Keeyask Generation Project

Terrestrial Effects Monitoring Plan

Bird Collisions Monitoring Report

TEMP-2021-12

KEEYASK

Manitoba Conservation and Climate Client File 5550.00
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2020 -2021

KEEYASK GENERATION PROJECT

TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2021-12

BIRD-COLLISION MONITORING

Prepared for

Manitoba Hydro

By

Wildlife Resource Consulting Service MB Inc.

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SUMMARY

Background

Construction of the Keeyask Generation Project (the Project) at Gull Rapids began in July 2014. The Keeyask Hydropower Limited Partnership (KHLP) was required to prepare a plan to monitor the effects of construction and operation of the generating station on the terrestrial environment. Monitoring results will help the KHLP, government regulators, members of local First Nation communities, and the general public understand how construction and operation of the generating station are affecting the environment, and whether or not more needs to be done to reduce harmful effects.

This report describes the results of bird-collision monitoring at the communication tower on the Project powerhouse in 2020.

Why is the study being done?

A steel communication tower, that may pose a collision risk to flying birds, was partially constructed on the Project powerhouse in the winter of 2019/2020. The tower may create an obstacle to flying birds, particularly gulls that nest on nearby islands, and they may be killed or injured if they collide with the tower. If monitoring shows the tower is causing numerous bird deaths or injuries, mitigation, such as making the tower more visible, may need to occur.

What was done?

Searches for dead birds and other collision evidence, such as groups of feathers, was conducted around the base of the incomplete communication tower during the spring and fall of 2020. An area of approximately 50m around the base of the tower, including the powerhouse roof, powerhouse deck, and ground below the building was searched.

What was found?

No evidence of bird collisions was found near the communication tower in 2020.

What does it mean?

As it stands, it appears that the communication tower is not causing excessive bird mortalities and no mitigation measures for the tower are necessary at this time.

What will be done next?

Once the top of the tower is completed (including the top portion of the structure and lighting), further monitoring for bird collisions will take place in the fall of 2021 to determine if the communication tower is posing a hazard to the local bird populations.

STUDY TEAM

We would like to thank Sherrie Mason and Rachel Boone of Manitoba Hydro for reviewing the report. We would also like to thank Dr. James Ehnes, ECOSTEM Ltd., for GIS supported study design and cartography.

Biologists, technicians, and other personnel who designed, participated in, and drafted the study results included:

- Robert Berger, M.N.R.M., Design, analysis, and reporting
- Mark Baschuk, M.Sc., Analysis, and reporting
- Kevin McRae, B.Sc., Survey personnel
- Brian Fournier, Site Environmental Inspector, Survey personnel
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1.0 INTRODUCTION

Construction of the Keeyask Generation Project (the Project), a 695-megawatt hydroelectric generating station (GS) and associated facilities, began in July 2014. The Project is located at Gull Rapids on the lower Nelson River in northern Manitoba where Gull Lake flows into Stephens Lake, 35 km upstream of the existing Kettle GS (Map 1).

The *Keeyask Generation Project: Response to EIS Guidelines* (KHLP 2012a) provides a summary of predicted effects and planned mitigation for the Project. Technical supporting information for the terrestrial environment, including a description of the environmental setting, effects and mitigation, and a summary of proposed monitoring and follow-up programs is provided in the *Keeyask Generation Project Environmental Impact Statement: Terrestrial Environment Supporting Volume* (KHLP 2012b). The *Terrestrial Effects Monitoring Plan* (KHLP 2015) was developed as part of the licensing process for the Project. Monitoring activities for various components of the terrestrial environment were described, including the focus of this report, bird collisions with lighted towers.

Bird collisions with stationary objects, such as towers, is a significant source of mortality for birds in North America (Longcore *et al.* 2012). Tower characteristics including height, lighting, and the presence of guywires, may play a role in the risk it poses to flying birds (Gehring *et al.* 2011). As part of Project construction, a communication tower was partially erected in the winter of 2019/2020, with only the top portion remaining to be attached. The tower is self-supporting (not guyed), made of steel lattice and will stand 53.6 m tall (215 masl) once completed, making it the highest point at the Project site. Due to the height of the tower and the close proximity of colonially nesting gulls in the tailrace area, surveys for bird collisions were conducted in 2020 to determine the risk the partially constructed tower posed to birds in the area and the need for mitigation measures.

