# Keeyask Generation Project

## Terrestrial Effects Monitoring Plan

# Bald Eagle Habitat Effects Monitoring Report

**TEMP-2023-11**

KEEYASK

Manitoba Environment and Climate Client File 5550.00
Manitoba Environment Act Licence No. 3107

**2022 -2023**

# KEEYASK GENERATION PROJECT

## TERRESTRIAL EFFECTS MONITORING PLAN

REPORT #TEMP-2023-10

## BALD EAGLE HABITAT EFFECTS MONITORING
## YEAR 1 OPERATION
## 2022

Prepared for

Manitoba Hydro

By

Wildlife Resource Consulting Services MB Inc.

June 2023

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# SUMMARY

## Background

Construction of the Keeyask Generation Project (the Project) began in July 2014 and became fully operational in March 2022. The Keeyask Hydropower Limited Partnership (KHLP) was required to prepare a plan to monitor the effects of operation of the generating station on the terrestrial environment, including bald eagles. Monitoring results will help the KHLP, government regulators, members of local First Nation communities, and the general public understand how operation of the generating station will affect bald eagles and their habitat, and whether more needs to be done to reduce potentially harmful effects.

Project operation was anticipated to reduce the amount of bald eagle foraging habitat in the upstream reservoir, which was likely to be offset by increased foraging opportunities in the tailrace area (immediately downstream of the spillway). These habitat changes were predicted to result in a shift of bald eagle use away from the reservoir to areas downstream of the Project. Additionally, the local bald eagle population was not expected to change appreciably.

This report describes the results of bald eagle habitat effects monitoring conducted during the summer of 2022, the first summer of full Project operation, and compares results to previous construction-phase surveys conducted in 2015, 2017, 2019, and 2021.

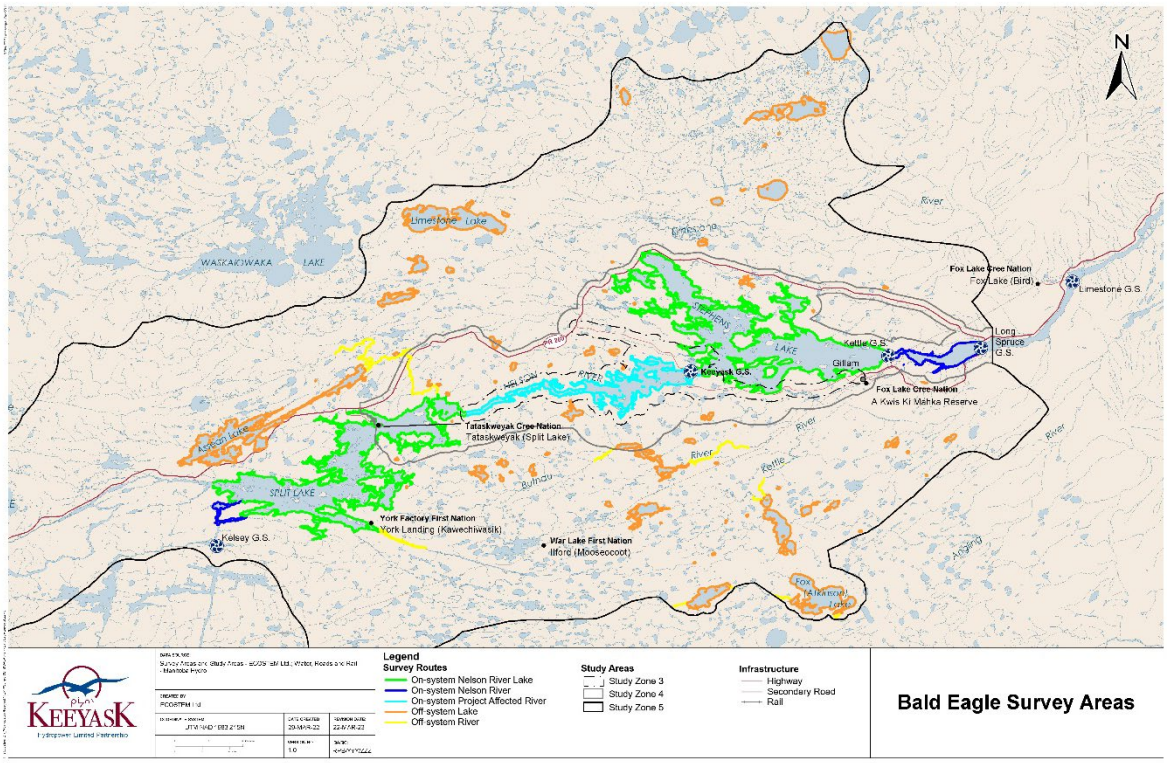
**Bald Eagle Attending a Nestling on an Artifical Nesting Platform (installed for the Project) in 2022**

## Why is the study being done?

The Project has the potential to affect bald eagle populations through alteration and loss of habitat. Bald eagle habitat effects monitoring is being done to evaluate Project effects on the number and location of bald eagles and their breeding habitats.

## What was done?

Helicopter-based aerial surveys took place in May, June, and July 2022 to determine the abundance, distribution, and habitat use of bald eagles in Project-affected areas and in reference areas. Bald eagle nests were also monitored for eggs and nestlings to monitor productivity. Previous construction-phase surveys in the same area were conducted in 2015, 2017, 2019, and 2021.




**Shorelines Surveyed for Bald Eagles and Nests in 2022**

## What was found?

A total of 113 bald eagle nests were identified and monitored in 2022, along the surveyed shorelines. Of the 113 nests identified, 66 were occupied by a breeding pair of bald eagles and 31 nests successfully produced 41 late-stage nestlings. Successful bald eagle nests produced 1.32 nestlings per nest.

The distribution and density of nests in the Project-affected hydraulic zone (all areas within 200 m of the actual Project footprint), remained similar in 2022 to previous surveys conducted during construction and pre-construction periods. Bald eagles built nests along the newly expanded shoreline in the reservoir and used two of the Project-constructed artificial nesting platforms.

Within the Nelson River hydraulic zone (mainly Split Lake and Stephens Lake), the percent of successful bald eagle nests was low compared to construction-phase surveys. This may have been a result of the high water levels in the Nelson River in 2022, resulting from large amounts of precipitation in southern Manitoba.

### What does it mean?

Project operation did not affect the number, distribution, or success of nests, or the number of chicks produced in 2022. The bald eagle population in the Project-affected hydraulic zone appears to be stable and sustainable, and the artificial nesting platforms are providing successful habitat mitigation.

In other areas of the Nelson River, including Split Lake and Stephens Lake, the high water levels in the spring and summer of 2022 likely reduced the ability of bald eagles to forage, resulting in the relatively high number of unsuccessful nests in these areas.

### What will be done next?

The 2022 bald eagle survey was the first operation-phase survey for the Project. During Project operation, bald eagle habitat effects monitoring will continue for the next 15 years. The next bald eagle survey is scheduled for 2023.

# STUDY TEAM

We would like to thank Custom Helicopters, and Sherrie Mason and Rachel Boone of Manitoba Hydro for their assistance. We would also like to thank Dr. James Ehnes, of ECOSTEM Ltd. for GIS supported study design and cartography.

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

- Robert Berger, Wildlife Resource Consulting Services MB Ltd. (WRCS), Design, analysis, and reporting
- Mark Baschuk, WRCS, Survey personnel, analysis, and reporting
- Thomas Wood, WRCS, Survey personnel

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# 1.0 INTRODUCTION

The Keeyask Generation Project (the Project) is a 695-megawatt hydroelectric generating station (GS), located at the former Gull Rapids on the lower Nelson River in northern Manitoba where Gull Lake flows into Stephens Lake. Project construction began in July 2014 and was fully operational in March 2022.

The Keeyask Generation Project: Response to EIS Guidelines (the EIS), completed in June 2012, provides a summary of predicted effects and planned mitigation for Project construction and operation. 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 (TESV). The Terrestrial Effects Monitoring Plan (TEMP) 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, bald eagle (*Haliaeetus leucocephalus*) habitat effects monitoring, for the operation phase of the Project.

Reservoir creation and Project operation was anticipated to reduce the amount of fast-flowing riverine areas in the Nelson River, resulting in a loss of bald eagle foraging habitat (KHLP 2012). The loss of bald eagle foraging habitat due to reservoir creation was predicted to be offset by the tailrace area, where increased foraging opportunities due to the increased accessibility to fish (KHLP 2012). It was expected that bald eagles that previously foraged between Birthday Rapids and Gull Rapids, would shift away from the reservoir to areas downstream of the Project (KHLP 2012). These changes were not expected to change the local population appreciably.

Overall, the Project was predicted to increase bald eagle habitat by 380 ha (0.03% of habitat in Study Zone 5) as a result of reservoir flooding and expansion creating riparian habitat suitable for nesting and perching (KHLP 2015a). Long-term loss of some perching and nesting trees in the reservoir was anticipated due to shoreline erosion and peatland disintegration (KHLP 2015a). The effect of tree loss is expected to be small as perching and nesting trees will be available in other areas of the new reservoir shorelines.

Previous bald eagle habitat effects monitoring, conducted during Project construction in 2015, 2017, 2019, and 2021 found that the distribution and number of bald eagle nests in the Project-affected hydraulic zone (all areas within 200 m of the Project reservoir footprint), remained similar during construction and during the pre-construction period (WRCS 2016; WRCS 2018; WRCS 2020; WRCS 2022). While Project construction did alter bald eagle habitat in the study area, it did not significantly affect the number, distribution, or success of nests, or the number of chicks produced.

The goal of this monitoring study was to evaluate how Project operation may have affected the abundance, distribution, and reproductive success of nesting bald eagles, and to assess the

effectiveness of Project-installed artificial nesting platforms (Photo 1). This report provides the results of the first year of operation-phase monitoring for the Bald Eagle Habitat Effects Study.

