



Jericho Wind Energy Centre 2015 Wildlife Behaviour Monitoring

Natural Resource Solutions Inc. (NRSI) conducted post-construction monitoring at the operational Jericho Wind Energy Centre (Jericho WEC) located in the Municipality of Lambton Shores and the Township of Warwick, Lambton County, Ontario. This wind energy project has a generating capacity of 150MW and consists of 92 turbines. This document provides an executive summary of the methods and results of the first year of post-construction wildlife monitoring conducted at the Jericho WEC in 2015.

Methods

NRSI biologists conducted post-construction wildlife behaviour monitoring at the Jericho WEC following methods approved by the Ontario Ministry of Natural Resources and Forestry (MNRF) as part of the project's Natural Heritage Assessment (NHA) and Environmental Effects Monitoring Plan (EEMP) (AECOM 2013a, 2013b). As outlined in these documents, a total of 16 provincially significant wildlife habitats required post-construction surveys, including:

- Six Bat Maternity Colony habitats (BMC-143, BMC-155, BMC-168, BMC-216, BMC-217, BMC-382);
- Eight Amphibian Woodland Breeding Habitats (AWO-03, AWO-04, AWO-05, AWO-08, AWO-11, AWO-12, AWO-13, AWO-19);
- One Amphibian Movement Corridor Habitat (AMC-01); and
- One Bald Eagle Nesting, Foraging, and Perching Habitat (BEN-01).

These habitats were identified to be provincially significant in the NHA, completed prior to the construction of the project. Provincial significance of habitats was identified based on criteria established by the MNRF.

Post-construction monitoring was not required at one Amphibian Woodland Breeding Habitat (AWO-01) as a result of nearby infrastructure not being built.

As per the Environmental Impact Study (EIS) report of the NHA and the EEMP (AECOM 2013a, 2013b), the following methods were implemented for the monitoring study:

- Acoustic through-the-night bat monitoring and evening visual bat surveys were conducted on at least 10 nights in June and early July;
- Amphibian surveys were conducted during the spring, including:
 - Calling anuran (frog) surveys (once in each of April, May, and June);
 - Egg mass surveys targeting salamanders/newts (once in April); and
 - Larval surveys targeting salamanders/newts (once in late May or early June);
- Bald eagle behaviour surveys were conducted twice per week during the nesting season, beginning on February 17, and ending on August 14.

Results

Bat Maternity Colony Habitats

The results of the post-construction Bat Maternity Colony Habitat surveys completed by NRSI in 2015, in comparison with the baseline data collected from 2010-2011, are outlined in the table below.

Habitat ID	Pre-Construction Results (2010-2011)	Post-Construction Results (2015)
BMC-143	Significant Big Brown Bat Silver-haired Bat	Significant Big Brown Bat Silver-haired Bat
BMC-155	Significant Big Brown Bat Silver-haired Bat	Significant Big Brown Bat Silver-haired Bat
BMC-168	Significant Big Brown Bat Silver-haired Bat	Significant Big Brown Bat Silver-haired Bat
BMC-216	Significant Big Brown Bat Silver-haired Bat	Significant Big Brown Bat Silver-haired Bat
BMC-217	Significant Big Brown Bat Silver-haired Bat	Significant Big Brown Bat Silver-haired Bat
BMC-382	Significant Little Brown Myotis Northern Myotis	Not Significant Does not meet standards of significance for any bat species

The results observed at BMC-382 indicate this habitat does not currently meet the provincial standards of significance, due to a reduction in documented calls of *Myotis* species. This decline is expected to be a result of the influence of the fungal disease white-nose syndrome, which has decimated populations of *Myotis* species in Ontario since the disease was first discovered in the province in 2010, rather than any indirect change in use resulting from the nearby operational wind turbines. Monitoring will continue for an additional two years at each bat habitat to observe any other variation in bat activity or species composition.

Amphibian Woodland Breeding and Movement Corridor Habitats

The results of the post-construction Amphibian Woodland Breeding and Movement Corridor Habitat surveys completed by NRSI in 2015, in comparison with the baseline data collected in 2013, are outlined below:

Habitat ID	Pre-Construction Results (2013)	Post-Construction Results (2015)
AWO-03	Significant ≥20 individuals, 2 salamander species and ≥20 individuals, 2 frog species	Significant ≥20 individuals, 1 salamander species and ≥20 individuals, 4 frog species
AWO-04	Significant ≥20 individuals, 1 salamander species	Significant ≥20 individuals, 1 salamander species and ≥20 individuals, 4 frog species
AWO-05	Significant ≥20 individuals, 1 salamander species and ≥20 individuals, 2-3 frog species	Significant ≥20 individuals, 4 frog species

Habitat ID	Pre-Construction Results (2013)	Post-Construction Results (2015)
AWO-08	Significant ≥20 individuals, 1 salamander species	Significant ≥20 individuals, 3 frog species
AWO-11	Significant ≥20 individuals, 1 salamander species	Significant ≥20 individuals, 3 frog species
AWO-12	Significant ≥20 individuals, 3 frog species	Significant ≥20 individuals, 1 salamander species and ≥20 individuals, 4 frog species
AWO-13	Significant ≥20 individuals, 3 frog species	Significant ≥20 individuals, 3 frog species
AWO-19	Significant ≥20 individuals, 1 salamander species	Significant ≥20 individuals, 3 frog species
AMC-01	Significant ≥20 individuals, 3 frog species	Significant ≥20 individuals, 3 frog species

All significant amphibian woodland breeding habitats continue to meet the provincial standards for significance.

Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat

The results of the post-construction Bald Eagle and Osprey Nesting, Foraging, and Perching habitat surveys completed by NRSI in 2015, in comparison with the baseline data collected in 2013, are outlined below:

Habitat ID	Pre-Construction Results (2013)	During-Construction Results (2014)	Post-Construction Results (2015)
BEN-01	Significant Adult pair of bald eagles, egg incubation, and first year juvenile	Significant Adult pair of bald eagles, egg incubation, and first year juvenile	Significant Adult pair of bald eagles, egg incubation, and first year juvenile

The identified bald eagle nesting, foraging, and perching habitat continues to meet the provincial standards for significance.

Additional Monitoring Commitments

Post-construction wildlife monitoring conducted by NRSI in 2015 represents the first year of post-construction monitoring conducted at the Jericho Wind Energy Centre.

Post-construction surveys are required to be conducted for two additional years for the majority of significant wildlife habitats in the Jericho WEC project area. Surveys will be conducted in 2016 and 2017 for the following habitats, in accordance with the EIS of the NHA and EEMP (AECOM 2013a, 2013b):

- Bat Maternity Colony Habitats (BMC-143, BMC-155, BMC-168, BMC-216, BMC-217, BMC-382);
- Amphibian Woodland Breeding Habitats (AWO-03, AWO-05, AWO-08, AWO-11, AWO-12, AWO-13);
- Amphibian Movement Corridor Habitat (AMC-01); and
- Bald Eagle and Osprey Nesting, Foraging, and Perching Habitat (BEN-01).

The confirmation of significance of AWO-04 and AWO-19 during Year 1 after construction of the Jericho WEC satisfies the monitoring requirements for these habitats, and no additional monitoring is required at these locations.