Map 1. Location of the Communication Tower at the Keeyask Generating Station

2.0 METHODS

A 50m radius area around the communication tower, including the powerhouse roof, deck, and the ground surrounding the powerhouse (Photo 1), was searched in the spring (on April 10 and April 26) and the fall (September 14, 19, and 24) of 2020. Searches were conducted by one or two personnel that walked parallel lines spaced 10 m apart. Personnel visually inspected the search area for signs of bird collisions (*i.e.,* carcasses and clusters of feathers). No vegetation was present on the site and visibility was generally unobstructed. A collision was recorded when the remains found consisted of more than five feathers in a square meter (Barrientos *et al.* 2012). If a carcass or collision evidence was found, the location of the collision was recorded using a handheld global positioning system (GPS), collision evidence was photographed, and any bird remains found were collected under a federal scientific permit. Any remains found were later identified to species, where possible, by a qualified biologist. Any bird remains were later disposed of according to permit conditions.

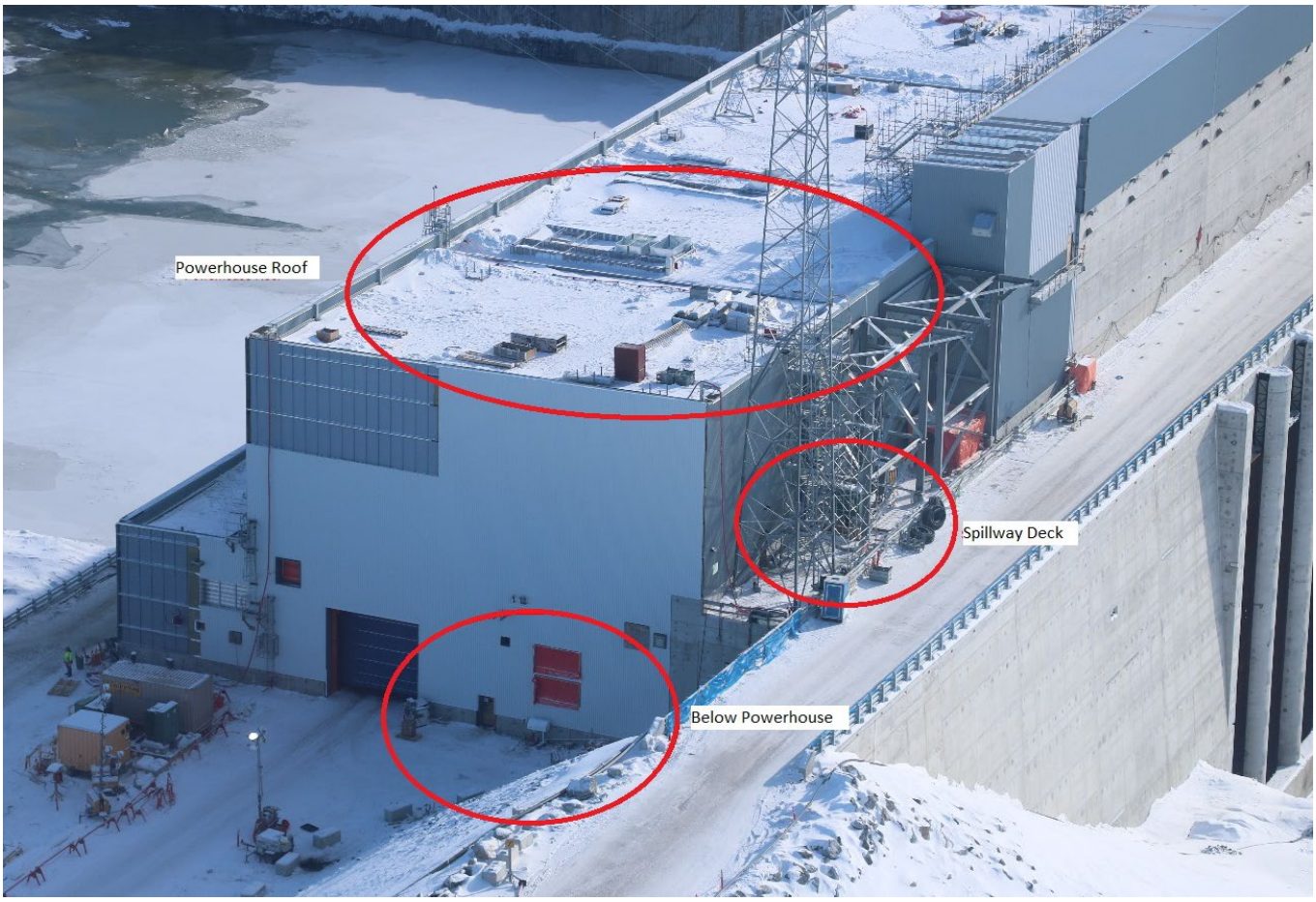

Photo 1. Communication Tower on the Powerhouse and Approximate Search Areas for Bird Collisions in 2020

3.0 RESULTS

No evidence of bird collisions was found near the communication tower in 2020. On April 26, 2020, several white/grey feathers were found on the roof of the powerhouse. There were not a sufficient number of feathers to be interpreted as a collision and were likely from a gull or gulls preening on the roof (Photo 2). Additionally, on September 24, 2020 a pellet (indigestible material regurgitated from a bird), likely from a gull species, was found on the powerhouse roof railing (Photo 3).

Photo 2. Feathers found on the Powerhouse Roof near the Communication Tower on April 26, 2020

Photo 3. Gull Pellet found on the Powerhouse Roof near the Communication Tower on September 24, 2020

4.0 DISCUSSION

No evidence of bird collisions was found in 2020 on the partially built tower, but due to the evidence found of preening birds on the powerhouse roof, and the close proximity of the communication tower to gull nesting colonies, there is a risk of bird collisions occurring at the site. No mitigation is recommended at this time.