**Photo 1: Artificial Nesting Platform Installed on the Reservoir Shoreline in 2017**

# 2.0 METHODS

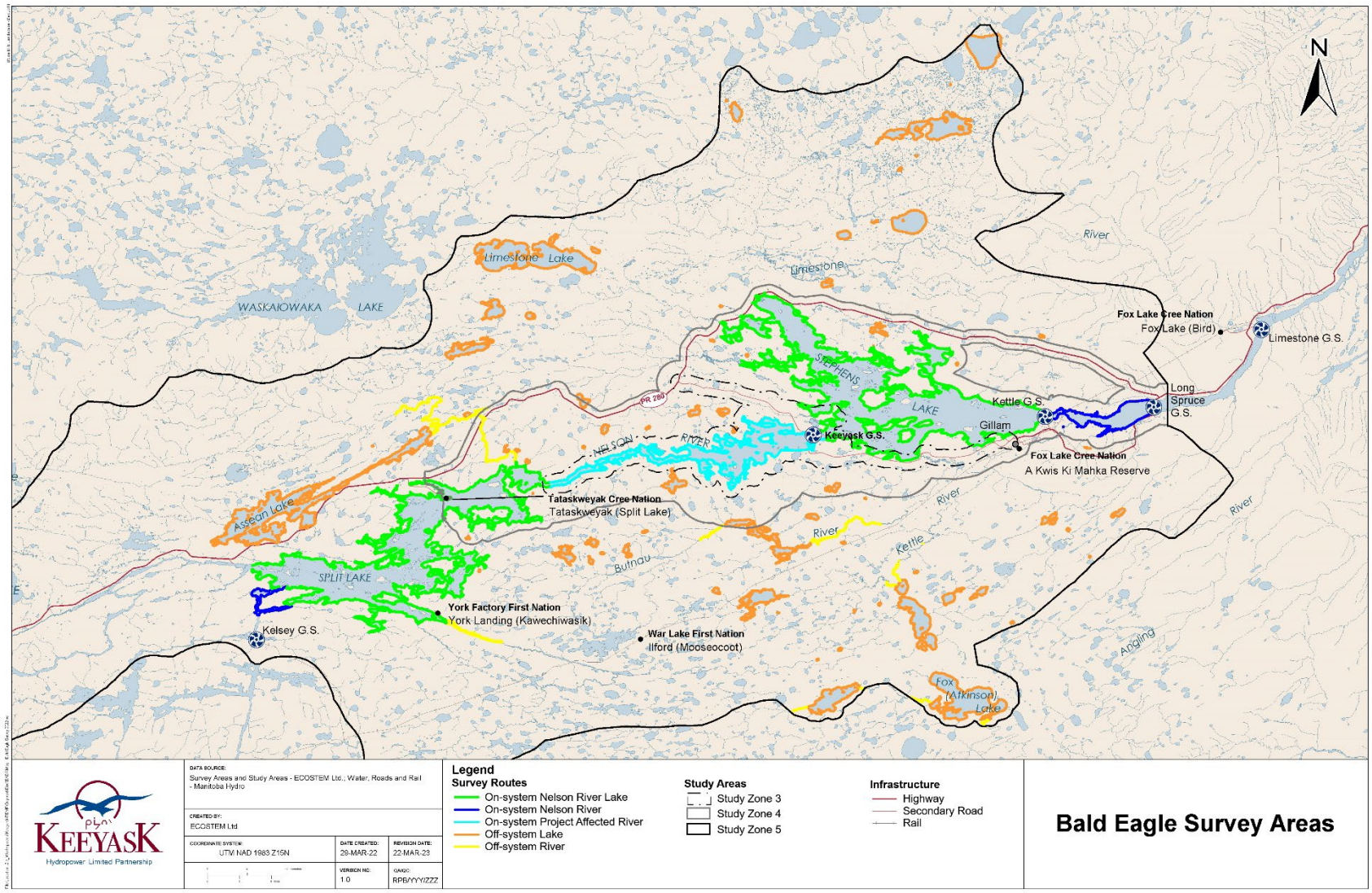
## 2.1 DATA COLLECTION

Helicopter-based aerial surveys were conducted to monitor the abundance, distribution, reproductive success, and habitat attributes of nesting locations of bald eagle in portions of Study Zone 5 during the 2022 breeding season (Map 1). Identical methods were used during the previous construction-phase surveys in 2015, 2017, 2019, and 2021 (WRCS 2016; WRCS 2018; WRCS 2020; WRCS 2022).

A random, stratified design was used to select waterbodies to be surveyed. Stratified random sampling is a method of sampling that involves the division of a population into smaller groups. These smaller groups (strata) were based on shared characteristics, including size and shoreline length. Waterbodies were classified broadly into either on-system (including Project-affected and Nelson River) or off-system hydraulic zones of influence, grouped into two basic categories (lake or river), and grouped into different size classes (0-10, >10-100, >100-1,000, >1,000-10,000, >10,000-100,000 ha). The Project-affected hydraulic zone includes all areas within 200 m of the actual Project reservoir footprint at the time of the survey (KHLP 2015a). The Nelson River zone included other reaches of the regulated Nelson River system from the Kelsey Generating Station (GS) downstream to the Limestone GS, but outside of the Project footprint. The Off-system zone included randomly selected waterways and waterbodies off the Nelson River system that are unaffected by hydroelectric development. The total shoreline lengths and distribution of waterbodies are presented in Table 1 and Map 1.

**Table 1: Shoreline Length (km) and Size Class (ha) of Waterbody Types Surveyed in 2022**

| Hydraulic Zone | Waterbody Type | Waterbody Size Class (ha) | | | | | Total Shoreline Length (km) |
|---|---|---|---|---|---|---|---|
| | | >0-10 | >10-100 | >100-1000 | >1,000-10,000 | >10,000-100,000 | |
| Project-affected | River | 0 | 0 | 0 | 327 | 0 | 327 |
| Nelson River | Lake | 0 | 0 | 0 | 34 | 1,411 | 1,445 |
| | River | 0 | 0 | 29 | 69 | 0 | 98 |
| Off-system | Lake | 18 | 50 | 213 | 606 | 0 | 887 |
| | River | 8 | 85 | 124 | 0 | 0 | 218 |
| **Total** | | 26 | 135 | 366 | 1,036 | 1,411 | 2,974 |




**Map 1: Shorelines Surveyed for Bald Eagles and Nests in 2022**

Aerial surveys followed protocols adapted from methods employed by the United States Fish and Wildlife Service (Jurek 1990; Jackman and Jenkins 2004) and the British Columbia Ministry of Environment (BCME 2013). Daily flights were conducted when wind speeds were below 25 km/h and when rain or fog did not restrict observers' ability to count birds or nests. The survey was flown at approximately 100 km/h and at elevations greater than 100 m above ground level (agl) to minimize disturbance to nesting bald eagles and avoid collisions with flying birds.

The aerial survey crew consisted of two observers and the helicopter pilot. The helicopter flew 50-100 m from the shoreline providing observers with a clear view of the trees along the shoreline. During the surveys, bird of prey observations and large stick nests were recorded along with their locations. Nests were named with a unique identification number ending with the year the nest was first observed (*e.g.*, 14-2015, 105-2017). Tree species, nest height and tree heights were estimated using professional judgement and were verified using photography. All observations were georeferenced with a global positioning system (Garmin GPS 64). When a nest was observed, the helicopter slowed and circled the site once to georeference the nest and collect photographs with a Canon EOS Rebel T6i camera. Photography was conducted quickly to minimize disturbing birds and observers retreated if the eagles displayed agitated behaviour. Photographs were reviewed to confirm occupancy, and to verify nest contents.

Additionally, the five artificial nesting platforms installed by the Project in February 2017 were also surveyed during the bald eagle habitat effects monitoring survey in 2022.

The first survey occurred from May 24-27, 2022 and was conducted to locate initial nests and determine occupancy. A nest was considered occupied if at least one adult bald eagle was present at the nest. The second survey in the mid-nesting season occurred from June 15-19, 2022, to determine the contents (*e.g.,* perched adult, incubating adult, nestlings, empty) of nests located in May and to locate any additional nests that were not detected during the first survey. The third and final survey, occurred between July 18-19, 2022, and determined the number of late-stage nestlings, near the fledgling stage of development (Photo 2) and documented any nests that were not detected in the previous surveys.

Bald eagle nests located off the survey route while ferrying between refueling stops were recorded as incidental and excluded from the final productivity analysis. Other bird of prey species and large stick nests observed during the survey were recorded as incidental.

**Photo 2: Late-stage Bald Eagle Nestling Observed during the July 2022 Survey**

## 2.2 DATA ANALYSIS

### 2.2.1 NEST ACTIVITY AND SUCCESS

Based on the results of the surveys, and using accepted standard methods (Jurek 1990; Jackman and Jenkins 2004), occupancy determinations were made for each monitored nest as follows:

- ***Active***: Nests were defined as *Active* if there were two sexually mature bald eagle present on or near a nest, or there was at least one bald eagle in incubating posture on a nest (Steenhof and Newton 2007) during any of the three survey visits. Bald eagles are capable of breeding in their fifth year and are unmistakable with their completely white head and tail (McCollough 1989). Nests defined as *Active* were further categorized as:
    - ***Active, Successful***: A nest with at least one late-stage nestling (dark plumage, no down present; Photo 2) or as a fledged juvenile observed near the nest (Steenhof and Newton 2007).
    - ***Active, Not Successful***: An *Active* nest with two sexually mature bald eagles and where no incubating adult or nestlings were observed.

- ***Active, Abandoned***: An *Active* nest containing an incubating adult, eggs or nestlings, where the adults ceased to attend the nest and did not successfully raise nestlings to the near fledging stage.
- ***Active, Success Unknown*****:** An *Active* nest containing an incubating adult, eggs or nestlings, that was not sufficiently monitored to determine reproductive success (*i.e., Active* nests observed in May or June and not observed in July).

- ***Inactive***: Nests were defined as *Inactive* when only one or zero sexually mature bald eagles were observed near a sufficiently monitored nest (*i.e.,* nests observed in May and *Active* nests first observed in June).
- ***Status Unknown***: Nests were defined as *Status Unknown* when an *Inactive* nest was not sufficiently monitored to determine reproductive success (*i.e., Inactive* nests only observed in June or July).

Percentage of *Active* nests is calculated as:

$$\%\ Active\ nests\ = \frac{\text{Total \# } Active \text{ nests}}{\text{\# } Active \text{ nests } + \text{ \# } Inactive \text{ nests}}$$

Percentage of *Successful* nests is calculated as:

$$\%\ Successful\ nests\ = \frac{\text{Total \# } Active, Successful \text{ nests}}{\text{\# } Active \text{ nests}}$$

The percent of active, successful nests observed in the Project-affected zone during Project construction was compared to the off-system and Nelson River hydraulic zones using a Wilcoxon signed-rank test (α=0.05).

### 2.2.2 REPRODUCTIVE SUCCESS

Reproductive success was calculated as the number of nestlings per bald eagle breeding pair (*i.e.*, per *Active* nests) and the number of nestlings per successful bald eagle breeding pair. Nests assessed as *Active, Success Unknown* were not included in reproductive success calculations as the number of late stage nestlings in these nests was undetermined. The number of nestlings observed in nests in July was used as the numerator for both calculations.

$$\text{\# Nestlings/Pair } = \frac{\text{Total \# late stage nestlings in } Active \text{ nests}}{\text{\# } Active \text{ nests}}$$

$$\#\ \text{Nestlings/Successful pair} = \frac{\text{Total \# late stage nestlings in } Active, Successful \text{ nests}}{\#\ Active, Successful \text{ nests}}$$

Because the incubation period for bald eagle eggs is 35 days (Buehler 2000), nests observed to contain nestlings in the June or July survey were either *Active* in May but not detected by the survey team or became active shortly after the May survey. Thus, *Active* nests first observed in June or July were included in occupancy determinations (Photo 3). *Inactive* nests observed for the first time in June or July were deemed *Status Unknown* because, without an observation earlier in the nesting season, there was no way to determine if the nest was used earlier in the season (*i.e.,* it was not known whether a nesting attempt had failed). Nests that did not contain nestlings in July but contained nestlings in June that were less than 10 weeks old, were assessed as *Abandoned*; it is confidently assumed that such nestlings did not survive to the point when they would fledge from the nest.

The number of late-stage nestlings per active nest observed and the number of late-stage nestlings per active, successful nest observed in the Project-affected hydraulic zone were compared to the values observed in the off-system and Nelson River hydraulic zones using a Wilcoxon signed-rank test (α=0.05).

