

Comment Index

Weavers Mountain Wind Energy Project

Publication Date: July 27, 2023

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1	KMKNO	July 5, 2023
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1	Anonymous	June 8, 2023
2	Anonymous	June 9, 2023
3	Anonymous	June 9, 2023



Date: June 27, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Sarah MacLeod, Linear Development, A/Senior Regulatory Review Biologist, Fish and Fish Habitat Protection Program

Subject: Weavers Mountain Wind Energy Project - Antigonish County, Nova Scotia

Scope of review:

Fisheries and Oceans Canada (DFO) is responsible for administering the fish and fish habitat protection provisions of the *Fisheries Act* (FA), the *Species at Risk Act* (SARA), and the *Aquatic Invasive Species Regulations*.

DFO's review focused on the works outlined in the Weavers Mountain Wind Energy Project Environmental Assessment Registration Document to potentially result in:

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat, which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*;
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*; and
- The introduction of aquatic species into regions or bodies of water frequented by fish where they are not indigenous, which is prohibited under section 10 of the *Aquatic Invasive Species Regulations*.

Technical Comments:

Risk Assessment: Wetland Assessment	
Identify Gap/Risk	Wetlands containing direct and indirect fish habitat are not clearly identified, and a detailed description of the associated habitat for fish along with a the likely effects of the proposed work on these habitats is not provided. For example, in Section 7.3.2.6, Table 7.27 in the <i>Environmental Assessment Registration Document (EARD)</i> , two wetlands are listed as having features which may support fish and fish habitat that may be impacted by the project; however, in <i>Appendix H: Wetlands</i> , eight wetlands are considered to have moderate fish-bearing potential, with six listed as potential for alteration under Table 7.33 in Section 7.3.3.6 of the <i>EARD</i> .
Can it be addressed in another permit/approval	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. WUAs associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those

or with a T&C?	impacts.
Define/provide detail	For WUAs that may result in potential harmful impacts on fish or fish habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.
Risk Assessment: Fish Habitat Assessment	
Identify Gap/Risk	The habitat found within each watercourse and waterbody in the project area has not been clearly defined for fish species utilizing the area. For example, in <i>Appendix E: Waterbodies and Watercourses</i> , 17 watercourses were assessed within the project area, with 11 deemed to have moderate-to-high fish bearing potential; however, in the <i>EARD</i> , Table 7.24, only three watercourses were assessed for fish and fish habitat. In addition, in Section 7.3.2.5 of the <i>EARD</i> , further assessments are recommended in the 2023 field season due to a project layout modification.
Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. WUAs associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those impacts.
Define/provide detail	For WUAs that may result in potential harmful impacts on fish or fish habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.
Risk Assessment: Watercourse Crossing Designs	
Identify Gap/Risk	Specific information related to the proposed watercourse crossings is not provided. In Section 7.3.1.6 of the <i>EARD</i> , it is noted that “specific details of each crossing will be finalized during the detailed design phase and will be included in any necessary applications for alteration or notifications to NSECC.”

Can it be addressed in another permit/approval or with a T&C?	The identified gap can be addressed during the NSECC watercourse and/or wetland alteration approval process(es) and DFO regulatory review process. WUAs associated with this project in or near water that may result in potential harmful impacts on fish or fish habitat will require DFO regulatory review to avoid, mitigate or offset those impacts.
Define/provide detail	For WUAs that may result in potential harmful impacts on fish or fish habitat, additional information will be required as part of the DFO regulatory review process, including detailed information on the proposed WUAs, a detailed description of the fish and fish habitat found at the location of the proposed WUAs, a detailed description on the likely effects of the proposed WUAs on fish and fish habitat, and a detailed description of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.

Summary of Recommendations: (provide in non-technical language)

DFO recommends the proponent:

- Submit detailed information on the proposed watercourse crossing and wetland alteration designs, detailed descriptions of the fish and fish habitat found at the location of the proposed WUAs, detailed descriptions on the likely effects of the proposed WUAs on fish and fish habitat (including local and cumulative impacts, potential impacts on species at risk, and direct and indirect impacts on fish habitat), and detailed descriptions of the measures and standards that will be implemented to avoid and mitigate potential harmful impacts on fish and fish habitat.
- Consider open bottom structures, such as clear span bridges and open bottom arch culverts for fish bearing watercourse crossings rather than closed bottom structures, where possible; and
- Refer to DFO's website, <https://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>, for further information on DFO's regulatory review process and for further measures to protect fish and fish habitat.

This information can be provided through the NSECC watercourse and/or wetland alteration approval process(es) and/or through submission of a DFO Request for Review application directly to DFO. DFO will then conduct a regulatory review of the proposed project under the *Fisheries Act*, *Species at Risk Act*, and Aquatic Invasive Species Regulations to determine if an authorization under the *Fisheries Act* and/or a *Species at Risk* permit is required.

Fisheries and Aquaculture

Date: July 26, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer, Nova Scotia
Environment and Climate Change

From: Lesley O'Brien-Latham, Executive Director, Policy and Corporate Services
Nova Scotia Department of Fisheries and Aquaculture

Subject: Weavers Mountain Wind Energy Project, Antigonish & Pictou Counties –
Environmental Assessment

Thank you for the opportunity to review the Weavers Mountain Wind Energy Project ("Project") documents.

Based on the information you provided, the Nova Scotia Department of Fisheries and Aquaculture ("Department") has the following comments:

- The Department's mandate includes the management of inland recreational fish populations such as American Eel, Atlantic Salmon, Brook Trout and Brook Floater, which may be impacted by the Project. Although adherence to the Nova Scotia Watercourse Alterations Standards should result in minimal impact on fish and fish habitats, additional information would help the Department and the proponent understand impacts on fish populations:
 - American eel should be included as a priority species as they are considered threatened.
 - The number of electrofishing sites should be expanded and include five sites that are categorized as 'large permanent' to provide baseline fish population data.
 - Electrofishing time in seconds should be recorded at each site to determine catch per unit effort.
- No impacts to commercial fishing activities are anticipated.
- Within a 25km radius of this project, there are 21 aquaculture sites: 3 (three) issued land-based facilities, 14 (fourteen) issued shellfish leases, and 4 (four) proposed shellfish leases.

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change



Environment and Climate Change

Barrington Place
1903 Barrington Street
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Canada B3J 2P8

Date: June 28, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: NSECC-ICE, Antigonish/Pictou; **Sign-off by Manager – Marc Theriault**

Subject: Weavers Mountain Wind Energy Project, Antigonish & Pictou Counties

Scope of review:

This review focuses on the following mandate: general overview and technical considerations

Technical Comments:

- If blasting is required, pre-blast surveys for structures within 800m should be conducted, not just well monitoring. This could be included as a term and condition if approved.
- The EPP should be submitted to NSECC for review and acceptance prior to project commencement. This could be included as a term and condition if approved.
- “Dust suppressant technologies” should be accepted by NSECC prior to use on the roads. This could be included as a term and condition if approved.
- Throughout the Study Area the groundwater ranges from 0 to >10 m from the surface. If blasting is required, there must be a vertical separation of at least 0.5 m from the groundwater. This could be included as a term and condition if approved.
- Since the application indicates they will potentially go over the sound criteria during construction, there should be a monitoring program during construction, or at least if there is a complaint made. This could be included as a term and condition if approved.
- Obtain wetland and/or watercourse approvals, as required. This could be included as a term and condition if approved.

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change

Summary of Technical Considerations: (provide in non-technical language)

- If overburden and soils removed are salvageable, they should be saved for use during reclamation. This could be included as a term and condition if approved.
- If a heavy equipment and/or concrete truck washout area is required, runoff needs to be captured and adequately treated and/or disposed of. This could be included as a term and condition if approved.



Environment and Climate Change

Date: July 5, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Climate Change Division

Subject: Weavers Mountain Wind Energy Project, Antigonish & Pictou Counties

Scope of review:

This review focuses on the following mandate: Climate Change

Technical Comments:

Adaptation

- The EA registration document includes a description of the local climate (Collegeville Climate Station) based on climate data from 2015-2022 (Section 7.1.1). The 'Guide to Considering Climate Change in Project Development in Nova Scotia' recommends at least 30 years of climate data to adequately assess climate variability.
- The VEC sections of the EA registration document do not consider climate change impacts and projections for the site as per the provincial 'Guide to Preparing an EA Registration Document for Wind Power Projects'. For example, the document does not provide climate projections for temperature or other climate variables relative to climate normals and indicate how projected climate changes may impact the various phases of the project.
- The EA registration document does not reference specific climate projections for the site but does reference some key climate change trends and natural hazards (temperature, sea level rise, flooding, severe weather, turbine icing, wildfire) (Sections 12.1 and 12.2), and where applicable indicates some of the potential mitigations or design adaptations that may be considered during the project design and implementation. For example, the document indicates the project layout will be concentrated in high elevation areas to minimize flood hazards with appropriate stormwater controls.
- The potential adverse effects of climate change on the undertaking and mitigative measures are not presented within a risk management framework, as recommended in the 'Guide to Considering Climate Change in Project Development in Nova Scotia'.

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change

Mitigation

- The proponent estimates the project's construction phase will generate most of the greenhouse gas emissions from the manufacturing and transportation of the wind turbine, as well as the production and transport of the concrete for the tower foundation and pedestal. The total greenhouse gas emission contributions from the construction phase are estimated at 32,109.49 tCO₂e. The operations phase will generate greenhouse gas from the wind turbines' maintenance (i.e., part replacements) as a one-time (Project lifespan) occurrence of 549.60 tCO₂e.
- Although manufacturing and transportation of the turbines are outside the scope of construction emissions, the general approach for quantification at all these stages is sufficient.
- Mitigation plans to reduce emissions from equipment, construction and clearing of the land have been proposed and are sufficient. In addition, mitigation of emission of HFCs from coolants has also been proposed.

Summary of Technical Considerations: (provide in non-technical language)

- The proponent should use at least 30 years of climate data to adequately assess climate variability and characterize the local climate as per the province's 'Guide to Considering Climate Change in Project Development in Nova Scotia'.
- The VEC sections of the EA registration document should include climate change projections for the site as per the 'Guide to Preparing an EA Registration Document for Wind Power Projects' and indicate how these climatic changes relative to climate normals may affect the undertaking, which may help identify opportunities for mitigation. The latest CMIP6 climate projection data and updated IDF curves are available at climatedata.ca.
- The EA registration document should provide more detail about how the detailed project design will consider these climate projection data (e.g., IDF curves

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change

based on climate projections will be used during the design of the project structures and erosion and sediment control measures).

- The proponent should consider adopting a risk management framework as recommended in the 'Guide to Considering Climate Change in Project Development in Nova Scotia' to determine which impacts present the highest risks to the various phases of the project and to assist in the determination of priorities for implementing adaptation measures, where required.

Mitigation

- No further actions are recommended.



Environment and Climate Change

Date: July 6, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Environmental Health

Subject: Weavers Mountain Wind Energy Project, Antigonish & Pictou Counties

Scope of review:

This review focuses on the Environmental Health mandate to protect public health from environmental influences that may adversely affect human health. Project effects related to ice throw, shadow flicker, sound and air quality were evaluated.

Ice Throw

The maximum throwing distance of accumulated ice from a turbine was calculated to be 432m which is significantly less than the distance between the Project Area and both the nearest non-participating receptor, and public road.

There is the potential for ice throw to effect recreational land users in the area. The proponent has committed to mitigate potential effects by engaging with the community and posting signage near the project area.

Shadow Flicker

A total of 113 receptors were identified within 2km of the study area. Worst case scenario modelling was undertaken to assess the impact of shadow flicker on all receptors. Modelling results demonstrate that no receptors will exceed the shadow flicker 30 hours of per year or 30 minutes per day.

The proponent has committed to establishing a complaints response protocol to receive and assess complaints from the public who might be impacted by shadow flicker.

Sound

Work was undertaken to assess project related impacts during the construction and operational phases of the project.

During construction, it is anticipated that some receptors will be exposed to noise at levels that exceed current guideline levels, though the proponent expects any noise exceedances to be infrequent and short term.

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change

Modelling was undertaken to assess operational noise impacts on 133 receptors located within 2 km of the study area. Modelling results demonstrate that noise levels at all non-participating receptors will be below that standard of 40dB(A).

The proponent has committed to establishing a complaints response protocol to receive and assess complaints from the public who might be impacted by noise.

Air Quality

Project related impacts to air quality are anticipated to occur primarily during the construction phase of the project. The project has identified a number of activities that will be undertaken to mitigate air quality impacts.

However, unlike project impacts related to shadow flicker and noise, the project has not committed to adopting a complaints response protocol related to air quality impacts.

Recommendation:

Establish and implement a complaints response protocol for air quality that provides an avenue for the project to receive and investigate complaints from the public impacted by project related effects on air quality.

Guidance for Reviewers – Environmental Assessments

Environmental Assessment Branch, Environment and Climate Change

Date:

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Water Branch, Sign-off by Krysta Montreuil, Manager, Water Resources Management Unit

Subject: Weavers Mountain Wind Energy Project, Antigonish & Pictou Counties

Scope of review:

This high-level review focuses on the following mandate:

- Surface water quantity and quality
- Wetlands
- Groundwater quantity and quality

Technical Comments:*Surface Water*

Several important areas were not included in the assessment area in the EARD, these include the proposed laydown area, a connection to Bouchard road (site access), and potentially the footprint of the proposed substation. These proposed areas cover or are near several wetlands and watercourses, as such the risks to these resources and habitats were not characterized nor considered in the EARD.

Within the assessment area, at least two watercourse crossings were not included in the EARD risk assessment, despite being included in mapping. Additionally other watercourses (not visible at the resolution of provincial mapping) may be identified in the field as several other interactions between the assessment area and the 'Wet Areas Mapping' product can be seen in drawing 7.14. While the EARD classified watercourses by size and flow permanence, all watercourses are subject to the watercourse alteration program regardless of these characteristics.

If approved, erosion and sediment control should be carefully considered in project design due to the location of the project area in the headwaters of three major river systems and the presence of species at risk, at least one of which is sensitive to suspended solids and turbidity (Brook Floater). A surface water management plan would help identify the sub catchments which drain to these habitats, and thus where extra care should be taken to prevent releases. A surface water management plan would also be key understanding the potentially complex hydrology of the site (three major watersheds and many wetlands) which is required to prevent impacts to watercourses and wetlands due to the design and construction of the proposed 11 km of new roads.

The EARD mentioned wetting roads and stored materials to suppress dust, but did not quantify volume of water needed or source. These should be identified and assessed against other department requirements for water withdrawals.

Wetlands

The Environmental Assessment Registration Document (EARD) did not meet all submission requirements for Wetlands as outlined in the *Guide to Preparing an EA Registration Document for Wind Power Projects*.

The following information was not provided:

- Identify the location, size, boundary and class of any wetland.
 - Based on aerial imagery and GIS modelling it appears that several wetlands have not been identified (e.g., Legacy area adjacent WL 20, connection to Bouchard Road, laydown area, and more). All wetlands within the assessment area should be identified, delineated and have WESP-AC functional assessments completed. Consultation with ECC Wetland Specialist is recommended.
 - Delineated wetlands that were identified appear to be larger and extend outside of the assessment area (e.g., WL4, WL5, WL6, WL20, WL21) and/or are connected to each other (e.g., WL 20, 21 and 22). Wetlands extending out of the assessment area should be mapped approximately to determine their full extents.
 - Due to a layout modification in 2022, wetland delineation boundaries within these areas should be confirmed and functional assessments should be completed for the additional 11 wetlands identified.
- Maps clearly indicate the locations of the project in relation to the wetland and other natural features.
 - Other natural features (i.e., SAR/SOCC) were not included in the wetland figures. The proponent states there are no Wetlands of Special Significance (WSS) within the Assessment Area, however, based on ACCDC data it appears that Canada Warbler, and Rusty Blackbird were identified in/adjacent to a wetland complex identified as WL20 and WL21. It is unclear if additional wetlands support at-risk species as designated under the federal *Species at Risk Act* or the *Nova Scotia Endangered Species Act* because their locations were not identified clearly within the EARD.

Groundwater

The proponent has proposed mitigations to reduce the potential for impacts on groundwater quantity and quality, including proposed project mitigations for prevention and response for spills.

The EARD identified groundwater wells within the study area; with wells being located greater than 1000m from proposed turbine sites. However, there is uncertainty whether blasting will be required as a part of the project, either for road construction or for the turbine construction. The proponent has proposed mitigations to reduce the impact of blasting, including a pre-blast survey.

Summary of Technical Considerations:

Surface Water

The EARD did not identify all potential impacts to watercourses that could occur as a result of the project. Omissions were present in mapped watercourse crossings, areas of high likelihood from wet areas mapping, and disturbance areas that were not included in the assessment area (road connection, laydown area footprint, and potentially substation footprint). Because of this, the overall risk to watercourses was not adequately assessed.

If approved, these unassessed risks could be mitigated by making additional requirements specifying the identification of these risks to watercourses and wetlands along with mitigative and preventative measures.

Other recommended requirements if the project is approved include: the submission of a surface water management plan (SWMP) for review by a department water resources engineer due to the proposed length of new road (11 km) in an area of potentially complex hydrology, an ESC plan that accounts for habitats of sensitive species as informed by the SWMP, and the identification of a water source and estimated daily volume used for dust suppression on-site.

Wetlands

The information provided in the EARD is insufficient in identifying the potential environmental impacts on wetlands. Prior to project commencement, all wetlands should be identified, delineated, and have WESP-AC functional assessments completed. Additionally, all WSS should be identified.

It is recommended that during the design phase micro-sitting occurs to avoid wetland impacts, to the extent possible. It is also recommended that all wetlands be marked (flagging tape and signs) in the field prior to construction and included in the EPP and on all design drawings to prevent any additional wetland alterations.

The proponent should submit a Wetland Alteration Approval Application for review and approval for any wetlands proposed to be directly or indirectly altered and complete any necessary compensation and monitoring. The proponent should utilize Nova Scotia's Wetland Alteration Application's Guided Template for the permit applications.

Groundwater

If implemented, the proposed mitigation measures within the EARD should be sufficient to protect groundwater. However, to ensure that any unexpected impacts on groundwater users are mitigated, a condition requiring the replacement of any impacted water supply should be included within the EA Approval.



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Bureau 200
1801 rue Hollis
Halifax, NE B3J 3N4

Date: July 6, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer, Nova Scotia Department of Environment and Climate Change

From: Lillianne Kydd, Environmental Assessment Officer, Impact Assessment Agency of Canada

Subject: Weavers Mountain Wind Energy Project

The federal environmental assessment process is set out in the [Impact Assessment Act](#) (IAA). The [Physical Activities Regulations](#) (the Regulations) under IAA set out a list of physical activities considered to be “designated projects.” For designated projects listed in the Regulations, the proponent must provide the Agency with an Initial Description of a Designated Project that includes information prescribed by applicable regulations ([Information and Management of Time Limits Regulations](#)).

Based on the information submitted to the Province of Nova Scotia on the proposed Weavers Mountain Wind Energy Project, it does not appear to be described in the Regulations. Under such circumstances the proponent would not be required to submit an Initial Description of a Designated Project to the Agency. However, the proponent is advised to review the Regulations and contact the Agency if, in its view, the Regulations may apply to the proposed project.

