical strategy are applicable to various receptors, and adapts to available information on ecology, socioeconomics, and pressures. This framework creates a unified hierarchy of cumulative exposure and effects metrics that expand the range of species and pressures that can be explicitly evaluated in each CEA.</p> <p>The framework is a synthesis of best practices that has been informed by a comprehensive review of CEA approaches in regions with advanced offshore wind industries (ECCC, 2024b).</p>	<p>The framework has benefited from review by seven external subject matter experts.</p> <p>It was provided to the Regional Assessment Committee in September 2024.</p> <p>A manuscript describing the framework and analytical strategy is under peer review at a scientific journal. A preprint has been made publicly available (Ferguson et al., 2024).</p>
<p>ECCC-STB and ECCC-CWS-ATL (with BRI)- Regional CEA Case Studies</p>	<p>To demonstrate the flexibility of the conceptual <i>framework for assessing cumulative effects of offshore wind energy activities and other pressures on aerofauna</i>, ECCC and BRI plan to apply it to case studies. These case studies are conducted in a research context and are not intended for</p>	<p>This work is underway and funded until March 31, 2027 (ECCC, 2024b).</p> <p>When completed, the case studies will be submitted to scientific journals for peer-review and publication.</p>

	immediate management decision-making, though the findings may inform future approaches.	
ECCC-STB and ECCC-CWS-ATL (with BRI) - Mitigation: Available evidence and data gaps	ECCC and BRI have conducted an extensive review of scientific and gray literature to identify approaches for mitigating (e.g., avoiding, minimizing, restoring, or offsetting) the effects of offshore wind energy development on birds and bats and to assess the evidence of the efficacy of these mitigations (ECCC, 2024b). There is limited evidence of effectiveness for most approaches, suggesting 1) a need for dedicated testing of commonly suggested and implemented mitigation measures such as curtailment for birds, and 2) that avoidance of effects via careful siting of OSW activity remains the best available option for mitigation. To fully mitigate the effects of OSW development on aerofauna, compensation and offset strategies should also be further explored (Gulka et al. 2024).	A manuscript describing this research has been submitted for publication in a peer-reviewed journal, posted as a preprint (Gulka et al., 2024), and provided to the Regional Assessment Committee.

8.4.4 Cumulative Effects on Specific Components

Comment 73. In Table 8.4.4: Participant comments on cumulative effects of offshore wind on specific components (Page 770), ECCC recommends that the specific migratory birds that Indigenous participants on the island of Newfoundland and in Quebec were concerned about be named, as is done for other specific components. The specific species of migratory birds that were of concern should be named.

8.5 Committee approach

Comment 74: This section identifies some of the benefits and challenges of carrying out cumulative effects assessment but there is also value in identifying the risks of not carrying one out in advance of project development. ECCC recommends an additional subsection describing the risks of not conducting a comprehensive regional CEA – and the benefits of doing so. Text for consideration is below.

Recommended text:

8.5.3 Importance of Regional Cumulative Effects Assessments in Offshore Wind Development

“Without assessing the cumulative effects of offshore wind projects alongside existing

human activities and natural processes, there is a risk of overlooking potential adverse outcomes on marine habitats and wildlife. This lack of foresight could result in complications during the development phase, necessitating further assessments and modifications to projects that could have been proactively addressed.

Conversely, implementing a comprehensive CEA at the regional scale can enhance decision-making by providing a clearer understanding of how offshore wind projects interact with existing ecological and socioeconomic conditions, including onshore wind projects. By identifying potential cumulative impacts early on, stakeholders can better inform site selection within the recommended licensing areas, ensuring that developments are strategically planned to minimize cumulative effects on valued components through avoidance. Furthermore, a thorough assessment can promote collaborative approaches among various stakeholders, facilitating informed discussions about resource management and enabling the development of more effective mitigation strategies.”

8.5.1 Mitigating cumulative effects through licencing area selection

Comment 75. The constraints analysis that supported the identification of Offshore Licensing Areas is a good start towards minimizing cumulative effects through avoidance. However, as phrased, the text within section 8.5.1 may be interpreted as indicating that the constraints analysis is sufficient. If the recommended licencing areas will not be fully covered by offshore wind farms and other users of the area are anticipated, further cumulative effect assessments at a regional scale will be required to inform site selection within the regional boundaries that are recommended in this Final Report (i.e., Offshore Wind Licensing Areas). ECCC recommends the addition of caveats to frame the further need for CEAs to inform site selection within these regional boundaries. This section could articulate both the risks of *not* conducting a comprehensive regional CEA of valued components and the benefits to industry if one *is* conducted.

Recommended text:

Replace:

“The constraints are distinct areas where offshore wind licences should not be considered at this time because of potential impacts to environmental, health, social, and economic components. As such, these are locations where current and potential accumulation of activities and/or effects may be of concern.

With:

The constraints are distinct areas where offshore wind licences should not be considered at this time because of potential impacts to environmental, health, social, and economic components. As such, these are some of the locations where current and potential accumulation of activities and/or effects may be of concern. The committee’s identification of areas where current and potential accumulation of activities and/or effects may be of concern is limited by the data that were available at the time that the constraints analysis was performed, and some areas of importance may still be included in the Offshore Wind Licensing Areas.