**Photo 3: Bald Eagle Nest with Two Chicks, June 2022**

# 3.0 RESULTS

## 3.1.1 NEST ACTIVITY AND SUCCESS

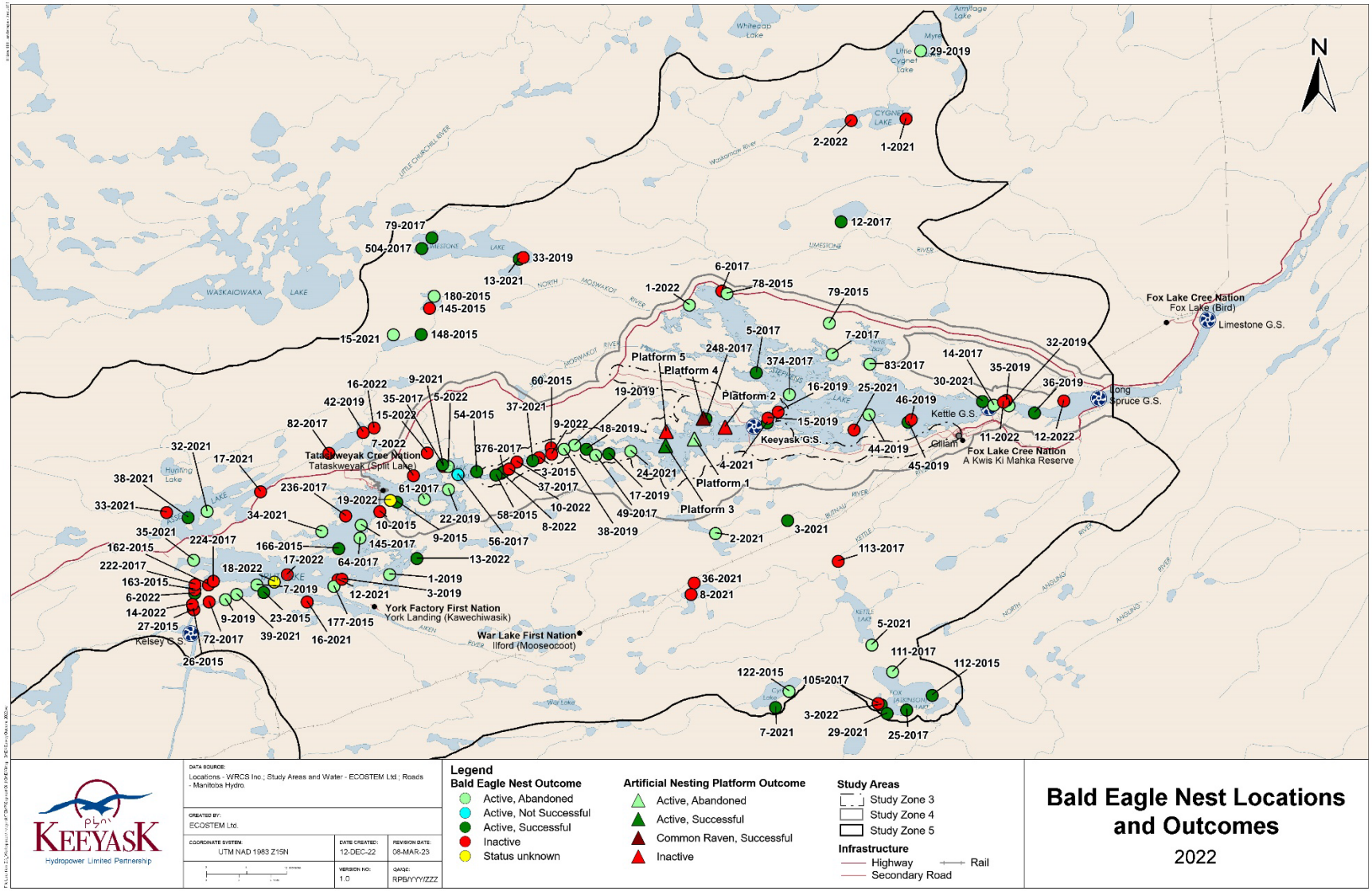
In 2022, a total of 113 bald eagle nests were found and monitored on the shorelines of surveyed waterbodies (Map 2), which was in the range observed previously during the construction-phase surveys from 2015-2021. Of the monitored nests, 19 were observed in the Project-affected zone, 59 were in the Nelson River zone, and 35 were in the Off-system zone (Map 2; Map 3). The distribution of bald eagle nests remained relatively steady in the different hydraulic zones during the initial operation-phase survey. There was no apparent shift in habitat use of bald eagles from the Project-affected zone to other areas (Map 2; Map 3).

The number of active, successful nests in Study Zone 5 in 2022 was lower than the number observed in three of the construction-phase survey years (2017, 2019, 2021), but greater than the number observed in 2015 (Table 2). The number of active, abandoned nests in 2022 was greater than those observed during construction-phase surveys, and was relatively high in the Nelson River zone in comparison to the other hydraulic zones (Table 2).

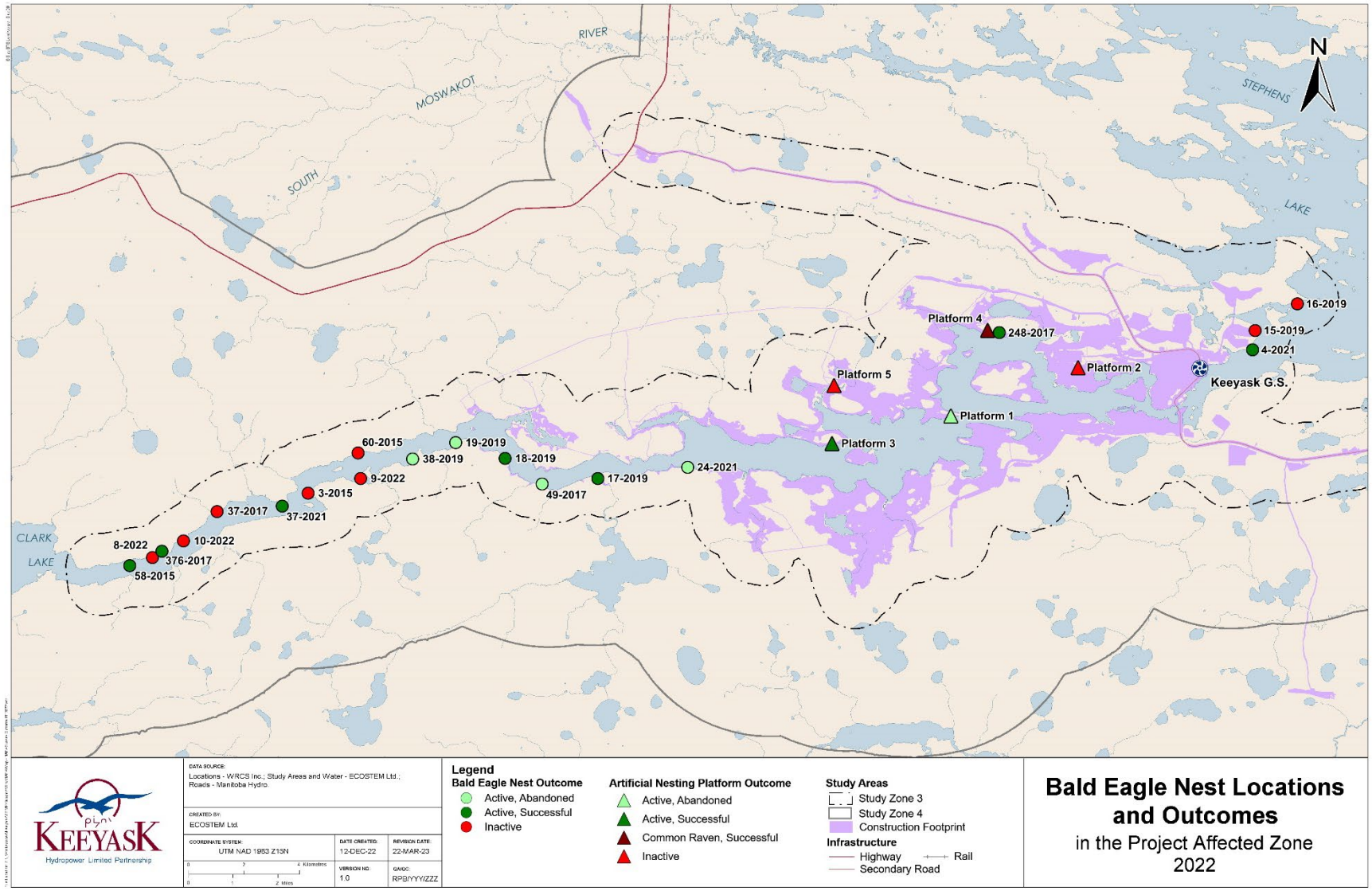
The overall, active nest density (nests/ 100 km of shoreline) in Study Zone 5 was higher in 2022 than the densities observed during construction-phase surveys (Table 3). Within the different hydraulic zones and waterbody types, active nest densities in 2022 were some of the highest observed in the respective areas, but within the ranges observed previously (Table 3).

A small increase of bald eagle nests within the Project-affected zone was observed in 2022, with the number of active nests higher than those observed during construction-phase surveys (Table 4). No changes were observed in the other hydraulic zones, with the number of active nests in the Nelson River and Off-system zones within the ranges observed during construction-phase surveys (Table 4).

The percent of active, successful nests in 2022 was variable between the different hydraulic zones. In the Project-affected zone, the percentage of active, successful nests was higher than those observed during three of the years of construction-phase surveys (2015, 2019, 2021), but lower than in 2017 (Table 4). In the Nelson River zone, the percentage of active, successful nests was the lowest observed to date (Table 4). A relatively large number of active nests were abandoned in this hydraulic zone during the incubation period. Within the Off-system zone, observations were within the ranges observed previously during construction-phase surveys (Table 4). The differences between the percent of active, successful nests in different hydraulic zones was not significant and the percent did not differ between the Project-affected zone and the Nelson River zone ($p=0.25$) or the Project-affected zone and the Off-system zone ($p=0.25$).




**Map 2: Bald Eagle Nest Locations and Outcomes on Surveyed Waterbodies in 2022**




**Map 3: Bald Eagle Nest Locations and Outcomes in the Project-Affected Hydraulic Zone in 2022**

**Table 2: Number and Outcomes of Bald Eagle Nests in Study Zone 5 from 2015-2022**

| Nest Outcome | Number of Bald Eagle Nests | | | | |
|---|---|---|---|---|---|
| | 2015 | 2017 | 2019 | 2021 | 2022 |
| Active, Successful | 25 | 36 | 44 | 38 | 31 |
| Active, Not Successful | 4 | 3 | 4 | 3 | 1 |
| Active, Nest Abandoned | 13 | 14 | 14 | 21 | 34 |
| Active, Success Unknown | 0 | 2 | 0 | 0 | 0 |
| Inactive | 18 | 38 | 43 | 58 | 45 |
| Status Unknown | 4 | 4 | 1 | 5 | 2 |
| **Total** | **64** | **97** | **106** | **125** | **113** |

**Table 3: Active Bald Eagle Nest Density (nests/100 km of shoreline) Within Study Zone 5 from 2015-2022**

| Hydraulic Zone | Waterbody Type | Nest Density (Nests/100 km) | | | | |
|---|---|---|---|---|---|---|
| | | 2015 | 2017 | 2019 | 2021 | 2022 |
| Project-affected | River | 4.08 | 3.67 | 3.67 | 2.75 | 3.67 |
| Nelson River | Lake | 0.90 | 1.45 | 2.21 | 1.87 | 2.08 |
| | River | 3.06 | 7.14 | 3.06 | 3.06 | 3.06 |
| Off-system | Lake | 1.69 | 1.92 | 1.80 | 2.25 | 2.03 |
| | River | 0.46 | 0.46 | 0.92 | 1.38 | 1.38 |
| **Total** | | **1.45** | **1.90** | **2.14** | **2.08** | **2.22** |