The proponent is advised that under section 9(1) of the IAA, the Minister may, on request or on his or her own initiative, by order, designate a physical activity that is not prescribed by regulations made under paragraph 109(b) if, in his or her opinion, either the carrying out of that physical activity may cause adverse effects within federal jurisdiction or adverse direct or incidental effects, or public concerns related to those effects warrant the designation. Should the Agency receive a request for a project to be designated, the Agency would contact the proponent with further information.

The proposed project may be subject to sections 82-91 of IAA. Section 82 requires that, for any project occurring on federal lands, the federal authority responsible for administering those lands or for exercising any power to enable the project to proceed must make a determination regarding the significance of environmental effects of the project. The Agency is not involved in this process; it is the responsibility of the federal authority to make and document this determination.

The proponent is encouraged to contact the Agency at (902) 426-0564 if it has additional information that may be relevant to the Agency or if it has any questions or concerns related to the above matters.

Thank you,

Lilianne Kydd

Environmental Assessment Officer, Atlantic Regional Office
Impact Assessment Agency of Canada / Government of Canada
Lilianne.Kydd@iaac-aeic.gc.ca / Tel: 782-640-1461

Agente d'évaluation environnementale, Bureau régional de l'Atlantique
Agence d'évaluation d'impact du Canada / Gouvernement du Canada
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Date: July 6, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Environmental Services, Nova Scotia Public Works

Subject: Weavers Mountain Wind Energy Project, Pictou/Antigonish Counties

Scope of review:

This review focuses on the following mandate: Traffic Engineering and Road Safety Impacts for the Weavers Mountain Wind Energy Project

Technical Comments:

1. Provincial Regulatory and Permitting requirements are appropriately identified in Table 2.2 Provincial Regulatory Requirements (Pg. 5) and re-identified in Section 8.3.2 (Pg. 207). Working within Highway Right of Way Permit (WWHROW), Overweight/Special Moves Permit, Spring Weight Restrictions, as well as compliance with the Nova Scotia Temporary Workplace Traffic Control Manual (NSTWTCM) are identified.
2. With regards to the WWHROW, this permit is available from the local Area Manager. This will be required for any infrastructure upgrades or removal of signage (as referenced in Section 8.3 Traffic and Transportation). Any signage removal on any provincially owned road will need to be reviewed and approved by the Area Manager's office, who may request review by the District Traffic Authority as necessary.
3. With regards to any implications to do with the NSTWTCM, any Traffic Control Plans would need to be prepared by the proponent and sent to the Area Manager for review and approval, who may request review by the District Traffic Authority as necessary.
4. With regards to the Overweight/Special Moves Permits, the proponent would need to contact our Departmental contact for Special Moves Permits to determine any required information for inclusion. E.g. Information in Section 3.2.1 Turbine Specs (pg 9), or references to the transportation of turbine components in Section 8.3 Traffic and Transportation, particularly with the reference to the logistics study of a transportation route being required from the receiving and unloading port (Pg 207).

5. Traffic Mitigation Measures mentioned in Section 8.3.3 (Pg. 208) and repeated in Section 11.2 Summary of Mitigation Measures (Pg. 248) are sufficient, provided the necessary approvals are obtained for the actions identified.

Summary of Technical Considerations: (provide in non-technical language)

1. Contact the Local Area Manager for Antigonish (Basil Pitts, as per email list, although there may be a requirement to contact Area Manager for Pictou) for any Working Within Highway Right of Way Permit required. That will be the contact for the District Traffic Authority as well.
2. Contact our Departmental Contact for Special Moves Permits, Manuel Abreu at Manuel.Abreu@novascotia.ca for any required information for this permit.
3. Nova Scotia Temporary Workplace Traffic Control Manual most recent version (2023) is available from our website.

Date: July 7, 2023

To: Alison Fitzpatrick, Environmental Assessment Officer,

From: Nova Scotia Office of L'nú Affairs – Consultation Division *Reviewed by Beata Dera, Director of Consultation*

Subject: Weavers Mountain Wind Farm Project, **Nova Scotia**

Scope of review:

The following review considers whether the information provided will assist the Province in assessing the potential of the proposed Project to adversely impact established and/or asserted Mi'kmaw Aboriginal and Treaty rights.

Technical Comments:

Section 7.4.3.3 Desktop Review refers to section 7.4.3.6 for additional information regarding the Moose Habitat Suitability Model. Section 7.4.3.6 is not located in the table of contents or within the EARD.
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Summary of Recommendations:

<p>Crown consultation with the Mi'kmaq of Nova Scotia is ongoing for this project. The Mi'kmaq of Nova Scotia may provide additional information that informs the regulator in assessing the proposed project's potential impacts to established and/or asserted Mi'kmaw Aboriginal and Treaty rights and appropriate accommodation and mitigation measures. At this time, OLA is able to provide the following comments and recommendations:</p>

5.2 Mi'kmaq Ecological Knowledge Study

The Mi'kmaq Ecological Knowledge Study (MEKS) is summarized in the EARD. According to the MEKS, 13 interviews were undertaken with knowledge holders from Pictou Landing First Nation, Paqtnkek First Nation, and Millbrook First Nation for the MEKS completed by Membertou Geomatics Solutions to document traditional use activities within the Project Area. According to the MEKS, trout and salmon fishing, deer, partridge, and rabbit hunting, and evergreen and wood gathering were reported within the Project Site area. Most activities are considered current use. The following concerns were expressed during the MEKS interviews:

- “Really good hunting, fishing, and gathering in that area, concerned about effect of turbines/project on these activities”

OLA encourages the regulator to carefully consider the information contained in the MEKS and factor relevant information into the decision-making process. For example, information regarding current rights activities within the project area and potential impacts to those activities that may occur from this project. OLA recommends that the proponent engages in discussions with the Mi'kmaq of Nova Scotia to address mitigation measures for potential impacts on traditional and current use activities within the project area. OLA advises the proponent to share the MEKS with the Mi'kmaq of Nova Scotia.

5.3 Mi'kmaq Engagement

Table 5.1 provides a good summary of engagement efforts to date with the Mi'kmaq of Nova Scotia. The proponent has sent project information to all 13 Chiefs and Councils and KMKNO since 2020 and engagement meetings have taken place with Glooscap First Nation, Millbrook First Nation, and KMKNO. The Province encourages continued engagement with the Mi'kmaq of Nova Scotia, including KMKNO, to share project information throughout the duration of the project.

Appendix B Mi'kmaq Engagement

Appendix B includes the phone numbers for Mi'kmaq Chiefs. This information should not be included as the EARD is publicly available. OLA suggests removing the Mi'kmaq contact list from Appendix B.

7.3.2 Fish and Fish Habitat:

According to the EARD and based on Atlantic Canada Conservation Data Centre (ACCDC) records of Atlantic salmon, American eel, and Brook trout have been identified within 100 km of the Study Area. Electrofishing survey results from summer 2022 resulted in Atlantic salmon (22), Brook Trout (66), and American eel (1) being fished and released back into the watercourse. According to the EARD, there is potential for direct impacts to fish and fish habitat including fish habitat loss. OLA is aware that Atlantic salmon, American eel, and Brook trout are species of interest to the Mi'kmaq of Nova Scotia. Potential impacts to fish and their habitat may potentially adversely impact Aboriginal and/or Treaty rights. OLA recommends that engagement with the Mi'kmaq on mitigation measures for potential impacts on possible fishing activities within the project area and adjacent to the project area, through a Mi'kmaq Communications Plan, be required if the EA is approved. OLA further recommends that the proponent engage the Mi'kmaq of Nova Scotia by sharing draft mitigation and monitoring plans for input from the Mi'kmaq.

7.3.3 Wetlands

According to the EARD, a review of the Provincial Landscape Viewer (NSNRR, 2017) determined that the study area contains lands classified as Mainland moose concentration area.

7.4.4 Terrestrial Fauna

According to the EARD, a review of the NSNRR Significant Species and Habitat Database (2018) and ACCDC Data Report (2023), Mainland moose has been recorded within 100km of the study area. Based on the Mainland Moose Habitat Suitability Modelling, this model identified large areas of high-quality habitat across the Study Area. According to the EARD, earth moving and vegetation removal associated with project activities could result in habitat removal, alterations to wildlife corridors, and reductions in food availability. According to the EARD and as reported in the Mainland Moose Recovery Plan, the core habitat for the Pictou/Antigonish/Guysborough group requires an area of approximately 6,300km² of core habitat to meet recovery objectives. According to the EARD, some areas considered to be high quality Mainland moose habitat will require alteration or removal to construct the Project, however the proponent has designed the project to maximize use of existing infrastructure and minimized the overall area of habitat loss as much as possible. OLA is aware that moose is a significant species of interest for the Mi'kmaq of Nova Scotia. Potential

impacts to moose and their habitat may potentially adversely impact Aboriginal and/or Treaty rights. OLA recommends that engagement with the Mi'kmaq on mitigation measures for potential impacts on possible traditional and current use activities within the project area and adjacent to the project area, through a Mi'kmaq Communications Plan, be required if the EA is approved. OLA further recommends that the proponent engage the Mi'kmaq of Nova Scotia by sharing draft moose mitigation and monitoring plans for input from the Mi'kmaq of Nova Scotia.

Table 7.47 Summary of Trail Camera Results

According to the EARD, snowshoe hare and white-tailed deer were observed within the study area. OLA is aware that hunting deer and hare are traditional activities for the Mi'kmaq of Nova Scotia. Potential impacts to deer and hare and their habitat may potentially adversely impact Aboriginal and/or Treaty rights. OLA recommends that engagement with the Mi'kmaq on mitigation measures for potential impacts on possible traditional and current use activities within the project area and adjacent to the project area, through a Mi'kmaq Communications Plan, be required if the EA is approved. OLA further recommends that the proponent engage the Mi'kmaq of Nova Scotia by sharing draft mitigation and monitoring plans for input from the Mi'kmaq of Nova Scotia

9.0 Archaeological Resources

As determined by the Archaeological Resource Impact Assessment (ARIA), through methods of reconnaissance and exploratory subsurface testing 16 areas of high archaeological potential were found to be located within the proposed project area. It is recommended that engagement with KMKNO-ARD on archaeology continue throughout project development.

Date: July 6, 2023

To: Allison Fitzpartick, Nova Scotia Environment & Climate Change

From: Coordinator Special Places, Culture and Heritage Development

Subject: Weavers Mountain Wind Energy Project - EA Registration

Staff of the Department of Communities, Culture, Tourism, and Heritage has reviewed the Weavers Mountain Wind Energy Project - EA Registration documents and have provided the following comments:

Archaeology

Staff reviewed the sections of the EA document pertaining to archaeology. The archaeological resource impact assessment (ARIA) was conducted under Heritage Research Permit A2023NS002 by Boreas Heritage Consulting Inc. Boreas Heritage identified sixteen (16) areas of high archaeological potential (HPA-01 – HPA-16) and offered the following recommendations:

1. It is recommended the areas of high archaeological potential (HPA-01 – HPA-16), as described in this report, be avoided during any proposed development and/or ground disturbance activities associated with the proposed Project, to prevent accidental impacts to areas of potential archaeological sensitivity.
2. If the areas of high archaeological potential, or parts thereof, cannot be avoided during development activities related to the proposed Project, it is recommended these areas be subjected to a subsurface assessment involving a systematic programme of shovel testing in order to confirm the presence or absence of archaeological resources.
3. It is recommended the remainder of the Assessment Area, as described in this report, be cleared of any requirement for further archaeological investigation and that development may proceed as planned.
4. If any changes or deviations from the original plans relating to the proposed Project, as provided to Boreas Heritage for this Survey, are necessary, and are found to impact areas outside the Assessment Area described in this report, then additional archaeological resource impact assessment(s) may be warranted for these amended portions of the proposed Project.

5. In the event archaeological resources and/or human remains are encountered, from disturbed or undisturbed contexts, during construction or disturbance activities associated with the proposed Project, works should be halted until contact is made with, and direction(s) on how to proceed has been received from the Coordinator of Special Places, Nova Scotia Department of Communities, Culture and Heritage.

The Environmental Assessment detailed the following mitigation strategies:

Mitigation

The following mitigation measures are recommended:

- Complete shovel testing in areas of high potential prior to ground disturbance if they cannot be avoided during the detail design phase.
- Provide the EA Branch with the acceptance letter from NSCCTH prior to any disturbance in those areas.
- Develop a chance find procedure in the EPP related to the potential unexpected discovery of archaeological items or sites, or human remains, during construction. This would include halting any work immediately upon discovery of suspected resources and contacting NSCCTH. If the resources are suspected to be of Mi'kmaq origin, the Executive Director of KMKNO would also be contacted.
- Conduct additional archaeological assessment if, during the detail design phase, it is determined that ground disturbance is required in areas not previously assessed. The EA Branch will be provided with the acceptance letter from NSCCTH prior to completion of any disturbance in newly proposed areas.

The EA's Mitigation Strategies are in line with the recommendations made by Boreas Heritage.

We have no archaeological concerns at this time.

Botany

No staff were available to review the sections of the EA document pertaining to botany.

Palaeontology

Staff have reviewed the sections of the EA document pertaining to palaeontology. The surficial and bedrock geology of the study area was reviewed and is accurately stated in the project description. Based on the known geology there are no concerns of potential palaeontology heritage material (fossils) being found during excavation of the site.

Zoology

Staff have reviewed the sections of the EA document pertaining to zoology. The document

highlights several cases where there are SOCI/SAR species among several taxonomic groups that are within and/or immediately outside the study area. It appears to be a reasonable assessment of the zoological setting for the site and immediate-adjacent area.

Date: July 6, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Air Quality Unit, reviewed by Director, Air Quality and Resource Management

Subject: Weavers Mountain Wind Project

Scope of review:

This review focuses on the following mandate: Air Quality

Technical Comments:

Weavers Mountain Wind Limited Partnership proposes to construct and operate Weavers Mountain Wind Energy Project, a 94.4 megawatt (MW) wind development located near the community of Beaver Meadow, Antigonish County, Nova Scotia. The Project will consist of up to 16 wind turbines along with associated infrastructure, including access roads, substation, and interconnection lines. The development of this Project will support Government goals of achieving 80% of provincial electricity requirements from renewable sources by 2030 (*Environmental Goals and Climate Change Reduction Act* S.7 (l)) and progress towards cleaner air for Nova Scotians (*Environmental Goals and Climate Change Reduction Act* S.11 (c and d)).

Impacts on air quality from this project are most likely to occur from vehicle exhaust and fugitive dust emissions during the construction phase of the project. Data from 2018-2022 from the NSECC Pictou station, located ~42km from the project area, was used to determine baseline concentrations of PM_{2.5}, NO_x, O₃, and SO₂.

Exhaust emissions (primarily PM, NO_x, SO₂, and CO) are anticipated to be associated with local roadways and roads developed for the Project within the Project Area. The proponent states that the closest non-participating receptors are located over 1 km from the project and exhaust emissions are not anticipated to travel beyond the extent of the Project Area, and as such, impacts to local residential receptors are not anticipated. However, the residence time of exhaust emissions depends on weather conditions and chemical reactions (or lack thereof) in the atmosphere.

Fugitive dust emissions are anticipated from wind erosion, increased vehicle traffic on roadways, soil disturbance during site preparation, and loading/unloading materials. These activities are most likely to contribute to increases in concentrations of total suspended particulate (TSP). The nearest receptors are located beyond the extent to which fugitive dust emissions are expected to travel.

The proponent states that an Air Quality and Dust Management Plan will be developed in addition to the general mitigation measures listed: conduct site preparation in phases, stabilize stockpiled materials to prevent erosion (spray with water, design containment areas, tie down/cover materials, etc), cease dust-generating activities during windy periods, require the use of low-sulphur diesel, maintain exhaust systems according to manufacturers specifications, and other measures.

Overall, exhaust and fugitive dust emissions are expected to be short-term and intermittent. The operation of the turbines will have minimal impacts on air quality – vehicles using the unpaved roads for access may contribute to small increases in airborne dust from time to time. Decommissioning of the site should be addressed at the appropriate time to minimize dust impacts from site operations.

Summary of Technical Considerations: (provide in non-technical language)

The proponent should ensure that the generation of dust is kept to a minimum using the proposed mitigation methods and any other methods that are considered to be appropriate once construction starts.

Date: July 6, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Air Quality Unit, reviewed by Director, Air Quality and Resource Management

Subject: Weavers Mountain Wind Project

Scope of review:

This review focuses on the following mandate: Noise

Technical Comments:

Weavers Mountain Wind Limited Partnership proposes to construct and operate Weavers Mountain Wind Energy Project, a 94.4 megawatt (MW) wind development located near the community of Beaver Meadow, Antigonish County, Nova Scotia. The Project will consist of up to 16 wind turbines along with associated infrastructure, including access roads, substation, and interconnection lines. Wind power projects support the Government goals of achieving 80% of provincial electricity requirements from renewable sources by 2030 (*Environmental Goals and Climate Change Reduction Act* S.7 (l)) and progress towards cleaner air for Nova Scotians (*Environmental Goals and Climate Change Reduction Act* S.11 (c and d)).

Section 10.5 of the EA Registration Document contains the information on noise/sound assessment. The proponent states that pre-construction baseline sound levels at key receptor locations will be measured as part of the development of a Complaint Response Protocol to establish baseline conditions for future reference. The assessment of sound considered both construction and operational noise from the Project.

The range of decibels anticipated for the Project's construction activities are stated to be between 78 to 115 dBA from a single piece of equipment. Given that the construction footprint is widespread, sounds produced during construction have the potential to exceed 65 dBA, depending on activity type, at some potential receptors located within 500 m to the noise source. The proponent states that this would occur intermittently and over a very short time frame. Table 10.8 summarizes the "worst case" minimum, median, and maximum construction noise levels at varying distances from the source. The max noise level at 500 m from the source is anticipated to be 84.5 dBA and to occur during the use of handheld air tools. The median noise level at 500 m from the source is anticipated to be 65.5 dBA and to occur from vehicles. The proponent states that most project-related construction sound will be consistent with existing sound levels (from ATVs, pick-up trucks, Highway 104 re-routing project) in the area.

The proponent states that blasting activities are not anticipated at this time, but may be required depending on geotechnical conditions.

An operational sound assessment was completed using the windPRO version 3.5.552 software package. Potential receptors included all structures identified in GIS data from the Nova Scotia Geomatics Centre, as well as any additional identifiable structures based on aerial imagery and a field investigation. A total of 113 potential receptors were identified within 2 km of the Study Area. The assessment also included a surrogate baseline noise level of 35 dBA at each receptor location. The model followed ISO 9613-2 Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method and calculations.

Operational sound at receptor locations is predicted to comply with the guidelines adopted within Nova Scotia (40 dBA) and the highest predicted sound level at a potential receptor is 37.3 dBA.

The proponent states that a complaint response protocol will be developed, which will consider complaints related to sound and outline a process to investigate complaints. Mitigation to resolve complaints, if determined to be necessary, will be completed on a case-by-case basis in consultation with the affected landowner.

Summary of Technical Considerations: (provide in non-technical language)

If blasting is required, the proponent should notify receptors within the study area as these activities may result in noise levels over 65 db. Although a 35 dBA surrogate baseline noise level was included in the operational noise model, a baseline noise survey should be included to ensure turbine noise does not contribute to an exceedance of the 40 dB limit as stated in the EA Guide for Wind Power Projects in Nova Scotia.

