Keeyask Generation Project

Terrestrial Effects Monitoring Plan

Bird-Collision Monitoring Report

TEMP-2024-11

KEEYASK

Manitoba Environment and Climate Change Client File 5550.00
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2023 -2024

KEEYASK GENERATION PROJECT

TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2024-11

BIRD-COLLISION MONITORING

YEAR 2 OPERATION

2023

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 the former Gull Rapids began in July 2014 and the generating station became fully operational in March 2022.

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 2023.

Why is the study being done?

A steel communication tower constructed on the Project powerhouse may be an obstacle to flying birds, particularly gulls that nest on nearby islands. Birds may be killed or injured if they collide with the communication tower. Monitoring will help determine if this occurring, and if mitigation, such as making the tower more visible to birds, needs to occur.

What was done?

Searches for dead birds and other collision evidence, such as groups of feathers, were conducted around the base of the communication tower during the spring and fall of 2023. An area of approximately 50 metres around the base of the tower, including the powerhouse roof, powerhouse deck, and the ground below the building was searched.

What was found?

Bird feathers and a fish spine were found on the powerhouse roof in 2023.

What does it mean?

It appears that the communication tower may have caused some bird mortality in 2023. No mitigation measures for the tower are recommended at this time.

What will be done next?

Further monitoring will take place in 2024 to determine if there are bird collisions with the communication tower.

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, WRCS, Design, analysis, and reporting
- Thomas Wood, WRCS, Analysis, and reporting
- Levi Warkentine, WRCS, Survey personnel
- Martial Lemoine, Manitoba Hydro, 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 and the station became fully operational in March 2022. The Project is located at the former Gull Rapids on the lower Nelson River in northern Manitoba where Gull Lake flows into Stephens Lake (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 the Project, a self-supporting (not guyed), steel lattice communication tower was built on the powerhouse. The tower is 53.6 m tall (215 masl), making it the highest point at the Project site. Due to the height of the tower and the proximity of colonially nesting gulls in the area immediately downstream of the spillway, surveys for bird collisions were conducted in 2020, when the tower was partially constructed, and in 2022 during the first year of Project operation, which found no evidence of bird collisions (WRCS 2021, WRCS 2023). Surveys in 2023 were conducted to monitor the collision risk the tower poses to birds in the area and determine the need for any mitigation measures.

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

2.0 METHODS

A 50-m radius area around the communication tower, including the powerhouse roof, deck, and the ground surrounding the powerhouse (Photo 1), was searched in the late-spring (June 20), early-summer (July 5 and 20), and late-summer (September 8) of 2023. Searches were conducted by one observer that walked parallel lines spaced 10 m apart over the area. The observer 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) and collision evidence was photographed. Photographs were then used later by a qualified biologist to identify species, where possible.