**Table 4: Productivity of Bald Eagle Nests During the 2015, 2017, 2019, 2021, and 2022 Breeding Seasons**

| | 2015 | | | | 2017 | | | | 2019 | | | | 2021 | | | | 2022 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Project-affected | Nelson River | Off-system | Study Zone 5 (All areas) | Project-affected | Nelson River | Off-system | Study Zone 5 (All areas) | Project-affected | Nelson River | Off-system | Study Zone 5 (All areas) | Project-affected | Nelson River | Off-system | Study Zone 5 (All areas) | Project-affected | Nelson River | Off-system | Study Zone 5 (All areas) |
| # Nests surveyed | 16 | 26 | 22 | 64 | 23 | 43 | 31 | 97 | 18 | 59 | 29 | 106 | 15 | 64 | 41 | 125 | 19 | 59 | 35 | 113 |
| # Active nests | 10 | 16 | 16 | 42 | 9 | 28 | 18 | 55* | 9 | 34 | 19 | 62 | 9 | 30 | 23 | 62 | 12 | 33 | 21 | 66 |
| # Active, Successful nests | 3 | 12 | 10 | 25 | 7 | 17 | 12 | 36 | 4 | 27 | 13 | 44 | 4 | 22 | 12 | 38 | 7 | 12 | 12 | 31 |
| % Active, Successful nests | 30 | 75 | 63 | 60 | 78 | 61 | 67 | 67 | 44 | 79 | 68 | 71 | 44 | 73 | 52 | 61 | 58 | 36 | 57 | 47 |
| # Late-stage nestlings | 6 | 20 | 16 | 42 | 11 | 26 | 15 | 52 | 7 | 46 | 22 | 75 | 5 | 33 | 18 | 56 | 9 | 16 | 16 | 41 |
| # Late-stage nestlings/ *Active* nests | 0.60 | 1.25 | 1.00 | 1.00 | 1.22 | 0.93 | 0.83 | 0.96 | 0.78 | 1.35 | 1.16 | 1.21 | 0.56 | 1.1 | 0.78 | 0.9 | 0.75 | 0.48 | 0.76 | 0.62 |
| # Late-stage nestlings/ *Active, Successful* nests | 2.00 | 1.67 | 1.60 | 1.68 | 1.57 | 1.53 | 1.25 | 1.44 | 1.75 | 1.70 | 1.69 | 1.70 | 1.25 | 1.5 | 1.5 | 1.47 | 1.29 | 1.33 | 1.33 | 1.32 |

### 3.1.2 REPRODUCTIVE SUCCESS

The number of late-stage nestlings per active nest and the number of late-stage nestlings per active, successful nest in Study Zone 5 in 2022 was lower in comparison to the number observed in all years of construction monitoring from 2015-2021 (Table 4). This was a result of a large decline of late-stage nestlings observed in the Nelson River zone, while the numbers observed in Project-affected and Off-system zones remained within the ranges observed previously (Table 4).

The number of late-stage nestlings per active nest, and the number of late-stage nestlings per active, successful nest in the Project-affected zone was not significantly different from those observed in the Nelson River ($p = 1.0$ and $p = 0.31$, respectively) or in the Off-system hydraulic zones ($p = 0.67$ and $p = 0.21$, respectively).

In 2022, two of the artificial nesting platforms installed by the Project in 2017 were used by nesting bald eagles (Table 5). One nest was abandoned by June and the other, on Platform 3, successfully raised one late-stage chick (Table 5; Photo 4). Common ravens also nested in two of the platforms, with one successful nest and another empty nest observed (Table 5).

**Table 5: Artificial Nesting Platform Contents during Surveys from 2017-2022. Note: Data from 2015 are absent as the artificial nesting platforms were installed in 2017**

| Nesting Platform | 2017 | 2019 | 2021 | 2022 |
|---|---|---|---|---|
| Platform 1 | Empty | Active common raven nest | Potential unused bald eagle nest | Incubating bald eagle in May, nest abandoned by June |
| Platform 2 | Empty | Empty | Empty | Empty |
| Platform 3 | Empty | Some sticks on platform | Potential unused bald eagle nest | Successful bald eagle nest, one late-stage nestling |
| Platform 4 | Some sticks on platform | Some sticks on platform | Active common raven nest | Successful common raven nest |
| Platform 5 | Empty | Empty | Some sticks on platform | Empty common raven nest |

**Photo 4: Successful Bald Eagle Nest with one Late-stage Nestling in Platform 3, July 2022**

# 4.0 DISCUSSION

Reservoir creation and Project operation was anticipated to reduce the amount of bald eagle foraging habitat, which was predicted to be offset by the tailrace area (KHLP 2012). These habitat changes were anticipated to result in a potential shift of bald eagle use away from the reservoir to areas downstream of the Project (KHLP 2012). Additionally, the local bald eagle population was not expected to change appreciably. These predictions are not strongly supported by the observations made in 2022, which suggest Project operation may have had smaller impacts on the local bald eagle population than predicted in the EIS.

Within the newly created reservoir, bald eagles appeared to occupy newly formed shoreline habitat and use the artificial nesting platforms. This resulted in 2022 having the greatest number of active nests observed in the Project-affected hydraulic zone during all survey periods from 2015-2022. In 2021, the year after the reservoir was filled, nest density in the Project-affected zone decreased as the amount of shoreline was increased, but the use of potential nesting habitat in the newly created reservoir was limited. In 2022, additional nests were constructed along the reservoir shoreline, including two on artificial nesting platforms, increasing the nest density in the Project-affected zone to what had been observed previously during the construction surveys in 2015, 2017, and 2019. Additionally, the number of successful nests and the number of late-stage nestlings in the Project-affected zone in 2022 was consistent with previous survey years, suggesting that sufficient foraging habitat was available to support the breeding bald eagles in this area.

The effective nesting habitat used in the newly formed reservoir may explain why there was no shift of nesting bald eagles from the reservoir to the tailrace area in 2022. Further surveys will determine if a gradual shift in nesting locations occur in the future.

In other areas, including the Nelson River hydraulic zone, there appeared to be a relatively large decrease in the number of successful nests. The number of active nests in the Nelson River zone in 2022 was consistent with previous survey years, but the percent of successful nests was the lowest observed from 2015-2021. The reason for the relatively high number of unsuccessful nests in the Nelson River zone is not clear. The water levels in the Nelson River in 2022 were some of the highest observed during the survey period from 2015-2022 (Appendix 1). These high water levels were due to historic levels of precipitation in southern Manitoba, which flowed through the system, increasing water levels in the Split Lake area by over one metre from May to June in 2022 (Appendix 1). The high water levels may have resulted in lower food availability or reduced foraging efficiency for bald eagles in the Nelson River zone, causing the relatively high number of unsuccessful nests. Higher water flows may reduce foraging efficiency of bald eagles by increasing water depth, turbidity, and velocity (Brown et al. 1998). This trend was not observed in the Project-affected or Off-system zones. The trend may not have been apparent in the Project-affected zone due to the water levels being moderated as a result of the Project (Appendix 1). Water levels in waterbodies in the Off-system zone are generally smaller waterbodies that are more isolated from precipitation effects in southern Manitoba.

Mainly due to the low number of successful nests in the Nelson River hydraulic zone, the number of successful nests and the ratio of late-stage nestlings to active nests the in Study Zone 5 in 2022 was below the general threshold of 50% nest success and 0.7 young fledged annually per nest that is required for a bald eagle population to be sustainable (Sprunt et al. 1973; Elliott et al. 1998). However, the results from 2022 are within the ranges presented by Gerard et al. (1992), from a long-term study in Saskatchewan from 1968-1991, that found that bald eagle nest success ranged from 42-88% and averaged one fledged young per successful nest. It appears that in 2022, the local bald eagle population in Study Zone 5 was stable or slightly decreasing due to the high water conditions in the Nelson River.

The artificial nesting platforms were successful in mitigating some of the nesting trees that were lost in the reservoir footprint. Four of the artificial platforms were used in 2022, two by bald eagles and two by common ravens. Due to the philopatric nature of bald eagles, it is likely that the artificial platforms used in 2022 will be occupied in the future. The presence of old common raven's nests in two of the platforms may also may them more appealing for bald eagles to use in the future.

# 5.0 SUMMARY AND CONCLUSIONS

Project operation did not appear to negatively affect bald eagle nest numbers or productivity in the reservoir and shifting of nests from the reservoir area to the tailrace area were not observed. An increased number of active nests were observed in the reservoir, including in the artificial nesting platforms, suggesting some of the newly created shoreline is suitable for nesting bald eagles.

A decreased number of bald eagle nests and lowered productivity was observed in the Nelson River hydraulic zone of the study area. The precise cause of this is unknown, but may have been related to the high water levels that occurred in the system in late spring/early summer due to excessive flow from southern Manitoba.

There were no significant differences in the percent of active, successful nests or the number of late-stage nestlings produced in the Project-affected zone compared to other zones in the study area. This suggests that sufficient nesting habitat and foraging opportunities exist within the study area to successfully nest and raise young.

The 2022 bald eagle survey was the first operation-phase survey for the Project. Bald eagle habitat effects monitoring will continue annually for the next 4 years, and then every second year until 2036. The next survey is scheduled for 2023.

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# Appendix 1 : Nelson River Water Levels