Replace:

“In identifying the recommended licencing areas based on avoidance and minimization, the

Committee has demonstrated mitigation of cumulative effects on a proactive, regional level.”

With:

In identifying the recommended licencing areas based on avoidance and minimization, the Committee has demonstrated a regional approach to avoiding cumulative effects. However, the recommended licensing areas encompass heterogeneous habitats. If the recommended licensing areas will not be fully covered by offshore wind farms and other users are anticipated, further cumulative effect assessments are recommended to inform site selection within the regional boundaries that are recommended in this Final Report (i.e., Offshore Wind Licensing Areas).

8.5.2 Approaches for assessing cumulative effects at a regional scale

Comment 76: ECCC recommends that a comprehensive regional-scale cumulative effects assessment of offshore wind energy developments and other pressures be undertaken for valued components to inform site selection within the regional boundaries identified for offshore wind energy development licensing.

Comment 77: ECCC recommends highlighting documents provided to the Committee that may provide relevant guidance or examples to inform “approaches for addressing cumulative effects at a regional scale.”_For example, the guidance document provided by ECCC (i.e., Ferguson et al., 2024) distills the complex process of conducting a regional species-based CEA into a coherent, detailed, and comprehensive framework that not only synthesizes the fundamental steps into a practical roadmap and describes an analytical strategy that is applicable to various valued ecosystem components, it also adapts to available information on ecology, socioeconomics, and pressures. Murray et al., (2020) provides a review of cumulative effects assessment approaches that include stressor-, species-, and area-based approaches.

8.6 Committee Conclusions and Recommendations

Comment 78: The Committee’s recommendations do not provide any guidance on how to overcome the challenges that they identified as barriers to a comprehensive regional-scale assessment of cumulative effects (e.g., time, access to federal guidance, challenges listed in Section 8.1 and 8.2). ECCC recommends that the Committee include specific recommendations in section 8.6 to guide future cumulative effects assessments. Examples for consideration are provided below.

Comment 79 (relates to Comment 75): As above, ECCC recommends that the Committee consider adding the following:

- Sufficient time should be allocated to the cumulative effects assessment referenced in comment 11 to support the required research, engagement and analysis. This should include time to foster meaningful engagement with Indigenous and local communities, ensuring that the assessment is inclusive and their knowledge is integrated into the assessment and decision-making process.
- To overcome the challenges associated with the Project Envelope Approach (outlined in 8.2), CEAs should adopt scenario planning techniques that explore the cumulative impacts

- of multiple development trajectories and technology combinations at the regional scale.
- To address data gaps, interested parties and proponents should establish collaborative data-sharing platforms that ensure continuous access to the best available information on baselines, existing conditions, and the effectiveness of mitigation measures. The sharing of information will facilitate contributions from offshore wind energy proponents, relevant stakeholders, and Indigenous communities to allow for more effective cumulative effects management.

Comment 80:

ECCC recognizes the need for additional cumulative effects work to better allow the sector to proceed in a responsible manner, but strategic assessments, as recommended by the Committee are unlikely to be able to overcome the issues identified by the Committee, namely governance, need for expertise, and analytical capacity. ECCC also notes that while federal agencies would be expected to participate in the design of an assessment of cumulative effects other stakeholders and Indigenous Communities may wish to have a role as well.

Replace the following existing text:

“The Government of Canada conduct a strategic assessment of offshore licencing areas (once the determined) with the key objective of supporting a more thorough assessment of cumulative effects.”

With:

- “The Government of Canada improve the identification and management of cumulative effects for offshore wind in line with the actions under [Building Canada’s Clean Future](#). This should include Indigenous perspectives and Indigenous knowledge, as well as engaging with the province to ensure coordination and collaboration. This work should explore a more coordinated and inclusive approach to governance and decision-making around cumulative effects, including how to leverage existing and planned initiatives such as national wildlife areas. This work should:
 - Be designed [with participation of](#) federal authorities who hold expertise in CEA, and in the specific valued components (e.g., ECCC for aerofauna, DFO for marine fish and fish habitat, commercial fisheries) that are most likely to be adversely affected by offshore wind development.
 - Recognize that at this early stage of the industry, there may not be enough information to scope all issues effectively. The approach will have to be iterative.
 - Include engagement with Indigenous peoples, fish harvesters, residents of coastal communities with port infrastructure suitable for offshore wind, and other segments of the population that are most likely to be adversely affected by offshore wind.
 - Be inclusive of experts in socio-economic benefits side to ensure there is also understanding and consideration of cumulative benefit.”

9.4 Committee Conclusions and Recommendations

Comment 81: On page 792, risks of accidents, including oil spills, are mentioned. The likelihood of such incidents is uncertain and it is unclear whether Spill Response Plans (or other Emergency Response Plans) are or should be a requirement of this industry.

Recommendation: ECCC recommends clarification on the requirement of Emergency/Spill Response Plan for all projects. ECCC also recommends that regulators (C-NLOER/NRCan) review existing response plan structures for offshore wind industry elsewhere to determine the appropriate level of preparedness/planning required for NL.