Agriculture

Date: July 7, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Heather Hughes, Executive Director, Policy and Corporate Services,
Nova Scotia Department of Agriculture

Subject: Weavers Mountain Wind Energy Project
Antigonish County and Pictou County, Nova Scotia

Thank you for the opportunity to review the documents for the above-noted project.

No agricultural impacts are anticipated given that:

- The proposed location of the project is on class 7 land, which is unsuitable for agriculture.
- There are approximately 163 hectares of blueberries, 89 hectares of field crops, and 17 hectares of pasture within 2 km of the wind turbines.
- The closest registered farm to the proposed project location is a beef operation which is 3 km away from the nearest turbine.

M E M O

DATE: July 7, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

FROM: Provincial Director of Planning, Planning Services Branch

SUBJECT: **WEAVERS MOUNTAIN WIND ENERGY PROJECT, MUNICIPALITY OF THE COUNTY OF ANTIGONISH AND THE MUNICIPALITY OF THE COUNTY OF PICTOU**

Comment:

As requested, the Department of Municipal Affairs and Housing (DMAH) has reviewed the Registration Documents provided by WEB Weavers Mountain Wind Limited Partnership for the environmental assessment of the Weavers Mountain Wind Energy Project. All of the components considered under DMAH's areas of mandate have been adequately addressed.

Scope of Review:

This review focuses on the following mandates: the Statements of Provincial Interest and engagement with municipalities.

Technical Comments:

The Registration document lists the only municipal requirements as Building and Development Permits from both the municipalities of the counties of Pictou and Antigonish. The municipal planning strategies for these areas regulate only wind turbines, which are allowed in the proposed areas with a development permit. The Registration document also includes a table listing engagement with municipalities and noted that correspondence between the municipalities and the proponent has been ongoing to gather more information regarding the development permit requirements.

Statements of Provincial Interest:

- Drinking Water: No anticipated impact; not near a source of municipal drinking water.
- Agricultural Land: No anticipated impact; no agricultural land in the area.
- Flood Risk: No anticipated impact; not in an identified flood risk area.
- Infrastructure: No anticipated impact.
- Housing: No anticipated impact.

Summary of Recommendations (Provide in non-technical language):

There are no outstanding information and/or conditions. All components considered under DMAH's areas of mandate have been adequately addressed.

From: [Ferris, Kevin \(HC/SC\)](#) on behalf of [IA-ATL / EI-ATL \(HC/SC\)](#)
To: [Fitzpatrick, Allison](#)
Cc: [Allain, Jérémie \(HC/SC\)](#); [Maclean, Lachlan \(HC/SC\)](#)
Subject: RE: Weavers Mountain Wind Energy Project - EA Registration - Comments due July 7, 2023
Date: July 13, 2023 12:08:40 PM
Attachments: [Human Health Considerations in EA.pdf](#)

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Hello Allison,

As per your email below regarding The Weavers Mountain Wind Energy Project, please identify any project-related human health impacts to which you require advice and guidance from Health Canada.

HC's role in Impact/Environmental Assessment is founded in statutory obligations under the Canadian Impact Assessment Act, and its knowledge and expertise can be called upon by reviewing bodies (e.g., Impact Assessment Agency of Canada, review panels, Indigenous groups and/or other jurisdictions). In the absence of such a request from one of the above noted groups, HC is unable to carry out a comprehensive review of the project. **However, HC is able to accommodate specific requests for human health advice and guidance related to provincial environmental assessments within a reasonable timeframe.**

Health Canada currently possesses expertise in the following areas related to human health: air quality, recreational and drinking water quality, traditional foods (country foods), noise, and methodological expertise in conducting human health risk assessment.

To help with your review of human health impacts, I have attached a document of common human health considerations in project reviews and links to Health Canada's guidance documents.

Kind regards,

Kevin Ferris

Regulatory Operations and Enforcement Branch
Health Canada / Government of Canada
kevin.ferris@hc-sc.gc.ca

Direction générale des opérations réglementaires et de l'application de la loi
Santé Canada / Gouvernement du Canada
kevin.ferris@hc-sc.gc.ca

Human Health Considerations in Environmental Assessment

Health Canada (HC) provides the following generic considerations for evaluating human health impacts in environmental/impact assessment (EA/IA). Please note that this is not an exhaustive list of human health concerns that may result from projects, and that issues will vary based on project specifics. Please also note that HC does not approve or issue licenses, permits, or authorizations in relation to the IA. HC's role in Impact Assessment is founded in statutory obligations under the Canadian Impact Assessment Act, and its knowledge and expertise can be called upon by reviewing bodies (e.g., Impact Assessment Agency of Canada, review panels, Indigenous groups and/or other jurisdictions). In the absence of such a request from one of the above noted groups, HC is unable to carry out a comprehensive review of the project. However, HC is able to accommodate specific requests for human health advice and guidance related to provincial environmental assessments within a reasonable timeframe.

HC currently possesses expertise in the following areas related to human health: air quality, recreational and drinking water quality, traditional foods (country foods), noise, and methodological expertise in conducting human health risk assessment. Based on Health Canada's "*Guidance for Evaluating Human Health Impacts in Environmental Assessment*", please consider the following information on these topics to assist in your review.

	Consideration	Reference Document
Receptor Location(s)		
Please ensure the registration document clearly identifies the locations of all receptors that may be impacted by the proposed project, including any receptors located along the transportation route, if applicable.	<ul style="list-style-type: none"> It is important to clearly describe the location and distance from the proposed site(s) to all potential human receptors (permanent, seasonal or temporary), taking into consideration the different types of land uses (e.g. residential, recreational, industrial, etc.), and identifying all vulnerable populations (e.g. in schools, hospitals, retirement or assisted living communities). Note that the types of residents and visitors in a particular area will depend on land use, and may include members of the general public and/or members of specific population subgroups (Indigenous peoples, campers, hunters, etc.) 	<p>Section 7.1.3 of <i>Health Canada. 2019. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.</i></p> <p>https://publications.gc.ca/site/eng/9.870475/publication.html</p>

	<ul style="list-style-type: none">• If there is the potential that project-related activities could affect human receptors, impacts to human health should be considered.	
Atmospheric Environment		
<p>Project impacts to the atmospheric environment include changes to air quality and noise, and can occur in both the construction, operation and decommissioning phases of the project. Project impacts to air quality are commonly caused by emissions from equipment or vehicles as well as by dust. Noise impacts are commonly caused by equipment as well as by activities such as blasting.</p>	<ul style="list-style-type: none">• If there are receptors that could be affected by project-related activities, impacts to the atmospheric environment should be considered. Changes to the atmospheric environment that may impact human health include:<ul style="list-style-type: none">○ impacts to air quality (dust or fumes including PM_{2.5}, NO_x, SO_x, PAHs)○ increased noise from construction or operations	<p><i>Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.</i> http://publications.gc.ca/pub?id=9.832514&sl=0</p>
	<ul style="list-style-type: none">• If there are receptors who could be impacted by project-related noise, it may be necessary to inform receptors prior to loud activities, such as blasting.	<p><i>Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.</i> http://publications.gc.ca/pub?id=9.802343&sl=0</p>
	<ul style="list-style-type: none">• If there is the potential for impacts to human receptors from noise and/or air quality changes from the project, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required.	
Recreational and Drinking Water Quality		
<p>The proponent should consider whether any nearby waterbodies are used for recreational (i.e. swimming, boating, or fishing) or drinking water purposes, as well as whether there are any drinking water wells in the area potentially impacted by the project. Nearby drinking and/or recreational water quality may be impacted by accidents or malfunctions, such as a fuel spill; by dust and</p>	<ul style="list-style-type: none">• If there is the potential for impacts to drinking and/or recreational water quality from the project site, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required.	<p><i>Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.</i> http://publications.gc.ca/pub?id=9.832511&sl=0</p>
	<ul style="list-style-type: none">• The proponent should consider preparing a response plan in the event of an accident or malfunction with the potential to impact drinking and/or recreational water quality. Response plans should include a spill response kit, adequate spill response training, and a communication plan to notify all recreational and drinking water users in the impacted area as well as all relevant authorities.	

increased sediment runoff; and by other chemical discharges to the environment. Additionally, wells in the area potentially impacted by the project may be impacted by activities such as blasting.	<ul style="list-style-type: none"> In some cases, for projects that are likely to have an impact on drinking and/or recreational water quality, the proponent should consider conducting water monitoring prior to the start of the project (to establish a baseline). Monitoring would continue throughout the construction, operation and decommissioning phases of the project (as applicable) to monitor for any changes in water quality or quantity. 	
Country Foods		
If there are plants or animals present in the area potentially impacted by the project that are consumed by humans, there may be potential for impacts to country foods. The proponent should consider all country foods that are hunted, harvested or fished from the area potentially impacted by the project. Impacts to country foods may occur from the release of contaminants into soil or water (including from an accident or spill) or from deposition of air borne contaminants.	<ul style="list-style-type: none"> If there is the potential for impacts to country foods from the proposed project, the proponent should consider establishing mitigation measures. If complaints are received additional mitigation measures may be required. The proponent should consider preparing a response plan in the event of an accident or malfunction with the potential to impact country foods. Response plans should include a spill response kit, adequate spill response training, and a communication plan to notify all potential consumers of country foods in the impacted area as well as all relevant authorities. 	<p><i>Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario.</i></p> <p>http://publications.gc.ca/pub?id=9.855584&sl=0</p>

For more information on HC's guidelines for evaluating human health impacts in environmental assessments, please see:

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Noise. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <http://publications.gc.ca/pub?id=9.832514&sl=0>

Appendix B of this guidance document provides a checklist that may be beneficial in verifying that the main components of a noise environmental assessment are completed.

Health Canada. 2016. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Air. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <http://publications.gc.ca/pub?id=9.802343&sl=0>

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of an air quality environmental assessment are completed.

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Water Quality. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <http://publications.gc.ca/pub?id=9.832511&sl=0>

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of a water quality environmental assessment are completed.

Health Canada. 2017. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Country Foods. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <http://publications.gc.ca/pub?id=9.855584&sl=0>

Appendix A of this guidance document provides a checklist that may be beneficial in verifying that the main components of a country foods environmental assessment are completed.

Health Canada. 2019. Guidance for Evaluating Human Health Impacts in Environmental Assessment: Human Health Risk Assessment. Healthy Environments and Consumer Safety Branch, Health Canada, Ottawa, Ontario. <https://publications.gc.ca/site/eng/9.870475/publication.html>

Appendix B of this guidance document provides a checklist that may be beneficial in verifying that the main components of a human health risk assessment are completed.

Date: July 13, 2023

To: Allison Fitzpatrick, Environmental Assessment Officer

From: Department of Natural Resources and Renewables

Subject: Weavers Mountain Wind Energy Project, Antigonish & Pictou Counties

Scope of review:

This review focuses on the following mandate: Clean Energy, Mineral Resource Act and regulations, biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation, including Old Growth forest.

Technical Comments:

Clean Energy Branch:

The proposed project is part of the current successful Rate Base Procurement portfolio resulting from the 2022 Request for Proposals process.

Wind energy projects such as Weavers Mountain Wind Energy Project is the only low-cost solution to transition Nova Scotia's electricity system off carbon and achieve our climate change goals. New generation resources such as wind will assist Nova Scotia transition its electricity system from the use of coal-fired generation that has direct negative impacts, including air pollution and greenhouse gas emissions.

The transition of our electricity system to renewable energy is part of the province's plans and commitments to climate change mitigation.

Wind energy is the lowest cost of energy world-wide and local deployment of wind energy is anticipated to save rate payers of Nova Scotia millions of dollars over the lifetime of their operation while also reducing the emissions and pollution intensity of the electricity system.

Wind energy will help the electricity system avoid output-based price compliance for greenhouse gas emissions in Nova Scotia resulting in less upward pressure on rate payers through fuel.

Transitioning the electricity system to renewable energy is the most cost effective and significant action the province can undertake to reduce its greenhouse gas emissions in the near term.

This project is in partnership with Glooscap First Nation meeting the Departments mandate on inclusion of the Mi'kmaq in the transition of the electricity system.

Geoscience and Mines Branch:

This review was conducted through the lens of requirements as laid out under the Nova Scotia *Mineral Resources Act* and its associated regulations.

GMB has determined the following:

- 1) There are active mineral exploration licences partially within the study area of interest.

Staff of the Nova Scotia Geological Survey (Natural Resources and Renewables) visited the Weaver's Mountain site on June 24, 2023 to conduct a preliminary review of the Weaver's Mountain Wind Project footprint area. Identified in the field visit was geologic formations related to the Windsor Groups, which can have associated risks related to karst, uranium and radon.

Biodiversity Branch:

This review focuses on the following mandate: biodiversity, species at risk status and recovery, wildlife species and habitat management and conservation, including Old Growth Forest.

During this review the following items have been observed:

- The Study Area should surround and include the Project Area and be of sufficient size to assess the expected impacts of the project on the Valued Components (VC).
- All relevant literature and associated data layers for Brook Floater needed to be considered (e.g. core habitat, NS Recovery Plan for Brook Floater)
- Surveys for Species at Risk (SAR) aquatic molluscs were not noted in the EARD and mitigations for watercourse crossings to address that risk in southern portion of Project footprint were not provided.
- Black Ash (*Fraxinus nigra*) Core Habitat occurs within 800 m of the Study Area, and 1.5 km from project infrastructure. Black Ash surveys are strongly recommended prior to vegetation clearing due to limited surveying presented in the EARD.
- Details of lichen surveys, including survey tracks and observations, were not provided as part of the EARD and are required to be provided as per the At-Risk-Lichens Special Management Practices to determine if requirements were met.
- Details of terrestrial flora surveys were not provided in the EARD.
- Details of the Mainland Moose habitat model are required to assess its validity. It was not observed in the EARD if proponent has interpreted the biophysical parameters for Core Habitat correctly and all necessary habitat types do not appear to have been considered, suitability rankings encompassing distances

between habitat types are beyond those recommended in the recovery plan, and rankings are provided that do not make sense in the absence of data.

- Wood Turtle surveys should be conducted three times during the appropriate timing window to determine presence/absence in the area. Additional mitigation measures should be required in the absence of adequate surveying.
- Due to lack of clarity, data gaps, and analysis gaps, it is not possible to determine if there are areas of significant or protected bat habitat within the Study Area. Risk to breaching prohibitions under the Endangered Species Act (ESA) should be considered high. Hoary Bat (*Lasiurus cinereus*), Silver-haired Bat (*Lasionycteris noctivagans*) and Eastern Red Bat (*Lasiurus borealis*) were detected during EARD surveys and are assessed as Endangered by COSEWIC. Renewable wind energy is considered a high-level threat and should be addressed by mitigation measures in the Wildlife Management Plan (WMP).
- Radar and acoustic monitoring for birds was missing information to adequately determine risk. Methodologies incomplete or inconsistently presented. Surveys should be conducted during the spring migration window of March 15 - June 7, and fall migration window of July 15 – November 30. The proponent does not provide reference studies to support conclusions derived from the partial results.
- Important details on the number of SAR/SoCC species, and location have not been provided in the EARD text which is needed to inform and review mitigation approaches.
- Details of mitigations of impacts for migratory species relating to noise and lighting associated with construction and operation are insufficient and should be addressed in the WMP and AMP.
- Details of SAR bird habitat assessments were not provided. Information suggests suitable habitat exists within the Assessment Area and Study Area but the loss of habitat has not been quantified.

Summary of Technical Considerations: (provide in non-technical language)

Clean Energy Branch:

The EA process does not currently allow for the comparison and reflection on the climate change or environmental related benefits of transitioning the electricity system from fossil fuels to renewable energy. The long-term use of coal-fired generation for our electricity system has had significant cumulative negative impacts to the environment, climate, and human and animal health as a result of air pollution and other related pollutants from coal-fired generation. New renewable energy projects, such as wind energy, must be considered in comparison to the status quo and the benefits that result from the transition of the electricity sector to renewable energy.

There are substantial benefits to the health and welfare of the ecosystem in Nova Scotia that is a result of switching coal-fired generation for new renewable energy resources.

It is recommended this project proceed with the appropriate mitigation measures captured in terms and conditions to ensure sustainable development of wind energy in Nova Scotia.

Geoscience and Mines Branch:

Recommendations:

- 1) A review is to be completed through NovaRoc to determine which exploration licenses could be affected by this proposed project. Please contact the Registry of Mineral and Petroleum Titles if assistance is required in performing this task.
- 2) Engagement to notify the owners of the affected mineral rights is required, and to discuss potential impacts of activities.
- 3) Complete a comprehensive geological review to investigate potential karst features and better understand the structural integrity of the underlying bedrock, especially for building and other infrastructure development in site-specific areas.
- 4) Radiometric testing and assessment of underlying bedrock to inform possible mitigation measures for the presence of uranium mineralization and radon gas.

Biodiversity Branch:

The department offers the following recommendations:

- It is the responsibility of the proponent to ensure compliance with federal and provincial legislation and regulations regarding resident, migratory and at-risk bird species and their habitats (e.g., Species at Risk Act, Migratory Birds Convention Act, Fisheries Act, NS Endangered Species Act, NS Wildlife Act, and their regulations).
- Obtain all necessary permits as required under legislation related to wildlife and species at risk in order to undertake the project. Should work commence prior to the development of a Wildlife Management Plan, the proponent should contact NRR (biodiversity@novascotia.ca) to discuss permits, particularly if the project has potential impacts on threatened or endangered species. The absence of

effective mitigations may lead to breaches in prohibitions as per s.13(1) of the Endangered Species Act.

- Provide digital way points and/or shapefiles for all Species at Risk, Species of Conservation Concern to NRR (those species listed and/or assessed as at risk under the Species at Risk Act, Endangered Species Act, COSEWIC, and all S1, S2 and S3 species) and all flora and fauna surveys. Data should adhere to the format prescribed in the NRR Template for Species Submissions for EAs and are to be provided within two (2) months of collection.
- Habitat suitability modeling should be provided to NRR at biodiversity@novascotia.ca.
- Prior to the development of a Wildlife Management Plan (WMP), field surveys should occur to address information gaps that prevent a full risk assessment to SAR or SOCC. Methodology and timing must follow standard science-based protocols and must be of sufficient scale and detail to inform the development of mitigation measures.
 - Surveys for Black Ash must be conducted prior to vegetation clearing and results of the surveys be provided to NRR.
 - Surveys for at-risk mollusks should be conducted prior to project commencement, and results of the surveys provided to NRR.
 - Provide sufficient detail on surveys or conduct surveys for: Lichens, terrestrial flora, Wood turtle, bat roost or maternity colonies, Common nighthawk
- Provide at least two (2) years of pre-construction radar and acoustic monitoring for bird and bat species. The following approach is recommended: A minimum of two (2) years of consecutive baseline surveys, provided that at least one of these survey years is conducted prior to the construction phase of the project.
- Develop a Wildlife Management Plan (WMP) based on standard, science-based practices, which shall include:
 - Communication protocol with regulatory agencies.
 - General wildlife concerns (e.g., human-wildlife conflict avoidance).
 - Mitigation measures to promote safety and prevent spread of Avian Influenza.
 - Education sessions and materials for project personnel on Species at Risk, non-Species at Risk wildlife, and other important biodiversity features they may encounter on-site and how to appropriately respond to those encounters.
 - Noise, dust, lighting, blasting, and herbicide use mitigations.
 - Measures to protect and mitigate against adverse effects to migratory birds during construction and operation. This may include avoidance of certain activities (such as vegetation clearing) during the regional nesting period for most birds, buffer zones around discovered nests, limiting activities during the breeding season around active nests, and other best management practices.
 - Seasonal adjustments to mitigation must be provided in the WMP to

address variation in target densities for the spring migration period relative to the fall migration period to reduce/prevent mortality events.