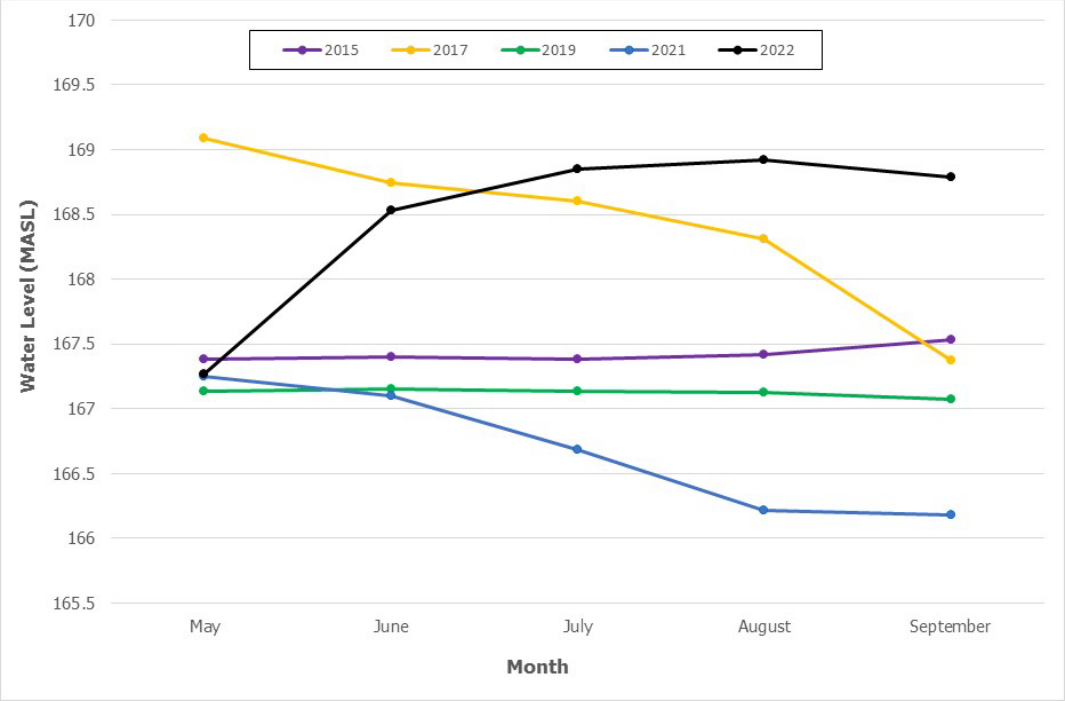


**Figure 1: Water Levels in Split Lake during Bald Eagle Surveys from 2015-2022**

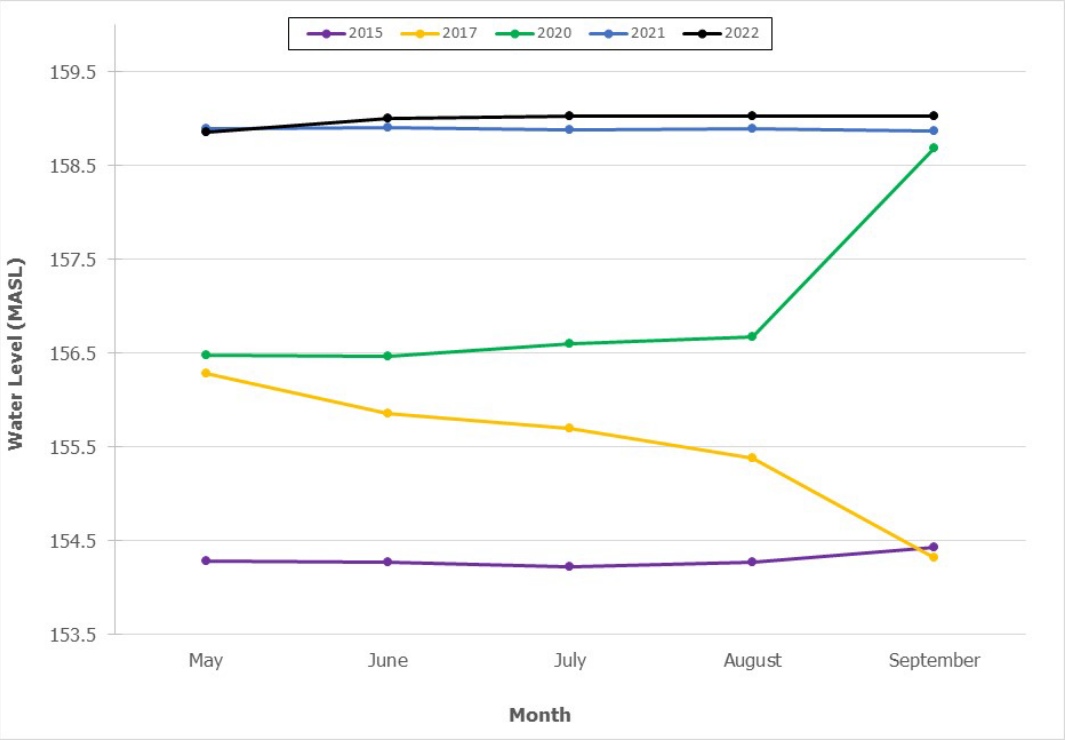


**Figure 2: Water Levels in the Former Gull Lake during Bald Eagle Surveys from 2015-2022**

# Appendix 2 : Bald Eagle Nest-Tree Types, Nest Heights, and Location

| Nest | Hydraulic Zone | Location | UTM | Nest Tree Type | Tree height (m) | Nest Height (m) |
|---|---|---|---|---|---|---|
| 3-2015 | Project-affected | Nelson River, Birthday Rapids | 15 V 331640 6242724 | Poplar | 17 | 15 |
| 8-2015 | Nelson River | Split Lake | 15 V 314661 6233773 | Poplar | 8 | 8 |
| 9-2015 | Nelson River | Split Lake | 14 V 682284 6235714 | Poplar | 12 | 12 |
| 10-2015 | Nelson River | Split Lake | 14 V 679877 6234113 | Dead Spruce | 22 | 20 |
| 2-2017 | Nelson River | Nelson River | 15 V 365925 6248579 | NA | NA | NA |
| 5-2017 | Nelson River | Stephens Lake, West shore | 15 V 364136 6255411 | Spruce | 12 | 11 |
| 6-2017 | Nelson River | Stephens Lake, North shore | 15 V 358991 6267595 | Poplar | 25 | 22 |
| 7-2017 | Nelson River | Stephens Lake, North shore | 15 V 375496 6258125 | Spruce | 12 | 12 |
| 11-2017 | Off-system | Cygnet Lake | 15 V 377203 6292419 | NA | NA | NA |
| 12-2017 | Off-system | Little Limestone Lake | 15 V 376851 6277952 | Jack Pine | 15 | 14 |
| 1-2019 | Nelson River | Split Lake | 14 V 682158 6224858 | Poplar | 10 | 10 |
| 7-2019 | Nelson River | Split Lake | 14 V 662493 6221592 | Spruce | 12 | 12 |
| 8-2019 | Nelson River | Split Lake | 14 V 657695 6219760 | Poplar | 12 | 12 |
| 9-2019 | Nelson River | Split Lake | 14 V 658045 6218971 | Spruce | 10 | 10 |
| 10-2019 | Nelson River | Split Lake | 14 V 661114 6226270 | Spruce | 10 | 10 |
| 11-2019 | Nelson River | Split Lake | 14 V 669963 6229782 | Spruce | 10 | 10 |
| 12-2019 | Nelson River | Split Lake | 14 V 672103 6230752 | Spruce | 12 | 12 |
| 1-2021 | Off-system | Cygnet Lake | 15 V 386537 6293363 | Aspen | 5 | 3 |
| 2-2021 | Off-system | Butnau lake | 15 V 358053 6231361 | Aspen | 4 | 4 |
| 3-2021 | Off-system | Butnau Lake | 15 V 368828 6233280 | Aspen | 5 | 4 |
| 4-2021 | Nelson River | Stephens Lake | 15 V 365786 6247903 | Spruce | 15 | 15 |
| 5-2021 | Off-system | Kettle Lake | 15 V 381433 6214677 | Aspen | 10 | 9 |
| 6-2021 | Off-system | Fox Lake | 15 U 379692 6207136 | Aspen | 15 | 14 |
| 7-2021 | Off-system | Cyril Lake | 15 U 367032 6205369 | Spruce | 12 | 12 |
| 8-2021 | Off-system | Little Kettle Lake | 15 V 354418 6222249 | Birch | 5 | 4 |
| 9-2021 | Nelson River | Split Lake | 15 V 317365 6241398 | Spruce | 15 | 15 |
| 10-2021 | Nelson River | Split Lake | 14 V 669963 6229782 | Aspen | 10 | 8 |

| Nest | Hydraulic Zone | Location | UTM | Nest Tree Type | Tree height (m) | Nest Height (m) |
|---|---|---|---|---|---|---|
| 11-2021 | Nelson River | Split Lake | 14 V 682644 6226890 | Spruce | 10 | 10 |
| 12-2021 | Nelson River | Split Lake | 14 V 674529 6223403 | Spruce | 12 | 11 |
| 1-2022 | Nelson River | Stephens Lake | 15 V 354138 6265478 | Aspen | 10 | 7 |
| 2-2022 | Off-system | Unnamed Lake | 15 V 378357 6293108 | Aspen | 10 | 8 |
| 3-2022 | Off-system | Fox Lake | 15 U 382874 6205739 | Spruce | 8 | 8 |
| 4-2022 | Off-system | Fox Lake | 15 V 383209 6211170 | Aspen | 10 | 8 |
| 5-2022 | Nelson River | Clark Lake | 15 V 318070 6241367 | Spruce | 8 | 8 |
| 6-2022 | Nelson River | Split Lake | 14 V 653377 6219513 | Aspen | 8 | 8 |
| 7-2022 | Nelson River | Split Lake | 14 V 684406 6239873 | Aspen | 5 | 5 |
| 8-2022 | Project-affected | Nelson River - Keeyask Reach | 15 V 326013 6240403 | Aspen | 6 | 5 |
| 9-2022 | Project-affected | Nelson River - Keeyask Reach | 15 V 333540 6243250 | Aspen | 5 | 5 |
| 10-2022 | Project-affected | Nelson River - Keeyask Reach | 15 V 327136 6240998 | Aspen | 6 | 4 |
| 11-2022 | Nelson River | Nelson River, Downstream of Kettle GS | 15 V 401116 6251007 | Spruce | 8 | 6 |
| 12-2022 | Nelson River | Nelson River, Downstream of Kettle GS | 15 V 410134 6251167 | Spruce | 4 | 4 |
| 101-2015 | Nelson River | Stephens Lake | 15 V 372381 6248802 | Dead Jack pine | 19 | 19 |
| 102-2015 | Project-affected | Nelson River | 15 V 358251 6245905 | Spruce | NA | 10 |
| 105-2017 | Off-system | Atkinson lake | 15 U 382376 6205969 | Spruce | 8 | 8 |
| 107-2015 | Off-system | Myre Lake | 15 V 389577 6302739 | Spruce | NA | 17 |
| 107-2017 | Off-system | Cyril River | 15 U 381232 6207044 | Spruce | 14 | 14 |
| 108-2015 | Off-system | Cygnet Lake | 15 V 380284 6292841 | Birch | 10 | 10 |
| 111-2017 | Off-system | Fox Lake | 15 V 384522 6210702 | NA | NA | NA |
| 112-2015 | Off-system | Atkinson lake | 15 U 390456 6207144 | Poplar | 25 | 20 |
| 113-2017 | Off-system | Kettle River | 15 V 376411 6227216 | Poplar | 12 | 10 |
| 115-2015 | Off-system | Atkinson lake | 15 U 388614 6205029 | Poplar | 25 | 20 |
| 117-2015 | Off-system | Atkinson lake | 15 U 383656 6205375 | Spruce | 20 | 20 |
| 121-2015 | Off-system | Fox Lake | 15 V 386854 6208149 | Spruce | NA | 10 |
| 122-2015 | Off-system | Cyril Lake | 15 U 369055 6207763 | Poplar | 5 | 5 |

| Nest | Hydraulic Zone | Location | UTM | Nest Tree Type | Tree height (m) | Nest Height (m) |
|---|---|---|---|---|---|---|
| 123-2015 | Off-system | Cyril Lake | 15 U 367021 6205781 | Spruce | NA | 11 |
| 13-2021 | Off-system | Limestone Lake | 15 V 328689 6272381 | Aspen | 12 | 10 |
| 13-2022 | Nelson River | Split Lake | 14 V 685999 6227588 | Aspen | 8 | 5 |
| 134-2015 | Off-system | Kettle Lake | 15 V 378605 6221132 | Aspen | NA | 10 |
| 141-2015 | Off-system | Butnau lake | 15 V 358778 6230620 | Spruce | 15 | 13 |
| 14-2017 | Nelson River | Nelson River, Kettle GS | 15 V 399644 6250541 | Jack Pine | 24 | 22 |
| 14-2021 | Off-system | Limestone Lake | 15 V 320678 6274608 | Spruce | 10 | 10 |
| 14-2022 | Nelson River | Split Lake | 14 V 653170 6217853 | Aspen | 8 | 6 |
| 142-2015 | Off-system | Small Unnamed Lake 1 km North of Limestone Lake | 15 V 330109 6275194 | Poplar | 18 | 18 |
| 145-2015 | Off-system | Small Unnamed Lake 1 km North of Limestone Lake | 14 V 684630 6265004 | Poplar | 25 | 19 |
| 145-2017 | Nelson River | Split Lake | 14 V 677291 6231852 | Jack Pine | 10 | 17 |
| 146-2015 | Off-system | Crying Lake | 14 V 679546 6260750 | Spruce | NA | 16 |
| 147-2015 | Off-system | Crying Lake | 14 V 680094 6260013 | Spruce | 12 | 18 |
| 148-2015 | Off-system | Crying Lake | 14 V 683758 6261010 | Birch | 15 | 8 |
| 15-2019 | Nelson River | Stephens Lake, West Shore | 15 V 365884 6248604 | Spruce | 10 | 10 |
| 15-2021 | Off-system | Crying Lake | 14 V 679602 6260608 | Spruce | 10 | 10 |
| 15-2022 | Off-system | Assean River | 15 V 314929 6243388 | Spruce | 8 | 5 |
| 156-2015 | Off-system | Assean Lake | 14 V 658680 6233013 | Spruce | NA | 9 |
| 16-2019 | Nelson River | Stephens Lake, West Shore | 15 V 367409 6249564 | Dead spruce | 8 | 8 |
| 16-2021 | Nelson River | Split Lake | 14 V 670216 6219695 | Aspen | 15 | 14 |
| 16-2022 | Off-system | Assean Lake | 14 V 677921 6246500 | Aspen | 7 | 6 |
| 162-2015 | Nelson River | Split Lake | 14 V 655325 6220967 | Spruce | 16 | 15 |
| 163-2015 | Nelson River | Split Lake | 14 V 653324 6220054 | Jack pine | 20 | 15 |
| 165-2015 | Off-system | Assean Lake | 14 V 665241 6238987 | Dead Poplar | 23 | 20 |
| 166-2015 | Nelson River | Split Lake | 14 V 674251 6228054 | Spruce | 15 | 15 |
| 17-2019 | Project-affected | Nelson River | 15 V 342113 6243255 | Poplar | 10 | 10 |
| 17-2021 | Off-system | Assean Lake | 14 V 661852 6235512 | Aspen | 12 | 10 |

