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## **Falls River Project Water Use Plan**

### **FLSMON-6 Big Falls Reservoir Wildlife Shoreline Habitat Monitoring**

**Desktop review of nest flooding risk**

**Study Period: 6 May 2018 – 21 May 2019**

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## **FLSMON-6 Big Falls Reservoir Wildlife Shoreline Habitat Monitoring**

### **Desktop review of nest flooding risk**

#### **Executive Summary**

The Falls River Water Use Plan (FLS WUP) required seasonal installation and removal of flashboards, and the scope of FLSMON-6 Big Falls Reservoir Wildlife Shoreline Habitat Monitoring was directed by the Water Act Order dated April 4, 2006 (File No. File Number 76978-35/Falls) Clause 5 (f). This Clause stated that a monitoring plan would be developed to monitor “wildlife habitat (nests and dens) in the reservoir drawdown zone”. The Terms of Reference (TOR) for FLSMON-6 (approved November 28, 2006) outlined two Management Questions related to the concern.

Prior to conducting field work in 2008, a desktop review was conducted in Year 1 of FLSMON-6 (Cambria Gordon 2008), but the results were not used to assess nest flooding risks based on species-specific nesting habits. The two Management Questions were addressed in the Year 3 final report (Cambria Gordon 2010) primarily based on field monitoring results.

The ability to address the Management Questions based on field data was limited due to the remote setting of the reservoir; however, a considerable degree of risk assessment could also be accomplished during the desktop assessment. For each species potentially nesting in the study area (either observed or predicted), their potential to nest on the ground in the drawdown zone, and the timing of their nesting activities can be used to forecast the likelihood of nest flooding impacts. This latter analysis was not completed, and this report fills that knowledge gap.

The current desktop risk assessment completed in 2018 reviewed available information to generate a list of species that could potentially nest in the drawdown zone, with risk of being flooded by the reservoir (e.g., ground-nesting species). Species-specific nesting periods were reviewed to determine if any of these species nested sufficiently early in the year to be flooded as a result of WUP flashboard operations.

The desktop exercise discovered 60 species not previously considered, to compile a list of 141 potential species for consideration. Of these, 27 were considered to have potential to nest below the full pool elevation of Big Falls Reservoir, and 5 of them were potentially vulnerable to the nest flooding risks considered by the FLSMON-6 TOR.

This literature review indicated a very low likelihood of birds nesting in the drawdown zone at elevations and during periods when they may be flooded when flashboards are installed (Feb 15 - March 15), and therefore does not alter the conclusions that were made in the Year 3 final report which were that the nesting season generally occurs after flashboard installation period. Limitations of the results and other relevant considerations are briefly discussed.

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## 1 Introduction

The Big Falls Reservoir (FLS) is a BC Hydro generation facility on the north coast of BC (Figure 1). The Water Use Plan (FLS WUP) prescribed the use of flashboards, conditional on safe operation, to add seasonal flooding to the upper elevations, which was expected to be beneficial maintaining the sedge habitats at the upstream end of the reservoir. An identified risk associated with the WUP was the possibility that bird nests and mammal burrows could be inundated when flashboards were installed.

The FLSMON-6 monitoring program's Terms of Reference (TOR) outlined monitoring work that specifically considered risks of nest flooding associated with the installation of flashboards in accordance with the FLS WUP<sup>1</sup>.

### 1.1 Management Questions

The approved TOR for the Big Falls Reservoir Shoreline Habitat Monitoring Program, dated November 28, 2006 had two Management Questions (MQ):

- 1) Is there active nesting and denning in the drawdown of the Big Falls Reservoir at elevations and during periods when they may be flooded when flashboards are installed?
- 2) Does extent of nest and den flooding under WUP operations differ from the flooding that would occur under base case operations?

### 1.2 Program Summary

FLSMON-6 occurred over three years starting in 2007; the final report was completed in 2010. The desktop review FLSMON-6 conducted in Year 1 did not clearly identify which species potentially nest in the drawdown zone, and did not transparently consider when they nest (Cambria Gordon 2008). Field data on nesting birds was primarily related to arboreal nesting species (Osprey and cavity nesting birds) nesting on dead trees in the drawdown zone. Because these nests were elevated above the full pool elevation, they were not vulnerable to nest flooding (Cambria Gordon 2010). Nests of the undefined group of 'shoreline nesting birds' were not observed and species that can nest in drawdown zones away from shorelines (e.g., sparrows) were not discussed (Cambria Gordon 2010).