- The recommended avoidance window for breeding birds is April 5th-August 28th.
 - Mitigations to proactively protect bats and avifauna against mortality from turbine strikes and barotrauma. This may include implementing turbine deterrents, seasonal or detection-based shutdown systems for turbines, and prevention of turbine blade feathering.
 - Determine if breeding bird survey results were correlated with the wetlands assessed as part of the EARD.
 - Mitigation measures consistent with recovery documents (federal and/or provincial recovery and management plans, COSEWIC status reports) to avoid and/or protect Species at Risk/Species of Conservation Concern and associated habitats discovered through survey work or have the potential to be found on site (e.g., Mainland moose, Monarch, Migratory and Non-migratory bats, Chimney swift).
 - Landscape connectivity assessment in relation to Mainland Moose. Habitat fragmentation.
 - Details on monitoring and inspections to assess compliance with the WMP.
 - The components of the WMP that address expected impacts during each phase of the project must be finalized before that phase begins (this includes the construction phase).
- **NOTE:** Consultation on the Wildlife Management Plan with relevant regulatory agencies is strongly recommended. Review of the WMP by NRR can reduce the risk of impacts to biodiversity and to breaching prohibitions related to statutes.
 - Develop a monitoring program to assess mortality for birds and bats in consultation with NRR and ECCC and implement for a minimum of two (2) years post-construction. Reporting of the results of the monitoring program shall be on an annual basis to the appropriate regulatory agencies. Additional surveys or mitigations may be required following review of the results.
 - Develop an adaptive management plan in consultation with NRR and ECCC to inform decision-making related to adverse effects of the project on migratory birds and all bat species.
 - Revegetate cleared areas using native vegetation or seed sources.
 - Update cumulative effects assessment and assessment of impacts of the project on landscape-level connectivity for wildlife and habitat (e.g., habitat fragmentation, loss of intact forested habitat, increased road density). Measures proposed to mitigate those effects must be provided.

- Conduct surveys for Mainland Moose for a minimum of two (2) years during the operation phase of the project, in a buffered zone of influence extending up to two (2) kms from the project footprint, to assess potential effects of disturbance within core habitat.

IMPORTANT:

- Always provide a response back to the EA Branch, even if it is simply to confirm that there is “no comment.”
- The comments will be published on the EA website on decision day (privacy review is NOT conducted on comments from government).

From: [Wade, Suzanne \(ECCC\)](#)
To: [Fitzpatrick, Allison](#)
Cc: [Hingston, Michael \(il, lui | he, him\) \(ECCC\)](#); [Wade, Suzanne \(EC\)](#); [Keeping, Brent \(ECCC\)](#)
Subject: FW: Weavers Mountain Wind Energy Project, NS - EA Registration (EAS# 23-NS-014) - ECCC Comments
Date: July 17, 2023 9:59:45 AM
Attachments: [BatSAR_SurveyProtocol_Treed_Habitats_ONMNRf_2017.pdf](#)
[Wind_CWS Atlantic Guidance Update for Wind Energy and Migratory Birds - April 2022_EN.pdf](#)

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

Exercise caution when opening attachments or clicking on links / Faites preuve de prudence si vous ouvrez une pièce jointe ou cliquez sur un lien

Hi Allison,

Environment and Climate Change Canada (ECCC) has reviewed the Weavers Mountain Wind Energy Project, submitted by WEB Weavers Mountain Limited Partnership, to install up to 16 turbines (6.2 MW = 99 MW total, 206.5m total height), including access roads (upgrading 13.3km of existing road network and construction of 11.3 km of new access roads), and associated infrastructure, located near the community of Beaver Meadow, Nova Scotia, and we offer the following comments:

Wildlife Comments

Included Attachments:

- Environment and Climate Change Canada's Canadian Wildlife Service (Atlantic Region) "Wind Energy & Birds Environmental Assessment Guidance Update" (ECCC-CWS-ATL, 2022) (available in French) (not available online).
- Ontario Ministry of Natural Resources and Forestry (OMNRF)'s "Survey Protocol for Species at Risk Bats within Treed Habitats Little Brown Myotis, Northern Myotis and Tri-colored Bat (OMNRF, [2017](#)).

Specific Comments:

-

General

1. *ECCC-Canadian Wildlife Service (CWS) requests the Nova Scotia Department of Environment and Climate Change (NSECC) to [please omit bat hibernacula](#) location information included in environmental assessment documentation and drawings posted online since this information is considered sensitive and could result in further disturbance of species at risk and their critical habitat.*
2. Per the Canada Gazette Part II, published on June 8, 2022 ([Canada Gazette, Part II, Volume 156, Number 12: Migratory Birds Regulations, 2022](#)) the modernized Migratory Birds Regulations (MBRs) came into effect on July 30, 2022, which allows for flexibility with respect to the removal of nests. Per the new provisions under the modernized MBRs, the nests of all migratory bird species are protected when they contain a live bird or a viable egg (i.e. during the nesting period), excluding the nests of 18 species whose nests are reused and remain protected year-round (listed in Schedule 1 of the MBRs).

For more information on the amended nest protections, frequently asked questions on how these protections apply to migratory birds and your responsibilities for reporting abandoned nests, please visit [Fact Sheet Nest Protection Under the Migratory Birds Regulations, 2022](#) and [Frequently Asked Question, Migratory Birds Regulations, 2022](#).

3. Section 3.3.2 Operation and Maintenance (page 1), ECCC-CWS notes: “A vegetation management plan will be initiated to ensure that access roads and turbine locations remain clear of vegetation. Vegetation management will include removal and pruning. Timing of vegetation management will depend on site-specific conditions”.

ECCC-CWS recommends identifying measures to avoid/minimize impacts to migratory birds for “Operation and Maintenance” activities planned during the migratory bird breeding season, including measures to avoid potential impacts to ground nesting species (e.g. Common Nighthawk), which may be attracted to cleared and grown-over areas (e.g. cleared areas for roads, turbine pads, roads and roadsides, grown-over areas - tall grass and shrubs) (see general guidance below).

4. Section 3.3.4. Environmental Management and Protection (page 16), ECCC-CWS notes that “An Environmental Protection Plan (EPP) will be developed following EA approval. The EPP is the primary mechanism for ensuring that mitigation is implemented as determined through the EA process, to avoid or mitigate potential adverse environmental effects that might otherwise occur from construction activities, and as required by applicable agencies through permitting processes”.

If additional surveys are planned as part of an EPP or monitoring plan, and there is an expectation that additional mitigation measures or adaptive management will be required as a result, ECCC-CWS recommends that this be indicated in the condition(s).

When considering potential approval conditions related to migratory birds and/or migratory bird species at risk, ECCC recommends clarifying what elements are expected to be included, and that the consultation process is clear for all parties. The preference for ECCC is that any documents and requests for advice from the proponent be submitted and coordinated through the Nova Scotia Department of Environment and Climate Change (NSECC), as part of their environmental assessment (EA) process under their jurisdiction.

It should be understood that ECCC-CWS does not have any permits, authorizations or approvals in relation to the proposed project. Any advice that is provided by ECCC-CWS is intended to support the NSECC’s EA process to determine if potential residual effects are likely, and identify measures to avoid/minimize/lessen and monitor those effects to ensure compliance with the Migratory Birds Convention Act (MBCA) and the Species at Risk Act (SARA).

If the project proceeds, the proponent should be advised that provincial conditions of approval do not supersede their responsibility to ensure that activities comply with the MBCA and associated regulations. For all activities and during all Project phases, the Proponent must take measures to avoid the disturbance or harm of migratory birds, nests, and eggs.

Wetlands (7.3.3)

5. The Federal Policy on Wetland Conservation in Canada (FPWC) applies to this project. The Project is being financed through the Government of Canada (GoC) federal funding program (Natural Resources Canada’s Smart Renewables Electrification Pathways Program).

ECCC-CWS notes that: “Field surveys completed during summer 2022 and spring 2023 identified 29 wetlands either partially or fully within the Assessment Area (Drawings 712A to 7.12Q). Detailed results are found in Appendix H.”

Section 7.3.3.2 Regulatory Context, it is stated that “The Nova Scotia Wetland Conservation Policy outlines a policy goal of no loss of WSS and no net loss in area and function of other wetlands (NSECC, 2019)”... “Nova Scotia considers a wetland alternation to be any activity that may affect wetland function and habitat. Such

activities include, but are not limited to, excavating flooding, infilling, or draining (NSECC, 2019)”.

In section 7.3.3.6 Effects Assessment, ECCC-CWS notes that there are several areas of proposed/potential wetland alteration via existing road upgrades and new road construction, resulting in a total area of potential alteration of 6.39 ha. It is unclear if this calculation includes loss of wetland function via indirect effects (e.g. temporary effects such as soil disturbance, loss of wetland functions of wetland-dependent migratory bird species, etc.). ECCC-CWS recommends that the Proponent identify any alterations (temporary and permanent) caused by the Project within 30 m of wetlands.

There are observations of several migratory bird species at risk (SAR) and species of conservation concern (SoCC) that are dependent on wetland habitats as part of their lifecycle which were found in the Project local assessment area during desktop studies and field surveys (e.g. Common Nighthawk, Chimney Swift, Canada Warbler, Olive-sided Flycatcher, Eastern Wood Pewee, Spotted Sandpiper, Solitary Sandpiper, American Woodcock, etc.).

ECCC-CWS recommends that the proponent consider potential indirect effects to wetland habitat functions, including habitat loss of wetland-dependent migratory species in finalizing their design plans and the application of both federal and provincial wetland policies.

For consideration, there will soon be a GoC requirement to qualitatively and quantitatively assess the carbon sink capacity, and potential impacts on carbon stocks and sequestration of ecosystems in the scope of the project (see section 3.4.3, section 4 and Annex D of the “Draft Technical Guide Related to the Strategic Assessment of Climate Change: Guidance on quantification of net GHG emissions, impact on carbon sinks, mitigation measures, net-zero plan and upstream assessment” available at: [Strategic Assessment of Climate Change \(strategicasessmentclimatechange.ca\)](https://strategicasessmentclimatechange.ca)). This requirement ensures consideration of climate change and Canada’s target of achieving net-zero greenhouse gas emissions by 2050 throughout the federal impact assessment process. Carbon sinks include wetlands (e.g. marsh, bog, fen, swamp), as well as forest land, cropland and grassland because alterations threaten the capacity for these ecosystems to sequester carbon and their existing carbon stores.

While there is no federal impact assessment under the Impact Assessment Act related to this project, as a best practice, ECCC recommends that the Proponent consider the potential impacts on wetland carbon sinks as part of their GHG emissions calculation and impacts to wetland functions.

ECCC-CWS recommends that hydrological functions not be disturbed to prevent indirect impacts to carbon stocks and sequestration.

ECCC-CWS also notes that there is mention that disturbance of wetlands creates methane emissions; this is incorrect – wetlands release carbon dioxide when altered and drained.

Terrestrial Habitat (Section 7.4)

6. Several types of migratory bird habitat are in decline in Nova Scotia, including mature coniferous forest, mature deciduous forest and mature mixed forest. ECCC-CWS recommends that a map that identifies mature forest habitat in relation to proposed project infrastructure be included in the review, including an analysis of project impacts on migratory birds species that use these habitats and taking into account cumulative losses.
7. Page 124, ECCC-CWS notes that it is stated that: “The Old-Growth Potential Index ranks forest stands to determine where with the highest potential for old-growth can be found. No highest-ranking stands were found to intersect with the Assessment Area.”

ECCC-CWS recommends that the proponent clarify what old growth habitat exists within the Local Assessment area (i.e. how much, location maps where it occurs, and potential overlap with project activities).

While the proponent didn't find any of the "highest ranking stands", ECCC-CWS recommends that the Proponent identify and describe what mature forest they did find in the assessment area.

ECCC-CWS notes that old growth forest is important for many species at risk, and of particular interest for Chimney Swift and bats.

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Avifauna (Section 7.4.5) (Habitat Modelling Results - Figures – Part 10 - Drawings 7.27A to 7.28E)

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8. Pages 194, ECCC-CWS notes: "Chimney Swifts were observed during both nocturnal and breeding point count surveys, though no confirmed breeding behavior was observed during those surveys".... "Common Nighthawks were observed in abundance during nocturnal field surveys, primarily foraging and passing overhead. While these observations are consistent with potential breeding behaviours, no confirmed breeding evidence was observed. Modelled habitat suggest there is ample breeding habitat available for these birds, including along roads (both active and unused) throughout the Study Area (Drawing 7.27 C)".

The lack of confirmed breeding evidence should not be used to infer minimal impact or interaction with the project activities. ECCC-CWS recommends that observations of SAR landbirds singing or displaying in suitable habitat during the breeding season should be taken as evidence of possible breeding; confirmed breeding evidence is often difficult to obtain (or at least takes extended observation not usually observed during a point count).

Based on the high number of observations of Chimney Swift (CHSW) (37) and Common Nighthawk (CONI) (53) found during surveys and habitat modelling results, these species are very likely breeding and are foraging in the area. These species are at higher risk of collision with turbines during the breeding season since they are known to occupy open habitat areas in search of flying insects.

CONI are likely breeding in the 15% of the habitat that is "harvests". This species is at higher risk of collision with turbines and blades because they are crepuscular and potentially nocturnal, flying around at dark in search of food at varying heights above ground level, depending on where the flying insects are located on any given night. They also defend their territories by aerial displays (wing booms) that might make them more susceptible to collisions if they choose to nest close to turbines.

ECCC-CWS recommends that the proponent identify mitigation measures, such as post-construction monitoring, including nightjar surveys (dusk and dawn), mortality monitoring and adaptive management measures to prevent bird strikes during the breeding season. Nightjar surveys will help to determine if these species are being displaced by the project. While mortality surveys will assist in determining whether these species are colliding with turbines or turbine blades, or whether they are able to avoid them while foraging at night.

CHSW do not forage at night, however, they do return to their roost shortly after sunset which could result in collision if turbines are located in an area where there are many CHSW returning to a roost at dusk.

9. Page 171, it is stated that: "Due to the observation of Chimney Swift in the Study Area, areas of dead stands were mapped for reference. Areas within 300m of wetlands were also mapped because 3/5 main insect orders consumed by the Chimney Swift are associated with wetlands (NSNRR, 2007, ECC, 2007)."

ECCC-CWS appreciates efforts to map and avoid wetland habitat and CHSW habitat to minimize potential effects; however, natural structures used by Chimney Swift for nesting include living or dead trees with hollow trunks, cavities, excavated by Pileated Woodpeckers, and rock crevices (COSEWIC, 2018).

ECCC-CWS recommends targeted CHSW surveys to better understand use of this area; however, ECCC-CWS recognizes that finding natural roosting and nesting locations can be difficult. As a first step, the proponent is encouraged to conduct a habitat assessment for old forest ecosites that could have large diameter living and dead trees for potential nesting/roosting (>50 cm diameter at breast height (dbh) with hollows or cavities for potential nests and roosts, much the same way we recommend these areas assessed for bat maternity roosting habitat. The proponent is also encouraged to search anthropogenic structures that could be suitable in the area (e.g., buildings with chimneys, barns).

If there is CHSW habitat (e.g. roosting, nesting, foraging) found in the study area, ECCC-CWS recommends habitat be avoided during design plans, and mitigation measure identified to conserve habitat for this species (e.g. buffers, monitoring).

ECCC-CWS recommends that mitigation measures include protecting large diameter nesting/roosting trees (>50 cm dbh) with a minimum 100 m buffer.

ECCC-CWS notes that any record of CHSW using natural nesting/roosting structures is considered important since there are not many records of CHSW using natural structures. Any structure (natural or anthropogenic) used for roosting or nesting is considered a 'residence' protected year-round under the Species at Risk Act (SARA) for CHSW until there is documented evidence that it has not been used for three consecutive years. Activities that may damage or destroy the residence of CHSW include, but are not limited to, changing the micro-climate of the roost site, modifying or destroying the roost site, blocking access to the roost site, moving or otherwise disturbing the roost site, or any other activity that would destroy the function of the structure for roosting. The Recovery Strategy for the Chimney Swift (*Chaetura pelagica*) in Canada [Proposed] (2022-03-17) is available: [Chimney Swift \(Chaetura pelagica\) \(canada.ca\)](https://www.canada.ca/en/species-at-risk/recovery-strategies/chaetura-pelagica).

If natural or anthropogenic CHSW roosting/nesting habitat is found in the local assessment area, ECCC-CWS recommends conducting species-specific surveys with at least two surveys during each period (i.e. nesting and roosting). The Maritimes Swiftwatch Survey Protocol (Updated April 2021) is available for references at: [Maritimes_Swiftwatch_Protocol_2021.pdf \(b-cdn.net\)](https://www.b-cdn.net/Maritimes_Swiftwatch_Protocol_2021.pdf) replacing the "chimney" with "tree". The best time to detect nesting swifts is during daytime surveys in July for a minimum of 60 minutes on warm days/evenings with low and little cloud cover, when they are making frequent trips to feed growing young. The best time to detect roosting swifts is at dusk in late May, or late July/early August. Surveys are recommended for 60 minutes or until a swift is detected entering or exiting the tree.

10. ECCC-CWS notes that the Avian Acoustic Data was processed using Wildlife Acoustic Kaleidoscope's cluster analysis capabilities and the signal parameters used for this analysis included: 0.1 – 7.5 s length of detection.

Night flight calls of landbird species tend to be extremely brief (as short as 40 milliseconds for a handful of species. In terms of default Kaleidoscope settings, 0.1 seconds is equal to 100 milliseconds, and any calls that are less than 0.1 seconds would not be recognized by the software. As a result, the chosen analysis technique likely missed many (or possibly most) of the night flight calls of nocturnally migrating landbirds of concern.

ECCC-CWS recommends redoing the analysis using a lower call duration standard on the bottom end to address this information gap.

11. Avian Radar Assessment Methods, ECCC-CWS notes that avian radar assessments were undertaken, as

recommended, during the spring 2022 and fall 2022 migratory bird periods to assess bird activity in the airspace above the Study Area. ECCC-CWS notes that the number of bird detections were analyzed by date, and by height bin (for the vertical radar modes) or range bin (for the horizontal radar modes). To assist in understanding how birds are using the Project Area, ECCC-CWS recommends that the proponent provide the time of night that birds were detected and include a discussion of bird movements, flight heights AGL and how these differed through the night.

12. Section 7.4.5.10 Effect Assessment (page 192), it is stated: “Project activities, primarily those that involve earth moving or vegetation removal, or interactions with avifauna in the airspace have the potential to impact avifauna (Table 7.68). These activities could result in habitat removal, reductions in food availability, and direct bird-turbine interactions. Other Project related activities, including during construction and operation, may impact avifauna behaviors, such as increased traffic and noise.”

In the mitigation measures, the proponent plans to avoid important habitat, wetlands, waterbodies, old growth forest, etc. to the “extent possible”. ECCC-CWS recommends removing ambiguous wording such as “to the extent possible”. The proponent should clearly describe in the assessment of effects where effects can’t be avoided/minimized, and a proposed plan to mitigate impacts (e.g. buffers, biodiversity offsets, etc.).