| Nest | Hydraulic Zone | Location | UTM | Nest Tree Type | Tree height (m) | Nest Height (m) |
|---|---|---|---|---|---|---|
| 17-2022 | Nelson River | Split Lake | 14 V 666894 6223497 | Spruce | 3 | 3 |
| 176-2015 | Nelson River | Nelson River - Split Reach | 14 V 683395 6227161 | Spruce | NA | 15 |
| 177-2015 | Nelson River | Split Lake | 14 V 674005 6222385 | Spruce | 18 | 18 |
| 178-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 328527 6242066 | Aspen | NA | 11 |
| 179-2015 | Off-system | Assean Lake | 14 V 661620 6238195 | Spruce | NA | 17 |
| 180-2015 | Off-system | Small Unnamed Lake 1 km north of Limestone Lake | 15 V 315987 6266847 | Spruce | 21 | 17 |
| 18-2019 | Project-affected | Nelson River | 15 V 338766 6243978 | Poplar | 12 | 12 |
| 18-2021 | Nelson River | Split Lake | 14 V 673807 6236797 | Aspen | 10 | 8 |
| 18-2022 | Nelson River | Split Lake | 14 V 665085 6222257 | Spruce | 5 | 5 |
| 182-2015 | Off-system | Little Kettle Lake | 15 V 354312 6222230 | Birch | 4 | 8 |
| 184-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 343306 6243780 | Aspen | NA | 12 |
| 185-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 336216 6244834 | Dead spruce | NA | 9 |
| 187-2015 | Nelson River | Nelson River - Split Reach | 14 V 660110 6219633 | Aspen | NA | 13 |
| 188-2015 | Off-system | Aiken River | 15 V 316663 6215706 | Dead Spruce | 15 | 15 |
| 19-2019 | Project-affected | Nelson River | 15 V 336976 6244549 | Poplar | 10 | 10 |
| 19-2022 | Nelson River | Split Lake | 14 V 681324 6235916 | Spruce | 6 | 6 |
| 197-2017 | Nelson River | Nelson River, Downstream of Kelsey GS | 14 V 652944 6218419 | Jack Pine | 11 | 9 |
| 20-2019 | Nelson River | Clark Lake | 15 V 317912 6241304 | Spruce | 10 | 10 |
| 20-2021 | Nelson River | Split Lake | 14 V 677862 6239486 | Aspen | 8 | 7 |
| 21-2019 | Nelson River | Clark Lake | 15 V 318292 6241456 | Spruce | 12 | 12 |
| 21-2021 | Nelson River | Split Lake | 14 V 681138 6238502 | Aspen | 10 | 8 |
| 22-2019 | Nelson River | Split Lake | 15 V 318126 6237931 | Spruce | 8 | 8 |
| 222-2017 | Nelson River | Nelson River, Downstream of Kelsey GS | 14 V 653283 6220828 | Jack Pine | 10 | 15 |
| 224-2017 | Nelson River | Split Lake | 14 V 655977 6221555 | Spruce | 12 | 14 |
| 23-2015 | Nelson River | Split Lake | 14 V 663636 6220536 | Spruce | 20 | 20 |
| 23-2019 | Nelson River | Split Lake | 15 V 320504 6234713 | Poplar | 10 | 10 |
| 23-2021 | Project-affected | Nelson River | 15 V 350353 6244445 | Spruce | 5 | 5 |

| Nest | Hydraulic Zone | Location | UTM | Nest Tree Type | Tree height (m) | Nest Height (m) |
|---|---|---|---|---|---|---|
| 236-2017 | Nelson River | Split Lake | 14 V 674846 6233002 | Poplar | 15 | 12 |
| 24-2021 | Project-affected | Nelson River | 15 V 345367 6243656 | Aspen | 12 | 10 |
| 243-2017 | Nelson River | Split Lake | 15 V 315327 6240803 | Spruce | 12 | 12 |
| 246-2017 | Project-affected | Nelson River, Between Birthday Rapids and Gull Rapids | 15 V 354727 6245558 | Dead spruce | 12 | 8 |
| 248-2017 | Project-affected | Gull Lake | 15 V 356627 6248525 | Poplar | 12 | 6 |
| 25-2017 | Off-system | Atkinson lake | 15 U 386618 6204993 | Dead Poplar | 10 | 10 |
| 25-2019 | Project-affected | Nelson River | 15 V 338743 6244928 | Spruce | 10 | 10 |
| 25-2021 | Nelson River | Stephens Lake | 15 V 378792 6246835 | Aspen | 15 | 13 |
| 26-2015 | Nelson River | Split Lake | 14 V 653365 6217146 | Spruce | 15 | 15 |
| 26-2021 | Nelson River | Split Lake | 14 V 684323 6226407 | Spruce | 15 | 15 |
| 268-2017 | Nelson River | Nelson River | 15 V 408327 6249812 | NA | NA | NA |
| 27-2015 | Nelson River | Split Lake | 14 V 653439 6217073 | Spruce | 15 | 15 |
| 27-2019 | Off-system | Cyril Lake | 15 U 366808 6206441 | Birch | 8 | 8 |
| 27-2021 | Nelson River | Split Lake | 14 V 683518 6223144 | Spruce | 15 | 15 |
| 28-2021 | Nelson River | Split Lake | 14 V 678663 6219996 | Spruce | 15 | 15 |
| 288-2017 | Nelson River | Nelson River | 15 V 408327 6249812 | NA | NA | NA |
| 29-2019 | Off-system | Myre Lake | 15 V 388732 6303481 | Tamarack | 8 | 8 |
| 29-2021 | Off-system | Fox Lake | 15 U 383721 6204439 | Spruce | 8 | 7 |
| 30-2019 | Nelson River | Stephens Lake, North Shore | 15 V 396635 6251473 | Spruce | 10 | 10 |
| 30-2021 | Nelson River | Nelson River | 15 V 397970 6251077 | Spruce | 12 | 12 |
| 31-2019 | Nelson River | Nelson River | 15 V 403274 6249424 | Spruce | 12 | 12 |
| 31-2021 | Off-system | Myre Lake | 15 V 392121 6305555 | Aspen | 15 | 13 |
| 32-2019 | Nelson River | Nelson River | 15 V 401947 6250462 | Spruce | 10 | 10 |
| 32-2021 | Off-system | Assean Lake | 14 V 654151 6231901 | Spruce | 15 | 15 |
| 33-2019 | Off-system | Limestone Lake | 15 V 329283 6272613 | Spruce | 12 | 12 |
| 33-2021 | Off-system | Assean Lake | 14 V 648143 6231187 | Aspen | 10 | 8 |

| Nest | Hydraulic Zone | Location | UTM | Nest Tree Type | Tree height (m) | Nest Height (m) |
|---|---|---|---|---|---|---|
| 339-2017 | Off-system | Cyril Lake | 15 U 364556 6205708 | NA | NA | NA |
| 34-2017 | Nelson River | Split Lake | 14 V 681769 6238256 | Spruce | 21 | 21 |
| 34-2019 | Off-system | Limestone Lake | 15 V 323941 6276081 | Spruce | 10 | 10 |
| 34-2021 | Nelson River | Split Lake | 14 V 671506 6230369 | Aspen | 12 | 10 |
| 35-2017 | Nelson River | Split Lake | 15 V 317211 6241629 | Spruce | 15 | 15 |
| 35-2019 | Nelson River | Nelson River | 15 V 401555 6251251 | Spruce | 15 | 15 |
| 35-2021 | Nelson River | Split Lake | 14 V 652767 6224436 | Spruce | 10 | 10 |
| 36-2019 | Nelson River | Nelson River | 15 V 405775 6249358 | Poplar | 15 | 15 |
| 36-2021 | Off-system | Little Kettle Lake | 15 V 354857 6223967 | Hydro Tower | 15 | 13 |
| 37-2017 | Project-affected | Nelson River, Upstream of Birthday Rapids | 15 V 328353 6242063 | Poplar | 15 | 15 |
| 37-2019 | Nelson River | Stephens Lake | 15 V 378665 6249295 | Spruce | 10 | 10 |
| 37-2021 | Project-affected | Nelson River | 15 V 330704 6242254 | Aspen | 12 | 10 |
| 374-2017 | Nelson River | Stephens Lake | 15 V 369091 6252145 | Spruce | 10 | 8 |
| 376-2017 | Project-affected | Nelson River | 15 V 326359 6240629 | Poplar | 12 | 10 |
| 38-2019 | Project-affected | Nelson River | 15 V 335418 6243959 | Poplar | 10 | 10 |
| 38-2021 | Off-system | Assean Lake | 14 V 651407 6230689 | Aspen | 12 | 11 |
| 39-2015 | Nelson River | Nelson River - Split Reach | 14 V 667630 6229507 | Spruce | NA | 9 |
| 39-2019 | Nelson River | Clark Lake | 15 V 319619 6240109 | Spruce | 12 | 12 |
| 39-2021 | Nelson River | Split Lake | 14 V 659617 6219909 | Spruce | 8 | 8 |
| 40-2017 | Project-affected | Nelson River, Between Birthday Rapids and Gull Rapids | 15 V 345303 6244529 | Poplar | 18 | 17 |
| 40-2019 | Off-system | Aiken River | 15 V 313434 6216803 | Transmission Tower | 20 | 20 |
| 42-2019 | Off-system | Assean Lake | 14 V 676381 6245669 | Poplar | 10 | 10 |
| 43-2019 | Nelson River | Stephens Lake | 15 V 376188 6247244 | Spruce | 10 | 10 |
| 44-2019 | Nelson River | Stephens Lake | 15 V 381018 6249126 | Poplar | 15 | 15 |
| 45-2019 | Nelson River | Stephens Lake | 15 V 386873 6247984 | Dead Spruce | 8 | 8 |
| 46-2019 | Nelson River | Stephens Lake | 15 V 387334 6248399 | Poplar | 15 | 15 |

| Nest | Hydraulic Zone | Location | UTM | Nest Tree Type | Tree height (m) | Nest Height (m) |
|---|---|---|---|---|---|---|
| 471-2017 | Nelson River | Split Lake | 14 V 671930 6237600 | NA | NA | NA |
| 47-2017 | Project-affected | Nelson River, Between Birthday Rapids and Gull Rapids | 15 V 351444 6243204 | Poplar | 15 | 14 |
| 49-2017 | Project-affected | Nelson River, Between Birthday Rapids and Gull Rapids | 15 V 340108 6243053 | Poplar | 14 | 9 |
| 504-2017 | Off-system | Limestone Lake | 14 V 682700 6273844 | Spruce | 10 | 8 |
| 51-2015 | Nelson River | Nelson River - Split Reach | 14 V 685522 6240305 | White Birch | NA | 13 |
| 52-2015 | Nelson River | Nelson River - Clark Reach | 15 V 318195 6242330 | Dead spruce | NA | 15 |
| 526-2017 | Project-affected | Nelson River | 15 V 355220 6245543 | Fallen Spruce | 0 | 0 |
| 53-2015 | Nelson River | Nelson River - Clark Reach | 15 V 320986 6241438 | Aspen | NA | 12 |
| 54-2015 | Nelson River | Clark Lake | 15 V 322348 6240594 | Dead Poplar | 12 | 12 |
| 56-2015 | Nelson River | Nelson River, Upstream of Birthday Rapids | 15 V 323548 6239832 | Dead Poplar | 8 | 10 |
| 56-2017 | Nelson River | Clark Lake | 15 V 319532 6240180 | Dead Spruce | 17 | 12 |
| 57-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 324876 6240384 | Aspen | NA | 13 |
| 58-2015 | Project-affected | Nelson River, Upstream of Birthday Rapids | 15 V 325196 6240113 | Spruce | 18 | 18 |
| 59-2015 | Project-affected | Nelson River, Upstream of Birthday Rapids | 15 V 329843 6242553 | Poplar | 18 | 16 |
| 60-2015 | Project-affected | Nelson River, Between Birthday Rapids and Gull Rapids | 15 V 333445 6244175 | Poplar | 15 | 8 |
| 61-2015 | Project-affected | Nelson River, Between Birthday Rapids and Gull Rapids | 15 V 334823 6244238 | Poplar | 15 | 15 |
| 61-2017 | Nelson River | Split Lake | 15 V 314486 6236485 | Poplar | 24 | 17 |
| 62-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 336306 6244924 | Dead spruce | NA | 11 |
| 64-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 339842 6243587 | Spruce | NA | 11 |
| 64-2017 | Nelson River | Split Lake | 14 V 677277 6229913 | Spruce | 15 | 15 |
| 66-2015 | Project-affected | Nelson River, Between Birthday Rapids and Gull Rapids | 15 V 346126 6245094 | Poplar | 15 | 15 |
| 67-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 346802 6244984 | Dead Aspen | NA | 16 |
| 68-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 350494 6244389 | Aspen | NA | 10 |
| 69-2015 | Project-affected | Nelson River - Keeyask Reach | 15 V 355163 6245525 | Fallen Dead Spruce | NA | 3 |
| 72-2017 | Nelson River | Split Lake | 14 V 655600 6218443 | Poplar | 20 | 17 |