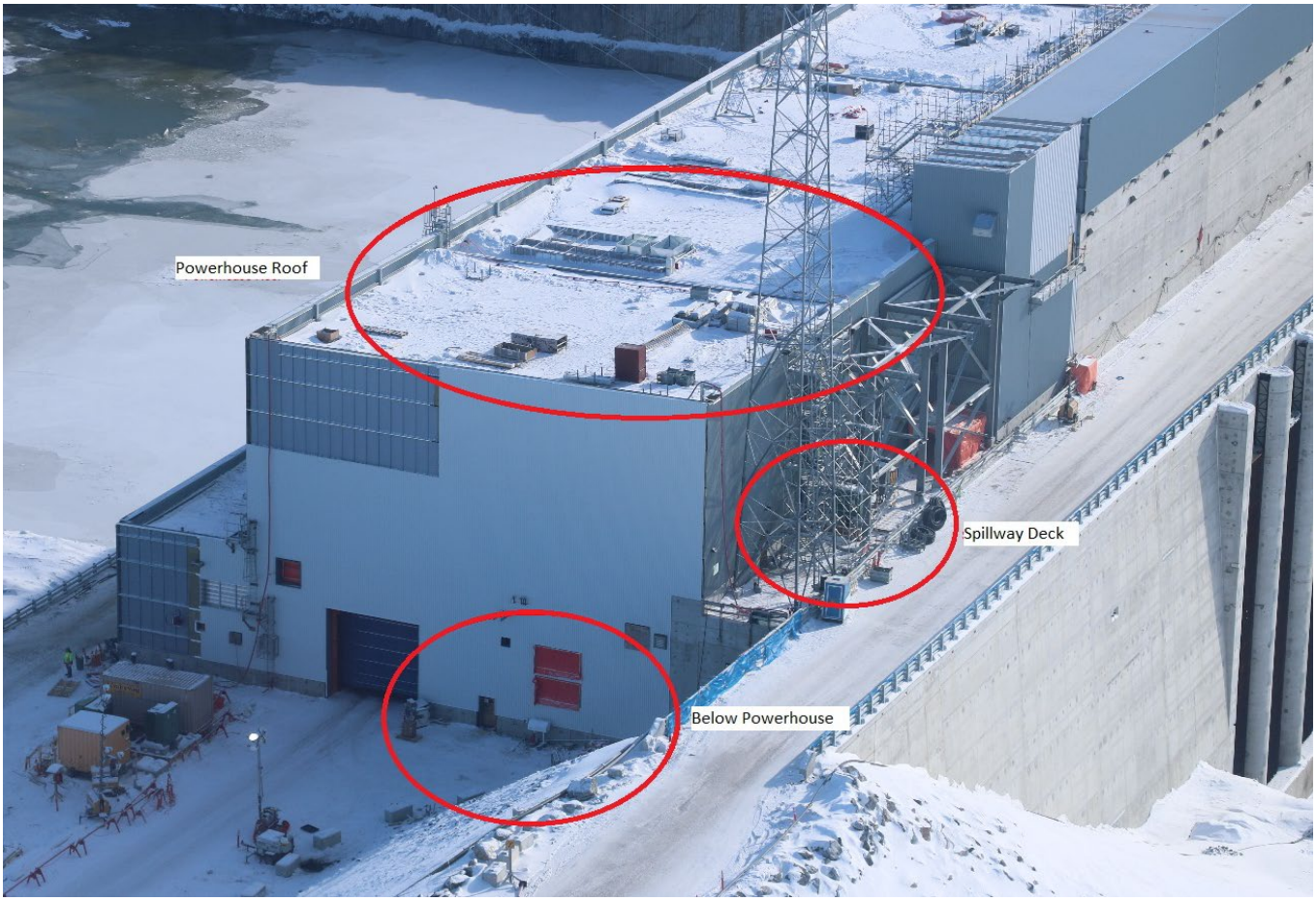

Photo 1. Communication Tower on the Powerhouse and Approximate Search Areas for Bird Collisions in 2023

3.0 RESULTS

Two groups of more than five feathers within a metre were found across the powerhouse roof on July 20, 2023. Both groups appeared to be from a gull species (Photo 2, Photo 3). Other feathers were present across the powerhouse roof but were below the threshold to be considered a collision event. Additionally, a fish spine was found on the powerhouse roof on July 20, 2023 (Photo 3). On July 18, 2023, a ring-billed gull wing was incidentally found on the powerhouse roof during a different survey but was no longer on the roof by the survey on July 20, 2023.

Photo 2: **Feathers on Powerhouse Roof, July 2023**

Photo 3: Feathers and Fish Spine on Powerhouse Roof, July 2023

4.0 DISCUSSION

Evidence of possible bird collisions near the communication tower were found in 2023. As both groups of feathers were found during the same survey, appeared to be from the same species, and the powerhouse roof had similar feathers scattered across it, it is likely both feather groups were from the same mortality event. Since only feathers were found, the gull could have been depredated and brought to the powerhouse roof for consumption by a predator, or the body was scavenged after a collision with the communication tower. The presence of a fish spine on the roof supports that birds do perch and consume prey on the powerhouse roof. No mitigation for bird collisions with the communication tower is recommended at this time.

Scavenger bias estimations were not calculated due to the small search area. 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 2024 to determine if the tower may be the cause of bird collisions.

5.0 SUMMARY AND CONCLUSIONS

The communication tower on the powerhouse may have caused some bird mortality in 2023. Mitigation measures are not recommended at this time. Further monitoring of bird collisions will occur in 2024 to determine if the tower is causing bird collisions, and whether future mitigation measures are required.

6.0 LITERATURE CITED

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