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<sup>1</sup> BC HYDRO was ordered to assess the risks associated with flashboard installation; in particular, risks to nesting birds and burrowing mammals in the drawdown zone of Big Falls Reservoir. The TOR for the study specifically considered risks of nest flooding (not nest stranding), and risk of flooding impacts to mammals burrowed in the drawdown zone. Nest flooding occurs when rising water levels overtop nests positioned below the full pool elevation. Nest stranding occurs when nests previously located at the water edge (shoreline) are stranded as water levels decrease. Both nest and burrow flooding were considered by FLSMON-6; this report specifically considers nest flooding only.

In the Final Report (Year 3), the two MQ were addressed based on field data and qualitative professional opinion. It was concluded that the nesting season generally occurs after flashboard installation period (addressing MQ-1); it was also implied that because there was no potential for nest flooding as a function of flashboard operation, that the risk of nest flooding would remain unchanged from pre-WUP conditions.

During the preparation of the Environmental Synthesis Report in 2018, summarizing all monitoring studies implemented under the FLS WUP, gaps were identified in the FLSMON-6 program. While it was acknowledged that there were considerable logistical and methodological challenges associated with the field monitoring for FLSMON-6 due to its remote location, the study's preliminary desktop scoping was not well-informed, and the readily-achieved desktop assessment of species-specific nest flooding risks associated with flashboards was not completed. Additionally, since 2007, considerably more desktop resources became available for informing this analysis.

Since the FLS WUP was finalized (BC Hydro 2006), it became evident that flashboard installation is not possible for safety reasons, which is in keeping with the conditions of the WUP; the WUP acknowledged that safety limitations may prevent flashboard use. Nonetheless, BC Hydro had committed to assessing the nest flooding risks associated with reservoir operating alternatives including flashboard installation. The preliminary desktop scoping and desktop assessment of species-specific nest flooding risks was identified to be deficient in the work accomplished in Year 1-3 (Cambria Gordon 2010), and it was decided that this desktop data gap should be addressed prior to project completion.

This report presents a more complete and updated scoping of potential nest flooding impacts to birds nesting in the drawdown zone of the Big Falls Reservoir, to replace what was presented in the Year 1-3 final report (Cambria Gordon 2008, 2010). While these results are specifically presented with consideration to the FLS WUP flashboard regime, they also have direct relevance to any future consideration of nest flooding impacts associated with actual reservoir operations (unrelated to flashboard use).

### 1.3 Study Area

The study area is located south of Prince Rupert, BC (Figure 1), and has been previously described (page 2 in Cambria Gordon 2008):

*“BC Hydro’s Big Falls River Reservoir is located approximately 50 km southeast of Prince Rupert on the Falls River, a right bank tributary to the Ecstall River. The reservoir is located above a large natural waterfall and is fed by three main inlet streams: Hayward Creek, Carthew Creek and the Falls River. The reservoir is relatively small, with a drainage area of approximately 246 km<sup>2</sup> and is subject to a ‘flashy’ coastal hydrologic cycle (relatively rapid changes in reservoir elevation resulting from heavy precipitation events). The water surface of the reservoir covers approximately 340 ha,*

*depending on water levels, and is bounded by steep coastal mountains rising directly from the valley bottom (Figure 2).*

*The reservoir is located within the Coastal Western Hemlock, very wet maritime subzone, and the sub-montane variant (CWHvm1). This zone is characterized by a wet, mild maritime climate and a long growing season (Banner et al, 1993). Biophysical site characteristics, which include high annual precipitation, rich soils and a lengthy growing season, allow for vigorous annual plant growth. Site access is by boat, float plane or helicopter only. Float plane access is restricted at tide heights below 1.5 m.”*