| Nest | Hydraulic Zone | Location | UTM | Nest Tree Type | Tree height (m) | Nest Height (m) |
|---|---|---|---|---|---|---|
| 78-2015 | Nelson River | Stephens Lake, North shore | 15 V 359753 6267215 | Spruce | 25 | 25 |
| 79-2015 | Off-system | Small Unnamed Lake 5 km North of Stephens Lake | 15 V 375091 6262798 | Spruce | 15 | 15 |
| 79-2017 | Off-system | Limestone Lake | 14 V 684074 6275540 | Spruce | 19 | 15 |
| 80-2017 | Off-system | Limestone Lake | 15 V 322842 6274576 | Poplar | 16 | 12 |
| 82-2015 | Nelson River | Stephens Lake, Ferris Bay | 15 V 380257 6257025 | Spruce | 12 | 12 |
| 82-2017 | Off-system | Assean Lake | 14 V 671532 6242142 | Poplar | 15 | 10 |
| 83-2017 | Nelson River | Stephens Lake | 15 V 381119 6256687 | NA | NA | NA |
| 86-2015 | Nelson River | Nelson River - Stephens Reach | 15 V 398576 6251004 | Spruce | NA | 8 |
| 87-2015 | Nelson River | Nelson River, Kettle GS | 15 V 400115 6250447 | Spruce | 24 | 24 |
| 88-2015 | Nelson River | Nelson River - Long Spruce Reach | 15 V 402169 6250771 | Spruce | NA | 16 |
| 92-2015 | Nelson River | Nelson River, Downstream of Kettle GS | 15 V 406511 6249127 | Spruce | 20 | 17 |
| 97-2015 | Nelson River | Nelson River | 15 V 375454 6244746 | Spruce | NA | 18 |

# Appendix 3 : Nest Contents and Outcomes of Bald Eagle Nests

**Table 1: Bald Eagle Nest Outcomes and Number of Years Nests were Active and Successful from 2015 to 2021. Note: data may not be available for all survey years as nests disintegrated and went missing.**

| Hydraulic Zone | 2015 | 2017 | 2019 | 2021 | 2022 | No. Years Active | No. Years Successful |
|---|---|---|---|---|---|---|---|
| Nelson River | Active, Successful | Active, Successful | Active, Successful | Active, Successful | Active, Successful | 5 | 5 |
| Nelson River | Active, Successful | Active, Successful | Active, Successful | Active, Successful | Active, Successful | 5 | 5 |
| Nelson River | Active, Successful | Active, Abandoned | Active, Successful | Active, Successful | Active, Successful | 5 | 4 |
| Off-system | Active, Nest Abandoned | Active, Successful | Active, Successful | Active, Successful | Active, Abandoned | 5 | 3 |
| Nelson River | Active, Successful | Active, Successful | Active, Not Successful | Active, Successful | Active, Abandoned | 5 | 3 |
| Off-system | Active, Successful | Active, Successful | Active, Successful | Active, Not Successful | Active, Abandoned | 5 | 3 |
| Off-system | Active, Nest Abandoned | Active, Successful | Active, Successful | Active, Successful | Active, Successful | 5 | 3 |
| Nelson River | - | Active, Successful | Active, Successful | Active, Abandoned | Active, Abandoned | 5 | 2 |
| Off-system | Active, Successful | Active, Abandoned | Active, Abandoned | Active, Abandoned | Active, Successful | 5 | 2 |
| Nelson River | Active, Successful | Active, Successful | Active, Successful | Active, Successful | - | 4 | 4 |
| Nelson River | Active, Successful | Active, Successful | Active, Successful | Active, Successful | - | 4 | 4 |
| Off-system | - | Active, Success Unknown | Active, Successful | Active, Successful | Active, Successful | 4 | 3 |
| Nelson River | - | Active, Successful | Active, Abandoned | Active, Successful | Active, Successful | 4 | 3 |
| Nelson River | Active, Successful | Active, Successful | Active, Successful | Active, Not Successful | Inactive | 4 | 3 |
| Off-system | Active, Successful | Active, Successful | Active, Not Successful | Active, Successful | - | 4 | 3 |
| Off-system | Active, Successful | Active, Successful | Active, Successful | Active, Abandoned | - | 4 | 3 |
| Project-affected | - | Active, Successful | Active, Abandoned | Active, Abandoned | Active, Successful | 4 | 2 |
| Nelson River | - | Active, Success Unknown | Active, Successful | Active, Successful | Active, Abandoned | 4 | 2 |
| Nelson River | - | Active, Abandoned | Active, Successful | Active, Successful | Active, Abandoned | 4 | 2 |
| Project-affected | Active, Successful | Active, Successful | Active, Successful | Inactive | - | 3 | 3 |
| Nelson River | - | - | Active, Successful | Active, Successful | Active, Successful | 3 | 3 |
| Nelson River | - | - | Active, Successful | Active, Successful | Active, Successful | 3 | 3 |
| Off-system | Active, Successful | Active, Successful | Active, Successful | - | - | 3 | 3 |
| Off-system | Active, Successful | Active, Successful | Active, Successful | - | - | 3 | 3 |

| Hydraulic Zone | 2015 | 2017 | 2019 | 2021 | 2022 | No. Years Active | No. Years Successful |
|---|---|---|---|---|---|---|---|
| Off-system | - | Active, Successful | Active, Successful | Inactive | Active, Successful | 3 | 3 |
| Off-system | - | Active, Successful | Active, Abandoned | Inactive | Active, Successful | 3 | 2 |
| Nelson River | Active, Successful | Inactive | Active, Successful | Inactive | Active, Abandoned | 3 | 2 |
| Project-affected | Active, Nest Abandoned | Active, Successful | Active, Successful | - | - | 3 | 2 |
| Nelson River | - | - | Active, Successful | Active, Successful | Active, Abandoned | 3 | 2 |
| Off-system | - | Active, Abandoned | Inactive | Active, Successful | Active, Successful | 3 | 2 |
| Nelson River | - | Active, Successful | Active, Abandoned | Active, Successful | Inactive | 3 | 2 |
| Nelson River | - | - | Active, Successful | Active, Successful | Active, Abandoned | 3 | 2 |
| Project-affected | - | - | Active, Successful | Active, Successful | Active, Abandoned | 3 | 2 |
| Nelson River | - | - | Active, Successful | Active, Successful | Active, Abandoned | 3 | 2 |
| Nelson River | Inactive | Active, Successful | Active, Successful | Active, Abandoned | Inactive | 3 | 2 |
| Nelson River | Active, Not Successful | Active, Abandoned | Active, Successful | Inactive | Common Raven, Successful | 3 | 1 |
| Nelson River | - | Active, Successful | Active, Abandoned | Inactive | Active, Abandoned | 3 | 1 |
| Project-affected | Active, Nest Abandoned | Active, Successful | Active, Abandoned | - | - | 3 | 1 |
| Project-affected | Active, Successful | Active, Not Successful | Active, Abandoned | Inactive | Inactive | 3 | 1 |
| Nelson River | - | Active, Abandoned | Active, Successful | Inactive | Active, Not Successful | 3 | 1 |
| Project-affected | - | Active, Successful | Inactive | Active, Abandoned | Active, Abandoned | 3 | 1 |
| Project-affected | - | - | Active, Not Successful | Active, Abandoned | Active, Successful | 3 | 1 |
| Off-system | Active, Not Successful | Active, Successful | Active, Abandoned | Inactive | Inactive | 3 | 1 |
| Nelson River | - | Active, Abandoned | Active, Successful | Inactive | Active, Abandoned | 3 | 1 |
| Off-system | - | Active, Abandoned | Status Unknown | Active, Abandoned | Active, Abandoned | 3 | 0 |
| Nelson River | - | Active, Successful | Active, Successful | Inactive | Inactive | 2 | 2 |
| Project-affected | - | Active, Successful | Active, Successful | - | - | 2 | 2 |
| Off-system | - | - | - | Active, Successful | Active, Successful | 2 | 2 |
| Off-system | - | - | Active, Successful | Active, Successful | - | 2 | 2 |
| Off-system | - | - | - | Active, Successful | Active, Successful | 2 | 2 |
| Nelson River | Active, Successful | Active, Successful | - | - | - | 2 | 2 |
| Off-system | Active, Successful | Active, Successful | - | - | - | 2 | 2 |
| Off-system | Active, Successful | Active, Successful | - | - | - | 2 | 2 |

| Hydraulic Zone | 2015 | 2017 | 2019 | 2021 | 2022 | No. Years Active | No. Years Successful |
|---|---|---|---|---|---|---|---|
| Off-system | - | - | - | Active, Successful | Active, Successful | 2 | 2 |
| Off-system | - | - | - | Active, Successful | Active, Successful | 2 | 2 |
| Nelson River | Inactive | Inactive | Inactive | Active, Successful | Active, Successful | 2 | 2 |
| Nelson River | Active, Successful | Active, Abandoned | Inactive | - | - | 2 | 1 |
| Off-system | - | Active, Abandoned | Active, Successful | Status Unknown | Inactive | 2 | 1 |
| Nelson River | Active, Successful | Active, Not Successful | Inactive | - | - | 2 | 1 |
| Project-affected | Inactive | Inactive | Active, Abandoned | Inactive | Active, Successful | 2 | 1 |
| Project-affected | - | - | Inactive | Active, Successful | Active, Abandoned | 2 | 1 |
| Nelson River | - | Status unknown | Active, Successful | Inactive | Active, Abandoned | 2 | 1 |
| Nelson River | - | - | - | Active, Successful | Active, Abandoned | 2 | 1 |
| Nelson River | - | - | Active, Not Successful | Active, Successful | - | 2 | 1 |
| Project-affected | - | - | Inactive | Active, Abandoned | Active, Successful | 2 | 1 |
| Project-affected | Active, Nest Abandoned | Active, Successful | - | - | - | 2 | 1 |
| Off-system | - | - | - | Active, Abandoned | Active, Successful | 2 | 1 |
| Off-system | - | - | - | Active, Successful | Active, Abandoned | 2 | 1 |
| Nelson River | - | - | - | Active, Abandoned | Active, Successful | 2 | 1 |
| Off-system | - | - | - | Active, Successful | Active, Abandoned | 2 | 1 |
| Nelson River | - | - | Active, Successful | Inactive | Active, Abandoned | 2 | 1 |
| Nelson River | - | - | Active, Successful | Inactive | Active, Abandoned | 2 | 1 |
| Nelson River | - | Inactive | Active, Abandoned | Inactive | Active, Successful | 2 | 1 |
| Nelson River | Active, Successful | Active, Not Successful | Inactive | Inactive | - | 2 | 1 |
| Off-system | - | - | Active, Abandoned | Inactive | Active, Abandoned | 2 | 0 |
| Nelson River | - | Inactive | Active, Abandoned | Active, Abandoned | Inactive | 2 | 0 |
| Off-system | Active, Nest Abandoned | Active, Abandoned | Inactive | Inactive | - | 2 | 0 |
| Off-system | - | - | - | Active, Abandoned | Active, Abandoned | 2 | 0 |
| Project-affected | Active, Nest Abandoned | Inactive | Inactive | Active, Not Successful | Inactive | 2 | 0 |
| Project-affected | - | Inactive | Inactive | Inactive | Active, Successful | 1 | 1 |
| Nelson River | - | - | Inactive | Active, Successful | - | 1 | 1 |
| Project-affected | Active, Successful | - | - | - | - | 1 | 1 |