In addition to proposed mitigation outlined in the EA and site-specific post-construction monitoring plan(s) as part of the EPP (not included for review), ECCC-CWS recommends the Proponent identify proposed mitigation and monitoring measures to avoid adverse effects following the precautionary principle, including preventative mitigation measures related to turbine rotor operations (e.g. temporary remote shutdowns, reducing cut-in speeds or altering the pitch/feathering of blades, monitoring weather conditions, etc.) during optimal bird and bat migration conditions.

13. ECCC’s Wind Energy & Birds EA Guidance (ECCC, 2007(a)(b), and ECCC-CWS Atlantic Region Guidance Update ECCC, 2022)(attached) is recommended as a reference for guidance on pre and post-construction monitoring studies. ECCC-CWS recommends that pre-construction and proposed post-construction studies be conducted in a consistent manner and be compared to assess and quantify any changes in migratory bird species assemblage, density, and behaviours.
14. ECCC-CWS recommends scheduling high disturbance activities (e.g. vegetation clearing, blasting) outside of the migratory bird breeding season. While the general breeding season for migratory birds extends from April to July, some species nest outside of this timeframe. For example, early nest nesters, such as Killdeer, observed in the study area, breed between March and July. ECCC-CWS recommends consulting regional nesting zones and calendars when planning clearing activities, available at: <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html>

ECCC-CWS does not recommend nest searches or sweeps in vegetation prior to clearing during the breeding season, except when the nests searched are known to be easy to locate without disturbance (e.g. previously cleared area, simple habitats, low vegetation).

15. Some ground nesting species of migratory birds, including CONI, are attracted to previously cleared areas for nesting in the spring and summer if there is a delay between clearing activities (e.g. clearing conducted in the fall/winter and construction scheduled in the spring and summer). CONI are very cryptic in coloration and finding a bird on the nest or a nest site can be challenging. The use of active nest searching techniques must be carefully evaluated because the risk of disturbing active nests is high. Flushing nesting birds increases the risk of predation of the eggs or young, or may cause the parent birds to abandon the nest.

Should an adult be flushed from the ground or display agitated behaviour, it should be suspected that a nest or

chicks are present, work in the area should be halted, and ECCC-CWS should be contacted for further advice.

16. ECCC-CWS notes three records of Pileated Woodpecker during the breeding season (Breeding Bird Survey 2022). The nests of Pileated Woodpecker are listed on Schedule 1 of the amended Migratory Bird Regulations (2022) and have year-round nest protection, unless they have been shown to be abandoned. For more information on the amended nest protections, frequently asked questions on how these protections apply to migratory birds, including Pileated Woodpecker, and responsibilities for reporting abandoned nests, please visit [Fact Sheet Nest Protection Under the Migratory Birds Regulations, 2022](#) and [Frequently Asked Question, Migratory Birds Regulations, 2022](#). Information on Pileated Woodpecker nest cavities can be found on ECCC's website: [Pileated Woodpecker Cavity identification Guide, Damage or Danger Permits for Nest Destruction: Pileated Woodpecker nesting cavities - Canada.ca](#) and [Damage to the Use of the Land: Pileated Woodpecker nesting cavities - Canada.ca](#)
17. ECCC notes three records of Common Loon (*Gavia immer*) during the breeding season (Breeding Bird Survey, 2022). This species generally place their nests on the ground, and usually on the sheltered side of islands and facing mainland, on the edges of smaller lakes (if no islands are present), or on floating vegetation in bogs.

ECCC-CWS recommends a 200 meter buffer from Common Loon nests (e.g. road construction near a lake) during the months of May, June or July, and avoiding high disturbance activities (e.g. drilling, blasting) within 1000 meter of active Common Loon nests during the regional nesting season, including before nest initiation.

Bats (Section 7.4.4 and Appendix K)

18. ECCC-CWS recommends that the proponent contact the NSNRR for technical expertise and advice related to bat SAR under their jurisdiction and responsibility.
19. Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) are small, insectivorous bats species at risk (SAR) that are listed as Endangered (SARA Schedule 1). The Recovery Strategy for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*), and the Tricolored Bat (*Perimyotis subflavus*) in Canada (2018) should be consulted: <https://www.canada.ca/en/environment-climate-change/services/species-risk-public-registry/recovery-strategies/little-brown-myotis-2018.html>.

The Government of Canada published factsheets providing information on the Emergency Listing Order, the disease threatening bats, the requirements of SARA, and ways to protect and preserve bat populations. The factsheet "Factsheet on the Emergency Listing Order for the Little Brown Myotis, the Northern Myotis and the Tri-Colored Bat" is available on the SARA registry at: [Factsheet on the Emergency Listing Order for the Little Brown Myotis, the Northern Myotis and the Tri-colored Bat - Document search - Species at risk registry \(canada.ca\)](#). The factsheet "WIND ENERGY and the Emergency Listing Order for the Little Brown Myotis (*Myotis lucifugus*), the Northern Myotis (*Myotis septentrionalis*) and the Tri-colored Bat (*Perimyotis subflavus*)" (2014), including best management practices, is available on the SARA Registry at: <https://species-registry.canada.ca/index-en.html#/documents/1371>

20. ECCC-CWS notes that there is bat hibernaculum (200-300+ individuals) identified just outside of NS's recommended 25 km buffer.

On page 153, ECCC-CWS notes that the proponent identified Little Brown Myotis, Northern Myotis and Tri-colored bat as "non-migratory", however, it should be clarified that these species exhibit radiative migration (vs. latitudinal) and can move long distances (100 kms) between overwintering and summering areas, which can have implications of optimal siting of turbines.

21. ECCC-CWS notes that in conducting their bat habitat assessment, the Proponent used terrestrial habitat mapping in their desktop analysis to identify ideal foraging habitat and day roost habitat, but did not use the habitat characteristics of ideal maternity roost habitat and hibernacula, which is more important, to guide habitat assessments (see Appendix 1 below).

ECCC-CWS recommends that any coniferous, deciduous and mixedwood forest ecosites be considered in assessing potential maternity roosting habitat. While the roosts of the two *Myotis* species are more likely to be in deciduous trees (and in older vs younger stands), Tri-colored Bats also use coniferous trees.

ECCC-CWS recommends further investigation of the forested areas in the Project's assessment area for potential bat maternity roosting habitat following recommended Ontario Ministry of Natural Resources and Forestry (OMNRF) [2017](#) (attached).

22. For acoustic surveys, ECCC-CWS notes that only four bat monitors were deployed. Bat acoustic monitors will only record data up to 40 m under ideal conditions.
23. It is ECCC-CWS opinion that the assessment area was under-sampled both spatially and temporally. ECCC-CWS recommends that bat SAR monitoring effort is equivalent in detail and effort to the bird monitoring (e.g., covering all seasons of activity from spring emergence to pre-hibernation/swarming – April to October – for two years pre-construction. The acoustic bat monitoring program should be designed/implemented in a targeted manner to confirm/validate maternity roosts, swarming and/or hibernacula, following targeted habitat assessment, as well as multiple years of data collection (similar to ECCC-CWS ATL recommendations avifauna monitoring).
24. ECCC-CWS is of the opinion that any additive mortality of the SARA listed bat species in White-nose Syndrome (WNS) affected areas, including mortality at wind turbines, has the potential to be biologically-important. The mortality of even a small number of remaining individuals, particularly breeding adults, or disturbance to maternity roosts, has the potential to negatively impact the survival of local populations, their recovery, and potentially, the development of resistance to the fungus that causes WNS.

ECCC-CWS' work with the University of Waterloo in the province is showing low numbers of Northern *Myotis* and Tri-colored Bat on the landscape – loss of individuals, maternity roosts, hibernacula could jeopardize recovery for these species. Additionally, three species of migratory bats (Hoary Bats, Silver-haired Bats, and Eastern Red Bats) identified as being at higher risk to mortality from wind turbines are currently undergoing assessment by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC). ECCC recommends that monitoring, mitigation measures and adaptive management plans consider species of conservation concern (SOCC) as though they are species at risk, in the event that they become listed throughout the lifetime of the Project.

25. Mitigation (Page 161), ECCC-CWS notes that the Proponent describes measures using terms such as “to the greatest extent possible” or “as much as possible”. ECCC-CWS recommends further describing instances when mitigation measures would not be possible, and identifying additional mitigation measures for avoiding/minimizing potential effects and monitoring them.

ECCC-CWS recommends considering the following additional measures:

- preventive mitigation measures such as reducing cut-in speeds, or altering the pitch/feathering the blades, during high risk collision periods (e.g., during migration or swarming) or when wind velocity is low;
- large diameter trees (>25 cm dbh) should be left standing with a minimum 100 m buffer around them.

Wood Turtle

26. In Section 7.4.3.3, page 146, it is stated that, “Because the Project has avoided areas of known or ideal Wood turtle habitat and no additional herpetofauna SOCI were identified within the Assessment Area during desktop review and field surveys, no direct impacts resulting from habitat loss within the LAA are expected.”

ECCC-CWS is unclear from the statement above the meaning of the area for the “known or ideal” Wood turtle habitat. As Wood Turtle habitat and records are in the area and downstream of the Study Area, ECCC-CWS recommends the following:

- Clarify the meaning of known or ideal Wood Turtle habitat and the specific avoidance measures taken; and,
- Avoid all vegetation clearing activities until October to avoid the pre-overwintering period in September when turtles are still in the forest and travelling to their overwintering sites.

27. ECCC-CWS notes that new road infrastructure has been planned within the Study Area and will cross the watercourses that are upstream of Wood Turtle habitat. Pollution and sediment input is identified as a threat to the recovery of Wood Turtle in Canada (Section 4.2, ECCC 2020). Additionally, Wood Turtle critical habitat is located downstream of the development footprint, with sediment loading identified as an activity likely to destroy critical habitat (Table 7, ECCC 2020).

ECCC-CWS recommends discussing with the Province the Special Management Practices protocols for prevention of siltation into watercourses and use of temporary bridge crossings for perennial streams. ECCC-CWS recommends the proponent discuss any monitoring results or mitigations with the Province of Nova Scotia.

The Recovery Strategy for the Wood Turtle (*Glyptemys insculpta*) in Canada [Final](2020) is available at: [Wood Turtle \(Glyptemys insculpta\) \(canada.ca\)](#)

Additional Comments

28. The proponent should retain raw data (e.g., information on individual tracks) until appropriate data standards have been developed. Proponents are encouraged to share and store data with:
- The Atlantic Canada Conservation Data Center (<http://accdc.com/en/contribute.html>); and,
 - The Wind Energy Bird and Bat Monitoring Database ([NatureCounts - Wind Energy Bird & Bat Monitoring Database](#)) (Birds Canada 2022).

General “Standard” ECCC Advice and Recommendations:

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Migratory Birds Convention Act

Migratory birds, their eggs, nests, and young are protected under the Migratory Birds Convention Act (MBCA). Migratory birds protected by the MBCA generally include all seabirds (except for cormorants and pelicans), all waterfowl, all shorebirds, and most landbirds (birds with principally terrestrial life cycles). The list of species protected by the MBCA can be found at <https://www.canada.ca/en/environment-climate-change/services/migratory-birds-legal-protection/convention-act.html>. Bird species not listed may be protected under other legislation.

Under Section 5(1) of the Migratory Bird Regulations, 2022 (MBR), it is forbidden to capture, kill, take, injure or harass a migratory bird; or damage, destroy or take a nest or egg of a migratory bird, excluding under the exceptions listed in 5(2) of the MBRs, or under the authority of a permit. It is important to note that under the MBR, no permits can be issued for the harm of migratory birds caused by development projects or other economic activities.

Furthermore, Section 5.1 of the MBCA describes prohibitions related to depositing substances harmful to migratory birds:

“5.1 (1) No person or vessel shall deposit a substance that is harmful to migratory birds, or permit such a substance to be deposited, in waters or an area frequented by migratory birds or in a place from which the substance may enter such waters or such an area.

(2) No person or vessel shall deposit a substance to be deposited in any place if the substance, in combination with one or more substances, result in a substance – in waters or an area frequented by migratory birds or in a place from which it may enter such waters or such an area – that is harmful to migratory birds.”

It is the responsibility of the proponent to ensure that activities are managed so as to ensure compliance with the MBCA and associated regulations.

Vegetation Clearing

Clearing vegetation may cause disturbance to migratory birds, and may inadvertently cause the destruction of their nests and eggs. Most migratory bird species construct nests in trees (sometimes in tree cavities) and shrubs, but several species nest at ground level (e.g., Common Nighthawk, Killdeer, sandpipers), in hay fields, pastures or in burrows. Some bird species may nest on cliffs or in stockpiles of overburden material from mines or the banks of quarries. Some migratory birds (including certain waterfowl species) may nest in head ponds created by beaver dams. Some migratory birds (e.g., Barn Swallow, Cliff Swallow, Eastern Phoebe) may build their nests on structures such as bridges, ledges or gutters.

In developing mitigation measures, it is incumbent on the proponent to identify the best approach, based on the circumstances, to complying with the MBCA. The following should be considered during project planning:

- Avoid scheduling high disturbance activities, such as vegetation clearing, during the regional nesting period for migratory birds. Information regarding regional nesting periods can be found at: <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods.html>. Some species protected under the MBCA may nest outside these timeframes.
- The risk of impacting active nests or birds caring for pre-fledged chicks discovered during project activities outside of the regional nesting period can be minimized by measures such as the establishment of vegetated buffer zones around nests and minimization of activities in the immediate area until nesting is complete and chicks have naturally migrated from the area.
- In developing and implementing a wildlife management plan, preventative measures to minimize the risk of impacts on migratory birds should be considered (see “Avoiding harm to migratory birds: guidelines to reduce the risk to migratory birds” at <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html>).

Nest Searches

ECCC-CWS generally does not recommend nest searches or sweeps in vegetation prior to clearing during the breeding season. Nests in complex habitat are difficult to locate, and adult birds avoid approaching their nests in a manner that would attract predators to their eggs or young. In many circumstances, harm to migratory birds is still likely to occur even when active nest searches are conducted prior to development activities, except when the nests searched are known to be easy to locate without disturbance (e.g. previously cleared area, simple habitats, low vegetation).

Nest surveys may be carried out successfully by experienced observers using scientific methodology in the event that activities would take place in simple habitats (often in human-made settings) with only a few likely nesting areas or a small community of migratory birds. Examples of simple habitats include:

- An urban park consisting mostly of lawns with a few isolated trees;
- A vacant lot with few possible nest sites;

- A previously cleared area where there is a lag between clearing and construction activities and where ground nesters may have been attracted to nest in cleared areas or in stockpiles of soil; or,
- A structure such as a bridge, a beacon, a tower or a building (often chosen as a nesting spot by robins, swallows, phoebes, Common Nighthawk, gulls and others).

Nest searches can also be considered when looking for:

- Conspicuous nest structures (such as nests of Great Blue Herons, Bank Swallows, Chimney Swifts);
- Cavity nesters in snags (such as woodpeckers, goldeneyes, nuthatches); or,
- Colonial-breeding species that can be located from a distance (such as a colony of terns or gulls).

Should any nests or unfledged chicks be discovered, protection with an appropriate-sized buffer is expected. Note: Nests should not be marked using flagging tape or other similar material as this increases the risk of nest predation. ECCC CWS can be contacted for further advice on bird monitoring and/or mitigation if a nest is found.

Noise Disturbance

Anthropogenic noise produced by construction and human activity can have multiple impacts on birds, including causing stress responses, avoidance of certain important habitats, changes in foraging behavior and reproductive success, and interference with songs, calls, and communication. Activities that introduce loud and/or random noise into habitats with previously no to little levels of anthropogenic noise are particularly disruptive.

ECCC-CWS recommends the following best management practices:

- The proponent should develop mitigations for programs that introduce very loud and random noise disturbance (e.g. blasting programs) during the migratory bird breeding season for their region.
- The proponent should, where possible, prioritize construction works in areas away from natural vegetation while working during the migratory bird breeding season. Conducting loud construction works adjacent to natural vegetation should be completed outside the migratory bird breeding season.
- The proponent should keep all construction equipment and vehicles in good working order and loud machinery should be muffled if possible.

Lighting Attraction and Migratory Birds

Attraction to lights at night or in poor visibility conditions during the day may result in collision with lit structures, or with other migratory birds. Disoriented migratory birds are prone to circling light sources and may deplete their energy reserve and either die of exhaustion or be forced to land where they are at risk of depredation.

To reduce the risk of disturbance or harm to migratory birds related to human-induced light, ECCC-CWS recommends implementation of the following beneficial management practices:

- Use the minimum amount of pilot, warning and obstruction lighting needed on tall structures. Warning lights should flash and completely turn off between flashes.
- Use the fewest number of site-illuminating lights possible in the project area. Only use strobe lights at night, at the lowest intensity and the smallest number of flashes per minute allowable by Transport Canada.
- Reduce lighting levels during severe weather events that may force migratory birds to land to prevent birds from landing in areas that would cause injury, harm, or death.
- Avoid or restrict the time of operation of exterior decorative lights such as spotlights and floodlights whose function is to highlight features of buildings or to illuminate an entire building. These lights, especially on humid, foggy or rainy nights, can draw birds from far away. Turn off these lights during the migratory season when the risk to birds is highest and during periods when birds are dispersing from their nests or colonies.
- Shield safety lighting so that the illumination shines down. Only install safety lighting where it is needed, without compromising safety.
- Shield street and parking lot lighting so that little escapes into the sky, and it falls where it is required. Consider using LED lighting fixtures as they are generally less prone to light trespass.
- The proponent should make all reasonable attempts to limit construction activities to the day and avoid illuminating the habitat adjacent to the worksite.

Transmission lines

Transmission lines have the potential to harm, injure, or kill migratory birds through increasing risks of collision and electrocution. The proposed placement of above-ground transmission lines should consider areas used as flight paths by migratory birds (e.g., during migration; travelling from nesting to foraging areas, along streams used by waterfowl). ECCC-CWS recommends the following beneficial management practices to avoid potential harm to migratory birds associated with transmission lines:

- Avoid building transmission or distribution lines over, adjacent, or near areas where birds are known to congregate or move, including:
 - Important breeding, staging, moulting areas;
 - Breeding colonies; and
 - Between breeding and foraging areas.
- Design “avian-safe” configurations to reduce the risk of electrocutions, including:
 - Providing sufficient separation between energized phase conductors and between phases and grounded hardware;
 - Insulating exposed surfaces in high-risk areas;
 - Installing perch-management (e.g. perch guard) devices on poles; and
 - Removing or minimizing vegetation around poles and lines.
- Install measures on lines that reduce the risk of collisions:
 - Provide minimal vertical separation between lines;
 - Use self-supporting structures to reduce the number of guy wires; and
 - Use line-marking devices to increase the visibility of the lines.

Infrastructure, Buildings and Bridges

Certain species of migratory birds may nest on the sides of buildings, bridges or other pieces of infrastructure. Additionally, some species may nest on equipment, if they are left unattended/idle for long periods of time.