Due the small search area, scavenger bias estimations were not calculated. As the scavenging rate is unknown at the site, and it is not feasible to calculate due to the small sample sizes that would be involved, further monitoring of bird collisions will occur in 2021 once the tower is completed, to determine if future mitigation measures are required.

5.0 SUMMARY AND CONCLUSIONS

The communication tower on the powerhouse did not appear to cause any mortalities to birds in 2020. Due to the close proximity of gull nesting colonies and the height of the tower, it may pose a collision risk to flying birds in the area. Further monitoring of bird collisions will occur in fall 2021 after the tower is completed to determine if future mitigation measures are required.

6.0 LITERATURE CITED

Barrientos, R., C. Ponce, C. Palacin, C. A. Martin, B. Martin, and J.C. Alonso. 2012. Wire marking results in a small but significant reduction in avian mortality at power lines: A CACI designed study. PLoS ONE 7: e32569.

Gehring, J., Kerlinger, P., and Manville, A.M. 2011. The role of tower height and guy wires on avian collisions with communication towers. Journal of Wildlife Management 75 (4): 848-855.

KHLP (Keeyask Hydropower Limited Partnership). 2012a. Keeyask Generation Station Project environmental impact statement – response to EIS guidelines. Prepared by Keeyask Hydropower Limited Partnership, Winnipeg, Manitoba. June 2012. 1208 pp.

KHLP (Keeyask Hydropower Limited Partnership). 2012b. Keeyask Generation Station Project environmental impact statement – terrestrial environment supporting volume. Prepared by Keeyask Hydropower Limited Partnership, Winnipeg, Manitoba. June 2012. 70 pp.

KHLP (Keeyask Hydropower Limited Partnership). 2015. Keeyask Generation Station Project - terrestrial effects monitoring plan. Prepared by Keeyask Hydropower Limited Partnership, Winnipeg, Manitoba. December 2015. 355 pp.

Longcore, T., C. Rich, P. Mineau, B. MacDonald, D. G. Bert, L. M. Sullivan, E. Mutrie, S. A. Gauthreaux Jr., M. L. Avery, R. L. Crawford, A. M. Manville II, E. R. Travis, and D. Drake. 2012. An estimate of avian mortality at communication towers in the United States and Canada. *PLoS ONE* 7(4): e34025.