| Hydraulic Zone | 2015 | 2017 | 2019 | 2021 | 2022 | No. Years Active | No. Years Successful |
|---|---|---|---|---|---|---|---|
| Nelson River | - | Active, Successful | - | - | - | 1 | 1 |
| Nelson River | - | - | Active, Successful | - | - | 1 | 1 |
| Project-affected | - | - | - | Status Unknown | Active, Successful | 1 | 1 |
| Project-affected | - | Inactive | Inactive | Active, Successful | Inactive | 1 | 1 |
| Nelson River | - | Active, Successful | Inactive | - | - | 1 | 1 |
| Nelson River | - | - | - | Inactive | Active, Successful | 1 | 1 |
| Nelson River | - | Active, Successful | - | - | - | 1 | 1 |
| Off-system | - | - | Active, Successful | Inactive | - | 1 | 1 |
| Nelson River | - | - | - | Active, Successful | Inactive | 1 | 1 |
| Project-affected | - | Inactive | Inactive | Inactive | Active, Successful | 1 | 1 |
| Nelson River | - | Active, Successful | Inactive | - | - | 1 | 1 |
| Project-affected | - | - | - | Active, Successful | - | 1 | 1 |
| Nelson River | - | - | - | Active, Successful | - | 1 | 1 |
| Nelson River | Inactive | Inactive | Active, Successful | Inactive | Inactive | 1 | 1 |
| Nelson River | - | - | Active, Successful | Inactive | Inactive | 1 | 1 |
| Nelson River | - | - | Active, Successful | Inactive | Inactive | 1 | 1 |
| Off-system | Active, Successful | Inactive | Inactive | - | - | 1 | 1 |
| Off-system | Active, Successful | Inactive | - | - | - | 1 | 1 |
| Off-system | - | Inactive | Active, Successful | - | Inactive | 1 | 1 |
| Off-system | - | Inactive | Active, Successful | Inactive | - | 1 | 1 |
| Nelson River | - | - | - | Active, Successful | - | 1 | 1 |
| Nelson River | - | Active, Successful | - | - | - | 1 | 1 |
| Project-affected | - | Inactive | Inactive | Inactive | Active, Abandoned | 1 | 0 |
| Nelson River | Active, Nest Abandoned | - | - | - | - | 1 | 0 |
| Off-system | Inactive | Inactive | Status Unknown | Inactive | Active, Abandoned | 1 | 0 |
| Project-affected | Active, Nest Abandoned | - | - | - | - | 1 | 0 |
| Project-affected | Active, Nest Abandoned | - | - | - | - | 1 | 0 |
| Project-affected | Active, Not Successful | - | - | - | - | 1 | 0 |
| Nelson River | Active, Nest Abandoned | - | - | - | - | 1 | 0 |

| Hydraulic Zone | 2015 | 2017 | 2019 | 2021 | 2022 | No. Years Active | No. Years Successful |
|---|---|---|---|---|---|---|---|
| Project-affected | - | Active, Not Successful | - | - | - | 1 | 0 |
| Nelson River | Active, Nest Abandoned | - | - | - | - | 1 | 0 |
| Nelson River | - | - | - | Status Unknown | Active, Abandoned | 1 | 0 |
| Nelson River | - | - | - | Inactive | Active, Abandoned | 1 | 0 |
| Off-system | - | - | - | Inactive | Active, Abandoned | 1 | 0 |
| Nelson River | - | - | Inactive | Inactive | Active, Abandoned | 1 | 0 |
| Off-system | - | - | - | Active, Abandoned | Common Raven, Successful | 1 | 0 |
| Project-affected | - | - | - | Inactive | Active, Abandoned | 1 | 0 |
| Nelson River | Status Unknown | Active, Abandoned | - | - | - | 1 | 0 |
| Off-system | Active, Nest Abandoned | Inactive | Inactive | - | - | 1 | 0 |
| Nelson River | Inactive | Active, Abandoned | Inactive | Inactive | Inactive | 1 | 0 |
| Nelson River | - | - | - | Active, Abandoned | Inactive | 1 | 0 |
| Off-system | Active, Not Successful | Inactive | Inactive | - | - | 1 | 0 |
| Off-system | - | - | - | Active, Abandoned | - | 1 | 0 |
| Off-system | Inactive | Inactive | Active, Abandoned | Inactive | Common Raven, Successful | 1 | 0 |
| Nelson River | - | - | - | Active, Abandoned | Inactive | 1 | 0 |
| Off-system | - | - | - | Active, Abandoned | Inactive | 1 | 0 |
| Off-system | - | - | - | Active, Abandoned | Common Raven, Successful | 1 | 0 |
| Off-system | - | - | - | Active, Abandoned | Inactive | 1 | 0 |
| Nelson River | - | - | Inactive | Active, Abandoned | - | 1 | 0 |
| Project-affected | - | Inactive | Inactive | Inactive | Inactive | 0 | 0 |
| Project-affected | - | Inactive | Inactive | Inactive | Common Raven, Successful | 0 | 0 |
| Project-affected | - | Inactive | Inactive | Inactive | Inactive | 0 | 0 |
| Nelson River | Inactive | Inactive | - | - | - | 0 | 0 |
| Nelson River | Inactive | Inactive | - | - | - | 0 | 0 |
| Off-system | - | Inactive | Inactive | Inactive | - | 0 | 0 |
| Project-affected | Inactive | Inactive | - | - | - | 0 | 0 |
| Project-affected | Inactive | Inactive | - | - | - | 0 | 0 |
| Nelson River | Inactive | Inactive | - | - | - | 0 | 0 |

| Hydraulic Zone | 2015 | 2017 | 2019 | 2021 | 2022 | No. Years Active | No. Years Successful |
|---|---|---|---|---|---|---|---|
| Nelson River | - | - | Status Unknown | Inactive | Inactive | 0 | 0 |
| Off-system | - | - | Inactive | Inactive | Inactive | 0 | 0 |
| Off-system | - | - | Inactive | - | - | 0 | 0 |
| Project-affected | - | Inactive | Inactive | - | - | 0 | 0 |
| Nelson River | - | - | Inactive | - | - | 0 | 0 |
| Nelson River | Inactive | Status unknown | Status Unknown | - | - | 0 | 0 |
| Nelson River | - | - | Inactive | - | - | 0 | 0 |
| Off-system | - | - | - | Status Unknown | Inactive | 0 | 0 |
| Nelson River | - | - | Inactive | Inactive | Inactive | 0 | 0 |
| Off-system | - | Status unknown | - | - | - | 0 | 0 |
| Off-system | - | - | - | Inactive | Inactive | 0 | 0 |
| Off-system | - | - | Inactive | Inactive | Inactive | 0 | 0 |
| Nelson River | - | - | Inactive | Inactive | - | 0 | 0 |
| Nelson River | - | - | Inactive | - | - | 0 | 0 |
| Nelson River | - | - | - | Inactive | - | 0 | 0 |
| Nelson River | - | - | - | Inactive | - | 0 | 0 |
| Nelson River | - | Status unknown | - | - | - | 0 | 0 |
| Nelson River | - | - | - | Inactive | - | 0 | 0 |
| Nelson River | Inactive | Inactive | Inactive | Inactive | Inactive | 0 | 0 |
| Project-affected | - | - | Inactive | - | - | 0 | 0 |
| Project-affected | - | Inactive | Inactive | - | - | 0 | 0 |
| Nelson River | - | - | Inactive | - | - | 0 | 0 |
| Nelson River | - | Inactive | Inactive | Inactive | Inactive | 0 | 0 |
| Nelson River | - | - | - | Inactive | - | 0 | 0 |
| Nelson River | - | - | - | Status Unknown | - | 0 | 0 |
| Nelson River | - | - | Inactive | - | - | 0 | 0 |
| Nelson River | - | Inactive | Inactive | Inactive | - | 0 | 0 |
| Project-affected | Status Unknown | Inactive | - | - | - | 0 | 0 |
| Project-affected | Status Unknown | - | - | - | - | 0 | 0 |

| Hydraulic Zone | 2015 | 2017 | 2019 | 2021 | 2022 | No. Years Active | No. Years Successful |
|---|---|---|---|---|---|---|---|
| Off-system | Status Unknown | - | - | - | - | 0 | 0 |
| Off-system | - | - | - | Inactive | Inactive | 0 | 0 |
| Off-system | Inactive | Inactive | - | - | - | 0 | 0 |
| Off-system | Inactive | - | - | - | - | 0 | 0 |
| Off-system | Inactive | - | - | - | - | 0 | 0 |
| Off-system | - | Inactive | Inactive | Inactive | Inactive | 0 | 0 |
| Project-affected | Inactive | - | - | - | - | 0 | 0 |
| Nelson River | - | - | - | Inactive | - | 0 | 0 |
| Nelson River | - | - | - | Inactive | Inactive | 0 | 0 |
| Nelson River | - | - | Inactive | Inactive | - | 0 | 0 |
| Nelson River | - | - | Inactive | - | - | 0 | 0 |
| Nelson River | - | - | Inactive | - | - | 0 | 0 |
| Off-system | - | Inactive | - | - | - | 0 | 0 |
| Nelson River | - | Inactive | Inactive | Inactive | Inactive | 0 | 0 |
| Nelson River | - | - | - | - | Active, Abandoned | 1 | 0 |
| Off-system | - | - | - | - | Inactive | 0 | 0 |
| Off-system | - | - | - | - | Active, Successful | 1 | 1 |
| Off-system | - | - | - | - | Inactive | 0 | 0 |
| Nelson River | - | - | - | - | Active, Abandoned | 1 | 0 |
| Nelson River | - | - | - | - | Active, Successful | 1 | 1 |
| Nelson River | - | - | - | - | Inactive | 0 | 0 |
| Project-affected | - | - | - | - | Inactive | 0 | 0 |
| Project-affected | - | - | - | - | Inactive | 0 | 0 |
| Project-affected | - | - | - | - | Inactive | 0 | 0 |
| Nelson River | - | - | - | - | Inactive | 0 | 0 |
| Nelson River | - | - | - | - | Inactive | 0 | 0 |
| Nelson River | - | - | - | - | Active, Successful | 1 | 1 |
| Nelson River | - | - | - | - | Inactive | 0 | 0 |
| Off-system | - | - | - | - | Inactive | 0 | 0 |

| Hydraulic Zone | 2015 | 2017 | 2019 | 2021 | 2022 | No. Years Active | No. Years Successful |
|---|---|---|---|---|---|---|---|
| Off-system | - | - | - | - | Inactive | 0 | 0 |
| Nelson River | - | - | - | - | Inactive | 0 | 0 |
| Nelson River | - | - | - | - | Status Unknown | 0 | 0 |
| Nelson River | - | - | - | - | Status Unknown | 0 | 0 |