ECCC-CWS recommends the following beneficial management practices:

- The proponent should ensure that project staff are aware of the potential of migratory bird nests on infrastructure, buildings, and bridges, if applicable.
- If a nest is discovered, the proponent should conduct no activities around the nest that cause the nest to be abandoned or destroyed. Activities should be suspended until the chicks have fledged and left the area.
- If the proponent anticipates that birds may nest on infrastructure, the proponent should install anti-perching and nesting exclusion devices (e.g. mesh netting, chicken wire fencing, etc.) before any nest attempts are made.

Fuel Leaks

The proponent must ensure that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan in case of oil spills is prepared. Furthermore, the proponent should ensure that contractors are aware that under the MBR, “no person shall deposit or permit to be deposited oil, oil wastes or any substance harmful to migratory birds in any waters or any area frequented by migratory birds.” Biodegradable alternatives to petroleum-based chainsaw bar oil and hydraulic for heavy machinery are commonly available from major manufacturers. Such biodegradable fluids should be considered for use in place of petroleum products whenever possible, as a standard for best practices. Fueling and servicing of equipment should not take place within 30 meters of environmentally sensitive areas, including shorelines and wetlands.

ECCC-CWS recommend incorporating a Wildlife Emergency Response Plan into emergency response contingency plans for scenarios that may impact avifauna directly (injury or mortality e.g. polluting incident) or indirectly (collisions causing mortality, stranding due to light attraction).

For consideration in emergency response and contingency planning related to accidents and malfunctions, ECCC has prepared Guidelines for Effective Wildlife Response Plans (ECCC 2022) available online at: <https://www.canada.ca/en/services/environment/wildlife-plants-species/national-wildlife-emergency-framework.html>. Plans should include:

- Measures to deter migratory birds from coming into contact with the oil or polluting substance;
- Measures undertaken if individuals of migratory birds and/or sensitive habitat become contaminated; and,
- The type, extent of monitoring, and reporting in relation to various spill events.

The proponent is responsible for ensuring that all precautions are taken by the contractors to prevent fuel leaks from equipment, and that a contingency plan is prepared in the case of spills. Furthermore, the proponent should ensure that contractors are aware of section 5.1 MBCA prohibitions.

Events involving a polluting substance should be reported to the 24-hour environmental emergencies reporting system: 1-800-565-1633.

Bird mortality incidents of 10 or more birds in a single event, or an individual species at risk, should be reported via ECCC-CWS Main Office (506) 364-5044 or via email to SCFATLEvaluationImpact-CWSATLImpactAssessment@ec.gc.ca.

Revegetation

A variety of species of plants native to the general project area should be used in revegetation efforts. Should seed mixes for herbaceous native species for the area not be available, it should be ensured that plants used in revegetation efforts are not known to be invasive.

Invasive Species

Measures to diminish the risk of introducing invasive species should be developed and implemented during all project phases. These measures could include:

- Cleaning and inspecting construction equipment prior to transport from elsewhere to ensure that no vegetative matter is attached to the machinery (e.g., use of pressure water hose to clean vehicles prior to transport).
- Regularly inspecting equipment prior to, during and immediately following construction in areas found to support Purple Loosestrife to ensure that vegetative matter is not transported from one construction area to another.

Species at Risk

For federal impact assessments, the Species at Risk Act ss. 79(1) states that, "Every person who is required by or under an Act of Parliament to ensure that an assessment of the environmental effects of a project is conducted, and every authority who makes a determination under paragraph 82(a) or (b) of the Impact Assessment Act in relation to a project must, without delay notify the competent minister or ministers in writing of the project if it is likely to affect a listed wildlife species or its critical habitat", and, SARA ss.79(2) "The person must identify the adverse effects of the project on the listed wildlife species and its critical habitat and, if the project is carried out, must ensure that measures are taken to avoid or lessen those effects and to monitor them".

For provincial/territorial environmental assessment processes, ECCC-CWS recommends a similar approach be undertaken. Measures should be:

- be consistent with best available information including any Recovery Strategy, Action Plan or Management Plan in a final or proposed version; and,
- respect the terms and conditions of the SARA regarding protection of individuals, residences, and critical

habitat of Extirpated, Endangered, or Threatened species.

As part of an EA, ECCC-CWS recommends that the proponent present mitigation measures consistent with best available information including any Recovery Strategy, Action Plan or Management Plan (final or proposed version). In instances where habitat for species at risk cannot be avoided, the proponent should provide an explanation why avoidance is not possible, as well as, a discussion of conservation allowances (biodiversity offsets) if appropriate (see ECCC's Operational Framework for Use of Conservation Allowances (2012) available at: <https://www.canada.ca/en/environment-climate-change/services/sustainable-development/publications/operational-framework-use-conservation-allowances.html>). Note: Where the impacted species at risk habitat is wetland, compensation recommended in the Federal Policy on Wetland Conservation in Canada and/or as required under provincial wetland policy may be appropriate.

For species which are not listed under SARA, but are listed under provincial legislation only or that have been assessed and designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC), it is best practice to consider these species in the environmental assessment as though they were listed under SARA.

Provincial department responsible for SAR be contacted for technical expertise on SAR under their responsibility (e.g. bats, reptiles, amphibians, land-mammals, insects, plants, lichen, and birds not protected by the MBCA, such as raptors).

Wetlands

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Federal Policy on Wetland Conservation in Canada

The FPWC was introduced "to promote the conservation of Canada's wetlands to sustain their ecological and socio-economic functions, now and in the future". The policy recognizes the importance of wetlands to the environment, the economy and human health, and promotes a goal of No Net Loss of Wetland Function as a result of the Government of Canada (GoC) exercising a duty, function, or power. The Government of Canada (GOC) requires all agents of the Crown to consider the goals and objectives of the Federal Policy on Wetland Conservation (FPWC) while undertaking their duties (e.g. issuing permit, authorization - making a decision, providing federal funding). A copy of the FPWC can be found at: <http://publications.gc.ca/site/eng/9.686114/publication.html>.

The FPWC identifies the importance of planning, siting and designing a project in a manner that accommodates a consideration of mitigation options in a hierarchical sequence – avoidance, minimization, and as a last resort, compensation (e.g. conservation allowances).

In support of the FPWC, ECCC-CWS recommends the following:

- Developments on wetlands should be avoided;
- Where development does occur in the vicinity of wetlands, a minimum vegetation buffer zone of 30 metres should be maintained around existing wetlands areas;
- Hydrological function of the wetland should be maintained;
- Runoff from development should be directed away from wetlands;
- The use of a 30 metre buffer from the high water mark of any water body (1:100 Flood Zone) in order to maintain movement corridors for migratory birds. Please see <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/reduce-risk-migratory-birds.html> for further information concerning buffer zones.

The FPWC applies to all wetlands, irrespective of size, ownership, or identification in an inventory or on a map. As such, all wetlands potentially impacted by project activities for which a federal authorization or decision is issued, regardless of their size, and whether they appear on any mapping, are covered by the FPWC.

ECCC expects the Proponent consider the goals of the FPWC when planning their projects. Where residual effects (direct and indirect) to wetlands remain, justification for the loss of wetland functions should be discussed as part of the environmental assessment, including a consideration of loss of wetland habitat function used by migratory bird species at risk. ECCC expects that the development of a draft wetland compensation plan, including:

- Identification of wetlands potentially affected by the project;
- A detailed description of potential effects (direct and indirect), and including rationale why avoidance and minimization of impacts were determined to be not possible;
- Identification and justification of proposed conservation allowances and offset ratios which considers the goal of no net loss of wetland functions; and,
- A post-construction monitoring plan of affected wetlands and proposed offsets.

As the federal department responsible for promoting the implementation of FPWC, ECCC-CWS is available to work with provinces, and other federal departments, and the Proponent in the development and review of a wetland compensation plan that meets the goals of both the federal and provincial wetland policies.

Water Quality

Pollution prevention and control provisions of the Fisheries Act are administered and enforced by ECCC. Subsection 36(3) of the Fisheries Act prohibits “anyone from depositing or permitting the deposit of a deleterious substance of any type in water frequented by fish, or in any place under any conditions where the deleterious substance, or any other deleterious substance that results from the deposit of the deleterious substance, may enter such water”.

It is the responsibility of the proponent to ensure that activities are managed so as to prevent the release of substances deleterious to fish. In general, compliance is determined at the last point of control of the substance before it enters waters frequented by fish, or, in any place under any conditions where a substance may enter such waters. Additional information on what constitutes a deposit under the Fisheries Act can be found here:

<https://www.canada.ca/en/environment-climate-change/services/managing-pollution/effluent-regulations-fisheries-act/frequently-asked-questions.html>

Accidents and Malfunctions

Hazardous materials (e.g. fuels, lubricants, hydraulic oil) and wastes (e.g. waste oil) should be managed so as to minimize the risk of chronic and/or accidental releases. For example, the proponent should encourage contractors and staff to undertake refueling and maintenance activities on level terrain, at a suitable distance from environmentally sensitive areas including watercourses, and on a prepared impermeable surface with a collection system.

The proponent is encouraged to prepare contingency plans that reflect a consideration of potential accidents and malfunctions and that take into account site-specific conditions and sensitivities. The Canadian Standards Association publication, Emergency Preparedness and Response, CAN/CSA-Z731-03, reaffirmed 2014), is a useful reference.

All spills or leaks, such as those from machinery or storage tanks, should be promptly contained and cleaned up (sorbents and booms should be available for quick containment and recovery), and reported to the 24-hour environmental emergencies reporting system (Maritime Provinces 1-800-565-1633)

Please note that specific requests for ECCC advice should be directed to ECCC’s environmental assessment window

for coordination at: FCR_Tracker@ec.gc.ca.

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Appendix 1

Excerpt from the Draft ECCC-CWS Residence Description (January 2022)

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Little Brown Myotis and Northern Myotis

Any place used as a maternity roost by Little Brown Myotis is considered a residence. A maternity roost site may be a natural site, such as a cavity in a tree, a rock crevice, a cave or the underside of loose bark, or an anthropogenic site such as the underside of a bridge, an attic in a building or other structures (Fenton and Barclay 1980; Coleman and Barclay 2011). Little Brown Myotis is one of the few bat species that uses buildings and other anthropogenic structures to roost. Females are thought to select a quality maternity roost at the expense of travelling longer distances to forage possibly indicative of a limited number of suitable maternity roosting sites in foraging areas (Broders et al. 2006, Randall et al. 2014).

Maternity roosts in trees are often associated with natural holes, holes made by cavity excavators (e.g., woodpeckers) or holes resulting from broken limbs or under loose bark. Typically, maternity roost sites are located in tall, large-diameter trees (DBH >30 cm), within forests (Kalcounis-Ruepell et al. 2005; Olson 2011; Olson and Barclay 2013) and older forest stands are preferred over younger forest stands (Barclay and Brigham 1996; Crampton and Barclay 1996; Jung et al. 1999). A larger tree size will usually house a larger number of bats (Olson 2011). Broders and Forbes (2004) found a preference for deciduous trees (Sugar Maple, Yellow Birch, and American Beech) and attributed this preference to deciduous trees' susceptibility to limb breakage and decay (creating available habitat for roosting), long-lived characteristics (permitting repeated use by bats), and their upland habitats with increased solar radiation (reducing energy costs to maintain the bat's body temperature).

Maternity roosts located in buildings tend to be located in warm but uninhabited areas of the building or in abandoned ones. Attics in older buildings are commonly used.

Tri-colored Bat

Little is known about maternity roosts of Tri-colored Bat. However, the species is known to roost in clumps of dead tree foliage and lichens and broken branches in coniferous and deciduous tree species (Veilleux et al. 2003, Perry and Thill 2007, Poissant et al. 2010). Tri-colored Bats also use barns and other anthropogenic structures for maternity roosts, and they may also use tree cavities, broken branches on trees, caves and rock crevices (Fujita and Kunz 1984). In Nova Scotia, a local population of Tri-colored Bat roosted solely in clumps of Usnea lichen and mostly

within spruce trees (Poissant et al. 2010).

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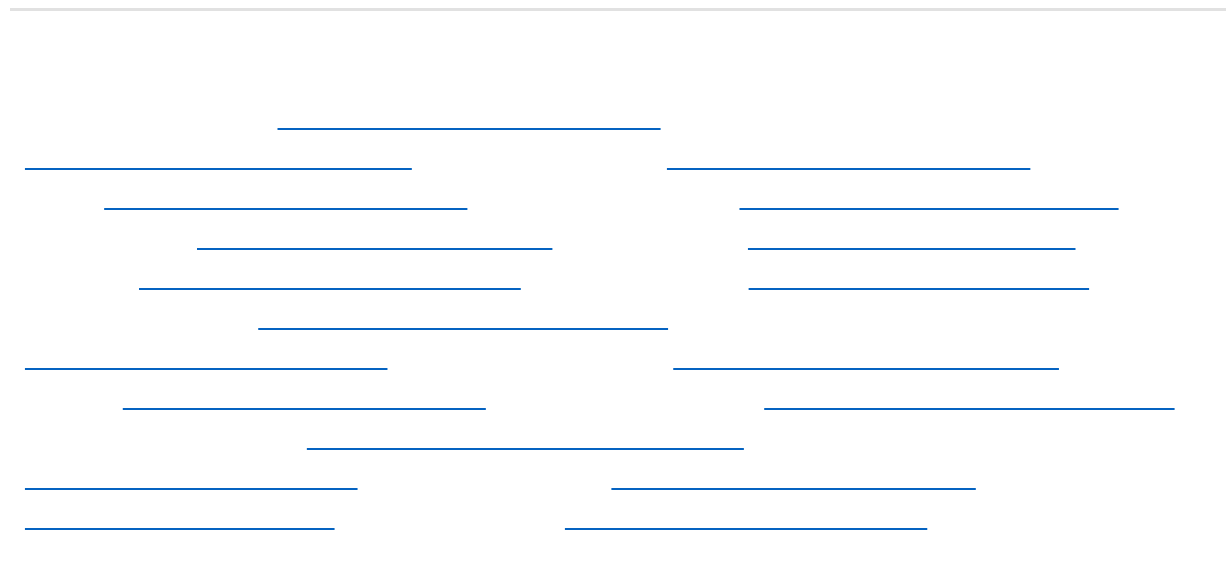
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Survey Protocol for Species at Risk Bats within Treed Habitats

Little Brown Myotis, Northern Myotis & Tri-Colored Bat

April 2017



Ontario Ministry of Natural Resources and Forestry

Guelph District



Introduction

This document describes Guelph District's recommended protocol for confirming presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat, where it is determined that suitable habitat for the establishment of maternity roosts is present.

This document replaces any previous versions of the survey protocol, and may be updated periodically as new information becomes available.

Note that those undertaking projects that may impact anthropogenic structures and isolated trees considered suitable habitat for bats should refer to Guelph District's *Survey Methodology for the Use of Buildings and Isolated Trees by Species at Risk (SAR) Bats*.

Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*) and Tri-colored Bat (*Perimyotis subflavus*) are listed as provincially endangered and receive species and general habitat protection under the *Endangered Species Act, 2007* (ESA).

Where the habitat of an endangered or threatened species is not prescribed by regulation, the ESA defines habitat as an area on which a species depends on, directly or indirectly, to carry out its life processes. Such processes include reproduction, rearing, hibernation, migration or feeding, as well as places being used by members of the species.

Throughout eastern North America, a disease known as white-nose syndrome (WNS), which is caused by the fungus *Pseudogymnoascus destructans*, is the primary cause of the decline of Little Brown Myotis, Northern Myotis and Tri-colored Bat populations. Where population numbers have significantly decreased due to WNS, the relative magnitude of other threats (e.g., habitat destruction) may increase. This is because the mortality or displacement of a small number of the remaining individuals can have a major impact on the survival of local populations and their recovery.

Many bat species are known to have high fidelity to their hibernacula and maternity roost sites. It is not uncommon for bats to return to the same roost tree or group of trees in successive years. Some bats switch roost trees periodically within the same treed area over the summer, likely to avoid predators or parasites or in search of a warmer or cooler roost.

Of the SAR bats species noted in this protocol, Little Brown Myotis is the most frequently encountered species in treed communities due to higher population numbers relative to other SAR bat species. Little Brown Myotis establishes maternity roosts within tree cavities and under loose or exfoliating bark, especially in wooded areas located near water. Foraging habitat includes over water and in open areas between water and forest. Favoured prey consists of aquatic insects (e.g., mayflies, midges, mosquitos and caddisflies). In agricultural environments, Little Brown Myotis tend to follow linear wooded features, such as hedgerows, for commuting and foraging.

Northern Myotis is less frequently encountered relative to Little Brown Myotis but selects similar maternity roost space. Northern Myotis roosts within tree crevices, hollows and under the bark of live and dead trees, particularly when trees are located within a forest gap. Northern Myotis switch roost trees more frequently compared to other SAR bat species (i.e., every 1-5 days) and are relatively

slow flyers. Northern Myotis is adapted to hunting in cluttered environments, such as within the forest along edges, where it gleans and hawks its prey (primarily moths).

Tri-coloured Bat establishes maternity roosts within live and dead foliage within or below the canopy. Oak is the preferred roost tree species, likely because oaks retain their leaves longer than other trees. Maples are also thought to be important for roosting, although maples are selected far less often compared to oaks. Some studies have shown that Tri-colored Bat prefers dead leaves over live leaves, especially if the dead leaves are situated on a live tree i.e., along a broken branch. Other documented roost sites include dogwood leaves, within accumulations of pine needles, in squirrel nests and in tree cavities. Within a forest, the location of maternity roost trees varies from dense woods to more open areas, although roosts are rarely found in deep woods. Although Tri-colored Bat switches roosts over the summer, this species has very high site fidelity to particular leaf clusters within a season. Foraging occurs along forested riparian corridors, over water (e.g., ponds and rivers) and within gaps in forest canopies. This species is an insect generalist, feeding on species such as leafhoppers, ground beetles, flies, moths and flying ants. The Tri-colored Bat is less frequently encountered compared to Little Brown Myotis and Northern Myotis. Unlike other SAR bats, Tri-colored Bat rarely roosts in buildings, and therefore relies heavily on treed areas for rearing its young.

Note: Confirmation of individual maternity roost trees is extremely challenging. Exit surveys are not always reliable, since SAR bats are known to periodically switch roost trees within a treed area over the summer. In addition, techniques used to confirm maternity roost trees, such as mist netting, are quite invasive and therefore not recommended.

The survey protocol that follows focuses on confirming presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat within treed habitats considered suitable for the establishment of maternity roosts, which is sufficient information to apply species and habitat protection under the ESA.

If an Ecological Land Classification (ELC) ecosite is determined to be suitable for the establishment of maternity roosts, trees with suitable attributes are present, and SAR bats are detected during the maternity roost season (June), it can be concluded with a high degree of certainty that the ELC ecosite represents the habitat most in use during the breeding season for roosting, feeding, rearing of young and resting.

Phase I: Bat Habitat Suitability Assessment

Little Brown Myotis, Northern Myotis and Tri-colored Bat establish maternity roosts in treed areas consisting of deciduous, coniferous or mixed tree species. For bats that roost under bark or within cracks, hollows or crevices, tree species is important only as it relates to its structural attributes. For example, trees that retain bark for longer periods or are more susceptible to fungal infections/attract cavity excavators are more likely to provide appropriate roosting space.

Following the completion of ELC mapping of a study area, any coniferous, deciduous or mixed wooded ecosite, including treed swamps, that includes trees at least 10cm diameter-at-breast height

(dbh) should be considered suitable maternity roost habitat. For cultural treed areas, such as plantations, consultation with the Ministry of Natural Resource and Forestry (MNRF) is recommended to determine if these habitats may be suitable for the species.

If suitable habitat is to be impacted by a proposed activity, project proponents should proceed to Phase II. It is recommended that the proponent contact the MNRF to discuss the need for additional work with respect to SAR bats.

Phase II: Identification of Suitable Maternity Roost Trees

As previously described, Tri-colored Bat primarily roosts in tree foliage (mainly oak), while Little Brown Myotis and Northern Myotis select loose bark, cracks and cavities. Because of these differences, two separate field data sheets should be completed by the proponent to identify and map suitable roost trees for Tri-colored Bat (Appendix A) and Little Brown Myotis/Northern Myotis (Appendix B). The data collected in Phase II will help inform the positioning of acoustic monitoring stations in Phase III.

The timing of field visits is important in order for an observer to be able to clearly identify tree attributes that are suitable for the establishment of maternity roosts:

- **Tri-colored Bat:** field visits should take place during the leaf-on season the same year that acoustic monitoring is to be conducted so that foliage characteristic (i.e., dead/dying leaves along a dead branch) can be observed.
- **Little Brown Myotis/Northern Myotis:** field visits should occur during the leaf-off period so that the view of tree attributes (hollows, cracks etc.) is not obscured by foliage.

Note that for large ecosites (e.g., >10 ha) where a thorough walk-through may not be possible or practical, the proponent should discuss the study design for Phase II with the MNRF prior to undertaking field work.

i) Tri-colored Bat

Leaf roosts are shaped like umbrellas with a “roof” and a hollow core where bats rest. Studies have shown that oak leaves are the preferred roost site. Maple leaves are also selected, although less commonly. It is thought that Tri-colored Bat may prefer roost trees in open woodlands, as opposed to deep woods.

Within each ecosite identified as suitable maternity roost habitat in Phase I, the following trees should be documented on the field data sheet (Appendix A)

- any oak tree $\geq 10\text{cm dbh}$
- any maple tree $\geq 10\text{cm dbh}$ IF the tree includes dead/dying leaf clusters
- any maple tree $\geq 25\text{cm dbh}$

ii) Little Brown Myotis and Northern Myotis

Within each ecosite identified as suitable maternity roost habitat in Phase I, all “snags” should be identified and relevant information recorded on the field data sheet provided in Appendix B.

For purposes of this exercise, a “snag” is any standing live or dead tree $\geq 10\text{cm}$ dbh with cracks, crevices, hollows, cavities, and/or loose or naturally exfoliating bark.

During the field visit, the Decay Class should be noted for each snag (see Figure 1). Snags in an early stage of decay (which also includes healthy, live trees) may be preferred by Little Brown Myotis and Northern Myotis if suitable attributes for roost space are present. However, since SAR bats will also roost in snags outside of Class 1-3, any snag $>10\text{cm}$ dbh with suitable roost features should be documented. For trees with cavities, the entrance can be high or low (“chimney-like”) on the tree.

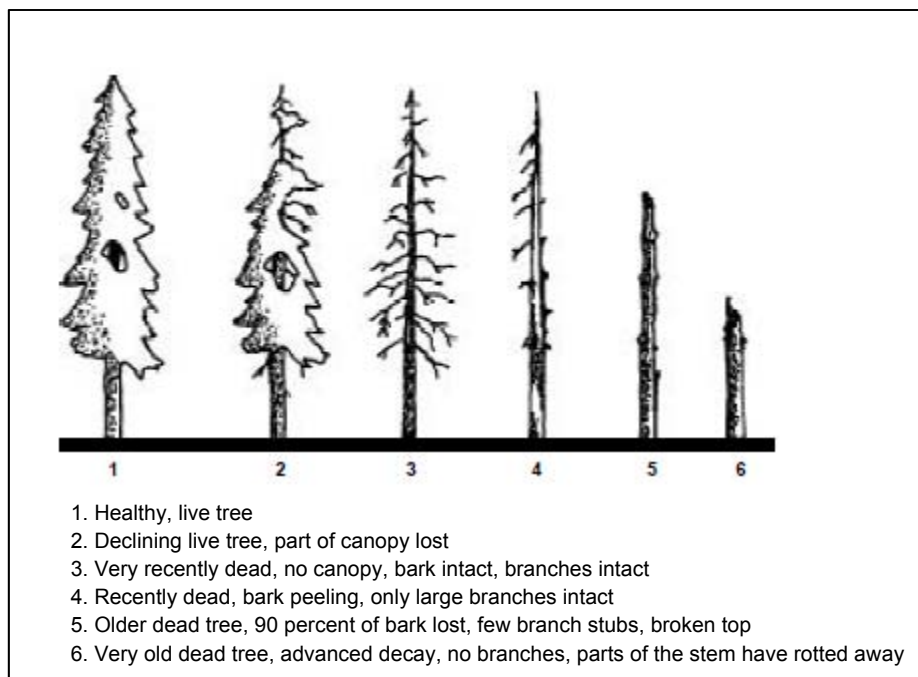


Figure 1: Snag classification (Decay Class 1-3 is considered an early decay stage)¹

In addition, proponents should be aware that some tree species, such as shagbark hickory, silver maple and yellow birch, have naturally exfoliating bark that may be suitable for establishing maternity roosts. Trees $\geq 10\text{cm}$ dbh exhibiting these characteristics should be considered “snags” as per the definition above and included on the field data sheet provided in Appendix B.

Note: For efficiency (especially for larger ecosites e.g., >10 ha), a proponent may choose to undertake snag density surveys while conducting the work required in Phase II. For a detailed methodology, refer to Phase IV of this protocol.

¹ Watt, Robert and Caceres, M. 1999. Managing snags in the Boreal Forests of Northeastern Ontario. OMNR, Northeast Science & Technology. TN-016. 20p.

Phase III: Acoustic Surveys

Within each ELC ecosite determined to be suitable maternity roost habitat in Phase I, acoustic surveys are recommended to confirm presence/absence of Little Brown Myotis, Northern Myotis and Tri-colored Bat. As described below, acoustic detectors should be placed in the best possible locations in order to maximize the probability of detecting all three SAR bats species. The data collected in Phase II should be used to select optimal locations for monitoring. The trees to be targeted for acoustic monitoring will typically be a subset of the trees documented in Phase II.

Density and Optimal Location of Acoustic Monitoring Stations:

Multiple stations may be required to cover an ecosite adequately (see example in Figure 2). Based on the microphone range of most broadband acoustic detectors (20-30m), **4 stations/hectare** is needed for full coverage of an ELC ecosite.

Strategic placement of acoustic detectors is critical for the successful isolation of high-quality bat calls. Recommended positioning is to locate acoustic detectors **within 10m of the best potential maternity roost trees**. To increase the probability of detecting all three SAR bat species, detectors should be divided proportionally to target suitable roost trees (if present) for Tri-colored Bat and Little Brown Myotis/Northern Myotis.

Prior to undertaking acoustic surveys, it is recommended that the proponent discuss the proposed location of acoustic monitoring stations with the MNRF.

(i) Tri-colored Bat

Although Tri-colored Bat will roost within both live and dead foliage, it appears that reproductive females may prefer clusters of dead leaves, especially if they are situated on a live tree. Using the information collected on the field data sheet (Appendix A), the best suitable maternity roost trees for Tri-colored Bat should be selected according to the following criteria (in order of importance):

If oaks are present:

- Live oak with dead/dying leaf clusters
- Dead oak with retained dead leaf clusters
- Live oak (no dead leaf clusters) with the largest dbh (>25cm)
- Oak within a forest gap

If oaks are absent:

- Live maple with dead/dying leaf clusters
- Dead maple with retained dead leaf clusters
- Live maple (no dead leaf clusters) with the largest dbh (>25cm)
- Maple within a forest gap

Note that if a cluster of tree species with attributes preferred by Tri-colored Bat is present, this may be a good area to target acoustic monitoring.

(ii) Little Brown Myotis and Northern Myotis

Bats that roost under tree bark or within crevices or cavities frequently select the tallest and largest diameter snags, which often extend above the forest canopy. This is because larger snags better retain solar heat, which benefits the pups. Tall trees within a forest gap or along an edge may also have a less obstructed flight approach for bats.

Using the information collected on the field data sheet completed in Phase II, the best suitable maternity roost trees for Little Brown Myotis/Northern Myotis should be selected using the following criteria (in order of importance):

- Tallest snag
- Snag exhibits cavities/crevices often originating as cracks, scars, knot holes or woodpecker cavities
- Snag has the largest dbh (>25 cm)
- Snag is within the highest density of snags (e.g., cluster of snags)
- Snag has a large amount of loose, peeling bark (naturally occurring or due to decay)
- Cavity or crevice is high on the tree (>10 m) or is “chimney like” with a low entrance
- Tree is a species known to be rot resistant (e.g., black cherry, black locust)
- Tree species provides good cavity habitat (e.g., white pine, maple, aspen, ash, oak)
- Snag is located within an area where the canopy is more open
- Snag exhibits early stages of decay (Decay Class 1-3)

Note: The sole purpose of the above-listed criteria is to determine the best placement of acoustic monitors in order to maximize the probability of detecting Little Brown Myotis and Northern Myotis. The listed criteria are NOT intended for any type of snag “ranking”. Snags that do not include any of the above characteristics may still be used as a maternity roost site. For example, the absence of snags >25 cm dbh by no means indicates that there is no potential maternity roost habitat present on a site.

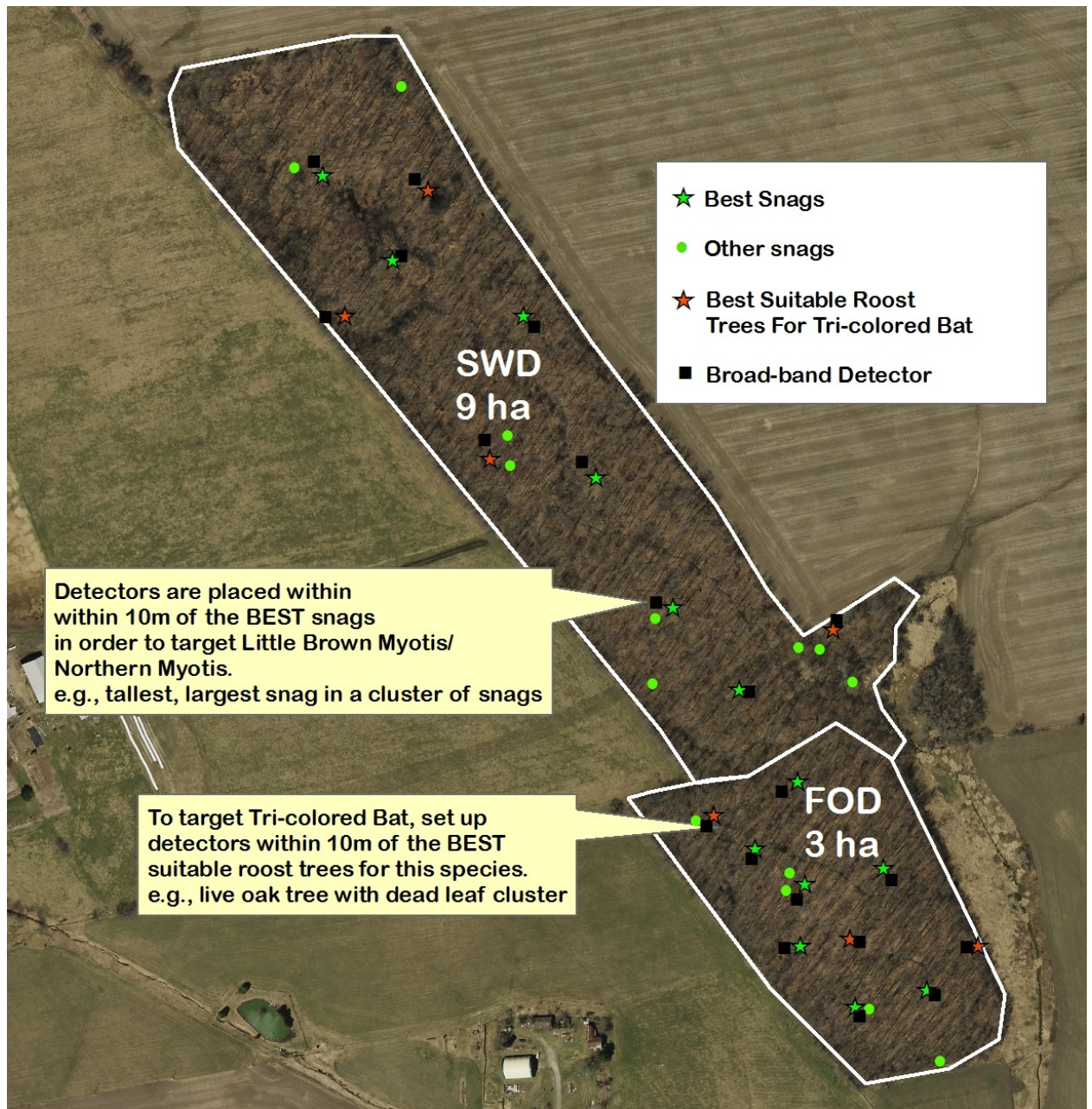


Figure 2: Hypothetical example illustrating the location and density of acoustic detectors i.e., 4/ha to a maximum of 10 per ELC ecosite.

Timing and Weather Conditions:

Acoustic surveys should take place on **evenings between June 1st and June 30th**, commencing **after dusk and continuing for 5 hours**.

Surveys should occur on warm/mild nights (i.e., ambient temperature >10°C) with low wind and no precipitation. At least 10 visits on nights that align with the above conditions where no SAR bat activity is detected are required to confirm absence.

Note that project proponents may cease survey work at any point once documentation of all three SAR bats species presence occurs.

Recommended Equipment Guidelines for Best Results:

- Broadband detectors (full spectrum) should be used. These may be automated systems in conjunction with computer software analysis packages or manual devices with condenser microphones.
- Acoustic monitoring systems should allow the observer to determine the signal to noise ratio of the recorded signal (e.g., from oscillograms or time-amplitude displays). These provide information about signal strength and increase quality and accuracy of the data being analysed.
- Microphones should be positioned to maximize bat detection i.e., situated away from nearby obstacles to allow for maximum range of detection and angled slightly away from prevailing wind to minimize wind noise.
- The same brand and/or model acoustic recording system should be used throughout the survey (if multiple devices are required), as the type of system may influence detection range/efficiency. If different systems are used, this variation should be quantified.
- Information on the equipment used should be recorded, including information on all adjustable settings (e.g., gain level), the position of the microphones, and dates and times for each station where recording was conducted.

Analysis:

Analytical software should be used to interpret bat calls and process results. Data should be analysed to the species level (as opposed to the genus level) in order to confirm presence/absence of SAR bats. Note that MNRF may request a copy of the raw acoustic data file when reviewing the results of the work completed in Phase III.

Additional Notes:

Project proponents should be aware that information about the number of bat passes detected in an area does not allow for an estimate of the number of bats present because there is not a 1:1 relationship between the number of passes and the number of bats responsible for those passes. It is not possible to distinguish between several bat passes made by a single bat flying repeatedly through the study area vs. several bats each making a single pass. Therefore, bat passes cannot provide a direct estimate of population densities.

Next Steps:

If Little Brown Myotis and/or Northern Myotis are detected, project proponents should proceed to Phase IV (Snag Density Survey). If only Tri-colored Bat is detected, snag density is not relevant and the proponent can proceed directly to Phase V (Complete an Information Gathering Form).

Phase IV: Snag Density Survey

Snag density information may be useful when the MNRF is considering the potential impact of a proposed activity on Little Brown Myotis and/or Northern Myotis. Snag density for each suitable ELC ecosite should be noted on the field data sheet provided in Appendix B. Surveys should take place during the leaf-off period so that the view of tree cavities, cracks and loose bark etc., is not obscured by foliage.

Snag density is a qualitative assessment of a treed ecosite, not a method of determining presence/absence of maternity roost habitat. There is no minimum threshold in terms of the number of snags/ha for an ELC ecosite to be considered suitable maternity roost habitat. However, an ELC with 10 or more snags/ha may be considered to be high quality potential maternity roost habitat. This information may be relevant when considering overall benefit in cases where a s.17(2)c permit under the ESA is required.

For smaller ecosites (e.g., <10 ha), snag density (# of snags/ha) can be calculated by dividing the number of snags mapped in Phase II by the total area of the ecosite.

Example:

ELC ecosite	Size (ha)	# of snags	Snag Density
WOD-M4	3.1	14	4.5 snags/ha
FOD-M2	0.8	9	11.25 snags/ha

For larger ecosites (e.g., >10 ha), sample plots can be used to estimate snag density within the suitable ELC ecosite, as follows:

- Select random plots across the represented ELC ecosite
- Survey fixed area 12.6m radius plots (equates to 0.05 ha)
- Survey a minimum of 10 plots for sites up to 10 ha, and add another plot for each additional ha up to a maximum of 35 plots
- Measure the number of suitable snags in each plot
- Use the formula πr^2 to calculate the number of snags/ha (where $r=12.6m$)
- Map the location of each snag density plot and record the UTM location using a GPS
- Calculate snag density for the ELC ecosite (snags/ha)

Example: **ELC Ecosite FOD-M2 (12 ha)**

# of sample plots	Total # of snags in sample plots	# of sample plots x r	Area of plots (πr^2)	Snag Density
12	48	12 x 12.6m = 151.2m	$3.14(151.2m)^2 = 71784.9m^2 = 7.18 \text{ ha}$	48 snags in 7.18 ha = 6.7 snags/ha

Phase V: Complete an Information Gathering Form

If SAR bats are detected during Phase III, the proponent should complete an Information Gathering Form (IGF) and submit it to the MNRF, Guelph District Office (esa.guelph@ontario.ca) for review.

The IGF is available by searching the form repository on the government of Ontario website:

<http://www.forms.ssb.gov.on.ca/mbs/ssb/forms/ssbforms.nsf>.

The MNRF will determine whether an activity is likely to kill, harm or harass a listed species and/or damage or destroy its habitat. The MNRF requires all of the necessary details and results from this survey protocol to be included on the IGF in order to make this determination.

For more information on overall benefit permits, including submission guidelines, process and timelines, please visit: <https://www.ontario.ca/page/species-risk-overall-benefit-permits>.

Appendix A – Suitable Maternity Roost Trees for Tri-colored Bat

Include all oak trees $\geq 10\text{cm}$ dbh (if present). If oaks are absent, include maples $\geq 10\text{cm}$ dbh IF dead/dying leaf clusters are present; and maples $>25\text{cm}$ dbh if no dead/dying leaf clusters are present.

Project Name:

Survey Date(s):

Site Name:

Observer(s):

ELC Ecosite:

Tree#	Tree Species ID	Tree Status (live/dead)	Dbh (cm)	Tree Structural & Locational Attributes (check all that apply)	Easting	Northing	Notes
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			
				<input type="checkbox"/> dead/dying leaf cluster <input type="checkbox"/> cavity <input type="checkbox"/> open area/forest gap <input type="checkbox"/> forest edge <input type="checkbox"/> interior <input type="checkbox"/> preferred tree species within 10m?			

Appendix B – Suitable Maternity Roost Trees for Little Brown Myotis/Northern Myotis

Include all live and dead standing trees $\geq 10\text{cm}$ dbh with loose or naturally exfoliating bark, cavities, hollows or cracks.

Project Name:

Survey Date(s):

Site Name:

Observers(s):

ELC Ecosite:

Snag Density (snags/ha):

Tree #	Tree Species ID	dbh (cm)	Height Class ²	Snag attributes (check all that apply)	Easting	Northing	Notes
				<input type="checkbox"/> cavity ³ <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3? ⁴			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			
				<input type="checkbox"/> cavity <input type="checkbox"/> loose bark <input type="checkbox"/> crack <input type="checkbox"/> knot hole <input type="checkbox"/> other snag within 10m? <input type="checkbox"/> Decay Class 1-3?			

² **Height Class:** 1 = Dominant (above canopy); 2 = Co-dominant (canopy height); 3 = Intermediate (just below canopy); 4 = suppressed (well below canopy)

³ The approx. height of the cavity should be noted. Note that cavities with an entrance near the ground may also be used by bats if they are "chimney-like".

⁴ **Decay Class:** 1 = Healthy, live tree; 2 = Declining live tree, part of canopy lost; 3 = Very recently dead, bark intact, branches intact

Environment and Climate Change Canada's Canadian Wildlife Service (Atlantic Region) - Wind Energy & Birds Environmental Assessment Guidance Update

Background

Environment and Climate Change Canada's Canadian Wildlife Service (ECCC-CWS) is charged with the administration of the *Migratory Birds Convention Act* (MBCA) and *Species at Risk Act* (SARA), responsible for the management and conservation of migratory birds and protection of SARA listed species at risk and their habitats; ECCC-CWS Atlantic (ATL) provides expert advice for these species for wind energy impact assessments, upon request. ECCC-CWS published two guidance documents in 2007 for assessing the risk of wind energy developments on migratory birds:

- *Wind Turbines and Birds: A Guidance Document for Environmental Assessment*" (Environment Canada 2007a)
- *Recommended Protocols for Monitoring Impacts of Wind Turbines on Birds*" (Environment Canada 2007b)

Recent advancements in technology for wind energy production include taller turbines with increased energy generating capacity. As a result, in 2018, ECCC-CWS-ATL provided an advice update related to radar and acoustic monitoring recommended for monitoring particular factors of concern (e.g. migration corridors, passage rate and flight altitudes of nocturnal migrants in relation to the height of proposed turbines – larger scale) (s.8.2 CWS 2007a and CWS2007b protocols).

ECCC-CWS-ATL has prepared this guidance update to replace the 2018 advice; this guidance update provides minimum standards and best approaches for pre- and post-construction monitoring related to wind energy developments in Atlantic Canada. It is incumbent on the proponent to identify the best approach, based on the circumstances, to comply with the *Migratory Birds Convention Act* and *Species at Risk Act*.

Determining Site Sensitivity

ECCC-CWS-ATL recommends that wind energy sites proposing building turbines > 150m (thus placing turbine height places the rotor sweep within songbird nocturnal flight corridors (i.e., 150 – 600 m, Horton *et al.* 2016)) in total height be considered 'Very High' site sensitivity (i.e., Category 4, Environment Canada 2007a).

Minimum Standard

Pre-Construction Monitoring

There is little available data and associated studies on the latest larger scale turbine technologies and risk to migratory birds. Therefore, proponents should assess the potential risk of Category 4 level sites to understand and characterize nocturnal avian flight paths around proposed sites. ECCC-CWS-ATL recommends using radar and acoustic monitoring during the spring and fall migrations, in addition to standard avian surveys (Environment Canada 2007a).

Although much of the bird migration is above turbine heights and rotor sweep areas, there are accounts of both songbird migration, and localized migratory bird population seasonal movements, occurring within the turbine altitudinal zone (Richardson 1972, Horton *et al.* 2016). Therefore, monitoring should also characterize potential

localized lower-level movements of birds. For example, Bank Swallows move between coastal bank colonies and inland roost sites; shorebirds move overland from foraging to roosting sites during pre-migration recruitment flights; sea ducks are low altitude nocturnal migrants.

The use of acoustic autonomous recording units (ARUs) complements radar data and can support conclusions in the final analysis. ARUs have a maximum detection distance of approximately 200-250m above ground level, similar to the height of proposed wind turbines and can assist in evaluating species composition of nocturnal migrants, especially important in understanding the potential risk to species at risk.

Study Design

ECCC-CWS-ATL recommends, at minimum, monitoring early in the project-planning phase (pre-construction) to ensure that the proponent completes a minimum of 2 years (consecutive) of monitoring. The 2-year minimum standard supports analyses of bird flight height by capturing the variance in weather conditions present. In addition, ECCC-CWS-ATL recommends pre-construction monitoring to quantify the risk at a proposed site **before** approval. This also provides baseline information to assess post-construction impacts and mortality on migratory bird populations. Data should be collected under various types of weather conditions.

Spring migration recommended monitoring window is **March 15 - June 7**, and fall migration is **July 15 – November 30**. These extended monitoring windows allow the proponent to assess landbirds, waterfowl/sea duck and shorebird migration movements, especially important in coastal areas or along known migration routes (e.g., Bay of Fundy, Tantramar Marsh, Strait of Canso, and Cape Sable Region).

The breeding season window in Atlantic Canada varies from region to region (i.e. nesting zones) which have corresponding nesting calendars showing variation in nesting intensity by habitat type. Information regarding regional nesting periods can be found at [ECCC's General Nesting Periods – Avoiding Harm To Migratory Birds](#). Each site should be visited at least twice during this time to establish which species are breeding in the area and to determine if there are any migratory bird species at risk and/or species that have aerial mating displays.

If provincial regulatory processes do not require pre-construction monitoring, the proponent should initiate monitoring as soon as possible (for a minimum 2-year period). Although not ideal, monitoring could start during the construction year to assess impacts on migratory bird populations and determine the need for additional mitigation and/or inform future guidance.

Data Analysis

Data analysis guidance is available in the 2007 national guidance (Environment Canada 2007a, Environment Canada 2007b). ECCC-CWS-ATL recommends consolidating site-specific avian baseline and habitat assessment with radar and acoustic monitoring data into one report. In addition, this report should include and detail an overall assessment of the risk to migratory birds.

The report should include, at minimum, the following:

- List of potential breeding birds (following breeding bird atlas protocols)
- Volume estimates of birds (i.e. targets) at a fine scale of altitudinal resolution on a nightly basis;
- Altitudinal information;
- Time period monitored (note: monitoring should take place at the same time every day);
- Weather data;
- Tidal and lunar cycles (note: shorebird movements increase during bright nights);
- Summary of overall bird activity, including how bird activity:
 - changed through the night and the season.
 - changed across the study area.

Post-Construction Monitoring

ECCC-CWS-ATL recommends that post-construction mortality surveys (Environment Canada 2007b) and radar and acoustic monitoring be consistent with baseline pre-construction methods. The proponent (for any approved project) should complete a minimum of 2 years (consecutive) of monitoring. ECCC-CWS-ATL may recommend additional monitoring based on reported findings.

The mortality survey data should be paired with radar and acoustic monitoring to provide context for the localized impacts on birds. Additionally, the proponent should compare the pre-construction and post-construction results to assess and quantify any changes in migratory bird species assemblage, density, and behaviours.

Permits are required to handle or collect any dead birds or bats found during post-construction monitoring activities (e.g. carcass searches or used as part of observer efficiency or scavenging trials) (ECCC, s.10.4 2007). Under the Migratory Bird Regulations, a scientific permit is required for the collection of a migratory bird (dead or alive), feathers, or part of a migratory bird, as defined in the MBCA (contact: Permi.Atl@ec.gc.ca). Proponents should also contact the appropriate provincial territorial wildlife department for information related to requirement to collect species under provincial jurisdiction (bats and bird species such as raptors not covered by the MBCA). Proponents should review and carefully note the conditions in permits, including annual reporting and mortality incident reporting. Proponents will need to ensure they remain in compliance with all permitting conditions and requirements.

Data and Report Submission

Please provide ECC-CWS-ATL with the monitoring reports. Reports must be provided to CWS by December 31 of the same calendar year in which monitoring took place. Submit reports ECCC's environmental assessment window for coordination at: FCR_Tracker@ec.gc.ca.

ECCC-CWS-ATL recommends that the proponent submit all wind energy monitoring (migratory birds and bats) data to the [Wind Energy Bird & Bat Monitoring Database](#) (Birds Canada 2022). The proponent should retain raw data (e.g., information on individual tracks) until appropriate data standards have been developed.

Best Approach

ECCC-CWS-ATL considers the best approach to be a regional BACI (Before-After/Control Impact) study design (i.e., paired-site design) or an impact-gradient design for smaller developments. The BACI design is designed to help isolate the potential effect of development from natural variability. Proposed turbine sites should be paired with similar reference sites to provide comparative assessments. This comparative site assessment should compare bird density, flight height variance/altitude levels, activity patterns, timing, consistency of movements, habitat variables between control (reference) and treatment (turbines) sites during the breeding period and during migration. Data should be collected under various types of weather conditions.

Reference sites should be located at minimum 500m from proposed turbine sites. These reference sites should be placed in habitats similar to the paired turbine site. ECCC-CWS-ATL recommends that this approach be factored into the pre-construction and post-construction monitoring designs. All study design recommendations presented above should be used for this approach (e.g., pre-construction monitoring should be completed before site approval, be done for two years, etc.). Additionally, all sampling considerations (e.g., migration timing windows, data collection, reporting) should be consistent with the minimum standard.

Bats

Little Brown Myotis (*Myotis lucifugus*), Northern Myotis (*Myotis septentrionalis*), and Tri-colored Bat (*Perimyotis subflavus*) are small, insectivorous bats that are listed as Endangered (Species at Risk Act, Schedule 1). ECCC-CWS-ATL recommends that the proponents consider bats in their pre-construction and post-construction monitoring and their data and report submissions. However, the proponent should contact Provincial representatives for additional information on bats and wind energy developments, as they are the jurisdiction responsible for the conservation and protection of bat species.

References:

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Lynn and Auberle. 2009. Guidelines for Assessing the Potential Impacts to Birds and Bats from Wind Energy Development in Northern Arizona and the Southern Colorado Plateau. Northern Arizona University.

Osenberg, C.W., R.J. Schmitt, and S.J. Holbrook. 1994. Detection of environmental impacts: natural variability, effect size, and power analysis. Ecological Applications 4(1): 16-30.

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July 5th, 2023

Allison Fitzpatrick
Environmental Assessment Officer
Environmental Assessment Branch
Nova Scotia Environment and Climate Change
Email: allison.fitzpatrick@novascotia.ca

RE: Consultation with the Mi'kmaq of Nova Scotia on Weavers Mountain Wind Energy Project, Antigonish County and Pictou County

Ms. Fitzpatrick,

I write in response to your letter dated June 5, 2023, requesting consultation under the *Terms of Reference for a Mi'kmaq-Nova Scotia-Canada Consultation Process (ToR)* as ratified on August 31, 2010, on the above noted project. We wish to proceed with consultation.

Kwilmu'kw Maw-Klusuaqn Negotiation Office (KMKNO) is pleased to see Glooscap First Nation as a partner with WEB Weavers Mountain Wind GP Inc. and SWEB Development Limited Partnership on this proposed wind project. We are encouraged to see that the Mi'kmaq are at the forefront of various renewable energy projects, and we recognize the need for additional work in the transition away from fossil fuels.

The Environmental Assessment Registration Document (EARD) states that Mainland Moose, American Eel, Atlantic Salmon, Brook Trout, but not limited to, were all found in the project area and are of great importance to the Mi'kmaq. It is our expectation that Nova Scotia Environment and Climate Change (NS-ECC) will ensure these species will not be impacted by this proposed project.

It is encouraging to see an Environmental Protection Plan (EPP) being developed. We are requesting the EPP be sent to our office by NS-ECC or the proponent for review and comment. We would also like to recommend that where vegetation resources will be removed for new builds (Section 7.1.2.6), that these resources should be made accessible for harvest to the local Mi'kmaw Communities should they have interest.

After reviewing the proponent's Mi'kmaq Engagement in Section 5.3 of the EARD, we recommend a greater effort of engagement with Pictou Landing First Nation and Paqtnkek First Nation. These two communities are the nearest First Nation Communities to the project and with the Mi'kmaq Ecological Knowledge Study (MEKS) summary highlighting "Really good hunting, fishing, and gathering in that area, concerned about effect of turbines/project on these activities," it is strongly recommended a greater engagement with these two communities. An

open house for community members and meetings with both Chief and Councils is recommended.

Section 7.2.5 of the EARD states that there is potential for acid generating rock during the construction of this proposed project and that “The likelihood of ARD occurring will be determined following the results of the geotechnical evaluation.”. Please keep our office updated on the results of this evaluation as it may impact ground and surface water.

It is encouraging to see this EARD assess the cumulative impacts of this project and its surrounding areas. With the large volume of proposed projects being submitted to regulators and approved in recent months, it is our expectation that NS-ECC is also monitoring the cumulative impacts of all projects within Mi’kma’ki (the unceded land of the Mi’kmaq).

The KMKNO Archaeological Research Department (ARD) has reviewed documentation for Weavers Mountain Wind Energy Project EARD, particularly Section 9 (pages 212-216), the summary Mi’kmaq Ecological Knowledge Study (MEKS) found in the EARD, and an Archaeological Resource Impact Assessment (ARIA)(A2023NS002), which has been conducted by Boreas Heritage Inc.

A total of sixteen (16) high potential areas were identified in the ARIA A2023NS002 (HPA-01 - HPA-16). The Archaeology Research Division (ARD) can support, at this time, the recommendation that these areas of high archaeological potential “be avoided during any proposed development and/or ground disturbance activities associated with the proposed Project, to prevent accidental impacts to areas ascribed high archaeological potential” (A2023NS002, 68). We cannot support the recommendation that the remainder of the Assessment Areas described and depicted in the ARIAs “be cleared of any requirement for further archaeological investigation” (A2023NS002, 68). There was no subsurface testing. The MEKS reports a recent and historic Mi’kmaq use within the Study Area (EARD, May 2023, 22). Although it was reported in the MEKS that known archaeological finds/sites were identified as “accidental finds” in the vicinity of the Study Area, they were often found close to rivers and waterbodies, as well as among present-day development (EARD, May 2023, 22). We would like to emphasize that whenever a landscape has been used for hunting, fishing, and harvesting (both aquatic or terrestrial) in the past and currently, there is a chance that remains of cultural heritage may also be present. Any time there is a watercourse, named or unnamed, regardless of size or velocity, and whether there is terracing or not, there is a heightened probability of encountering Mi’kmaw archaeological heritage. Often, smaller streams or rivers were, and sometimes continue to be, used by Mi’kmaq on journeys by foot because they not only provide a safe and clear route of travel, but provide fresh water, plants to harvest, and a variety of aquatic resources or animals drawn to the water.

The Assembly of Nova Scotia Mi’kmaw Chiefs expects a high level of archaeological diligence with evidence-based decisions grounded in an understanding of the subsurface environmental data. The Maw-lukutijik Saqmaq (Assembly of Nova Scotia Mi’kmaw Chiefs) expects subsurface data, adequate to eliminate concern for presence, protection, and management of Mi’kmaw archaeological and cultural heritage as part of assessment of potential in advance of any development. Without subsurface testing, the evidence of a lack of concern in impact areas

does not exist. Disturbance is defined, for archaeological purposes, as the dislocation of soils and/or sediments, such as that by heavily treaded or tracked vehicles, as well as purposeful excavation by heavy equipment.

We consider any construction project that may exist in proximity to a water course or wetland to have elevated potential for encountering Mi'kmaw belongings, regardless of size or record of traditional use, such as animal or plant harvesting. The implications of the landscape outweigh the lack of historical information. The lack of archaeological evidence may be a reflection of a lack of study.

We would recommend that all areas impacted be subjected to shovel testing prior to any development (both high and low potential areas) to eliminate concern for presence, protection, and management of Mi'kmaw archaeological and cultural heritage as part of assessment. We wish to clarify that negative tests and negative evidence are considered relevant and important data.

KMKNO does not represent the communities of Membertou, Millbrook or Sipekne'katik First Nations.

Please contact Patrick Butler, Senior Mi'kmaw Energy and Mines Advisor at KMKNO for any further questions.

Yours in Recognition of Mi'kmaw Rights and Title,

Director of Consultation
Kwilmu'kw Maw-Klusuaqn Negotiation Office

c.c.:

Kwilmu'kw Maw-klusuaqn Negotiation Office
Kendra Gorveatt, Nova Scotia Office of L'nu Affairs
Kim Bard, Nova Scotia Environment and Climate Change
Marc Theriault, Nova Scotia Environment and Climate Change
Melanie Cameron, Nova Scotia Natural Resources and Renewables



Membertou

Allison Fitzpatrick
Environmental Assessment Officer
Nova Scotia Environment and Climate Change, EA Branch
Barrington Place
1903 Barrington St., Suite 2085
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Sent via e-mail: allison.fitzpatrick@novascotia.ca

July 6, 2023

Dear Ms. Fitzpatrick:

Re.: Weavers Mountain Wind Energy Project, Antigonish County and Pictou County, NS

Thank you for your correspondence of June 5, 2023 regarding the Weavers Mountain Wind Energy Project, Antigonish County and Pictou County. While Membertou maintains that the inherent rights of the Mi'kmaq, including the Mi'kmaq of Membertou extend throughout Mi'kmaki, we feel the impact of the proposed project will be minimal and we do not have any concerns with this project at this time.

If you have any questions or concerns, please do not hesitate to contact me.

Sincerely,

cc.

From: @tncweb.ca
To: [Environment Assessment Web Account](#)
Subject: Proposed Project Comments
Date: June 8, 2023 6:17:02 PM

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: weavers-mountain-wind-energy Comments: I own a 350 acre woodlot about 4 km west of the nearest proposed turbine. They will be visible from my property. I support this proposal. It is an excellent choice for wind energy production. This area is generally used for forest production. I do not anticipate any harmful effects to wildlife or to plant life. Any minimal effects can be mitigated. Name: Email: @tncweb.ca
Address: Municipality: Hopewell
email_message: Privacy-Statement: agree x: 61 y: 20

From: @gmail.com
To: [Environment Assessment Web Account](#)
Subject: Proposed Project Comments
Date: June 9, 2023 8:29:55 AM

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: weavers-mountain-wind-energy Comments: This project may receive federal funding.
Does this project therefore require federal impact assessment? Ref. Canadian Wildlife Service
CW 66 363 2007, section 1.3 Name: Email: @gmail.com
Address: Municipality: Souris PE email_message: Privacy-Statement: agree x:
84 y: 18

From: @GMAIL.COM
To: [Environment Assessment Web Account](#)
Subject: Proposed Project Comments
Date: June 9, 2023 9:55:13 AM

**** EXTERNAL EMAIL / COURRIEL EXTERNE ****

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Project: weavers-mountain-wind-energy Comments: Fully support this. Great position for it near the new highway. All renewable projects should be fast-tracked - switch over to cheaper renewable energy as fast as possible and accelerate shutting down the coal plant in Trenton. Id much rather see wind turbines turning slowly in the wind than a smokestack putting more pollution out. Name: Email: GMAIL.COM Address: Municipality: TRENTON email_message: Privacy-Statement: agree x: 55 y: 15