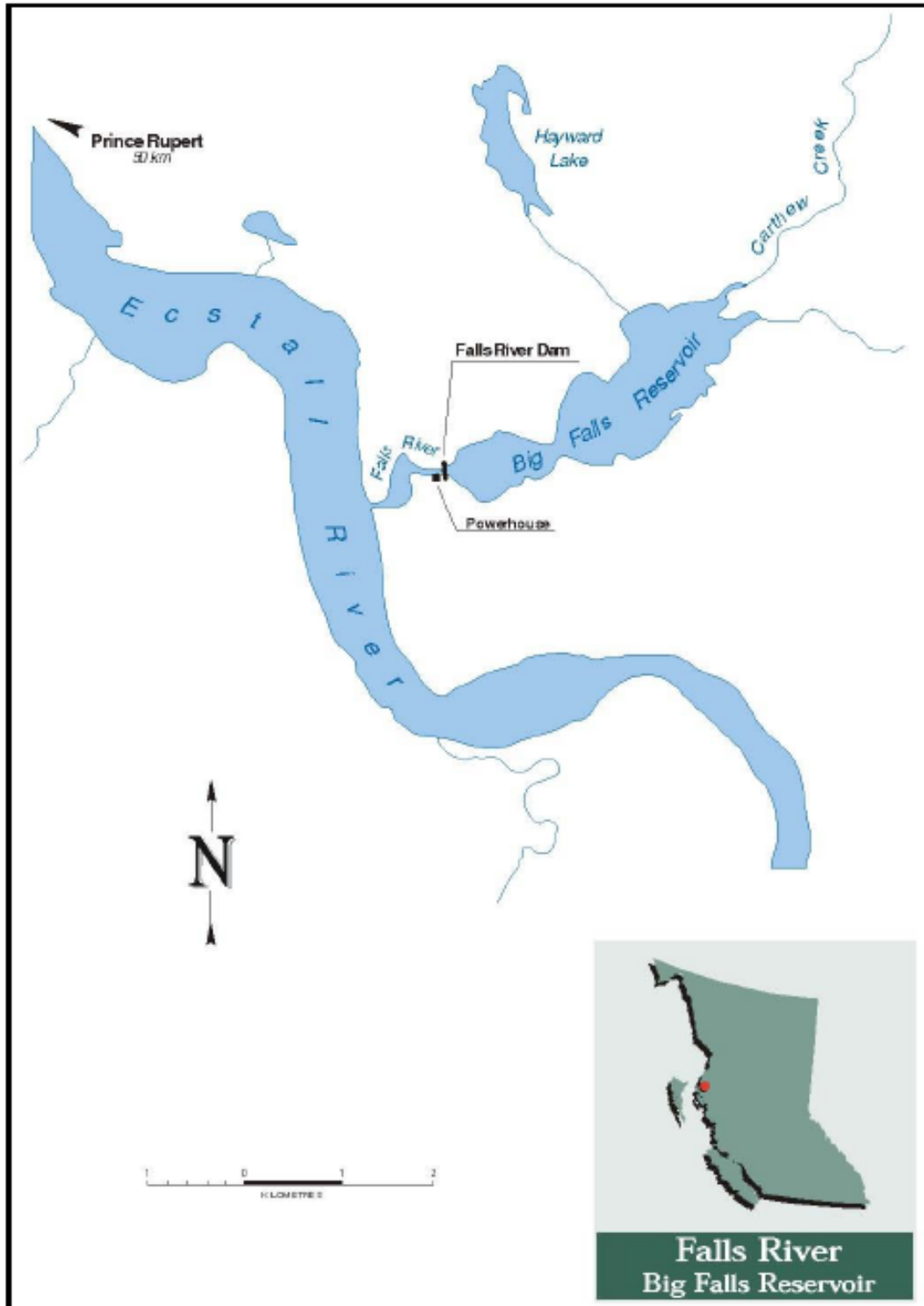


Figure 1. Map showing the location of the Big Falls River Reservoir



## 1.4 Reservoir Operations

Details on the existing works at FLS are described in the FLS WUP (BC Hydro 2006). The reservoir stores 24 million m<sup>3</sup> of water which serves as a head pond for what is essentially a run-of-river operation. Water levels are influenced by storms/inflows and undergo rapid changes in level, spilling at any time (BC Hydro 2000). During the early spring, a relatively broad depth of the upper drawdown zone has ~50% chance of not being inundated, but by May, the elevations with variable inundation narrow considerably (Figure 2).

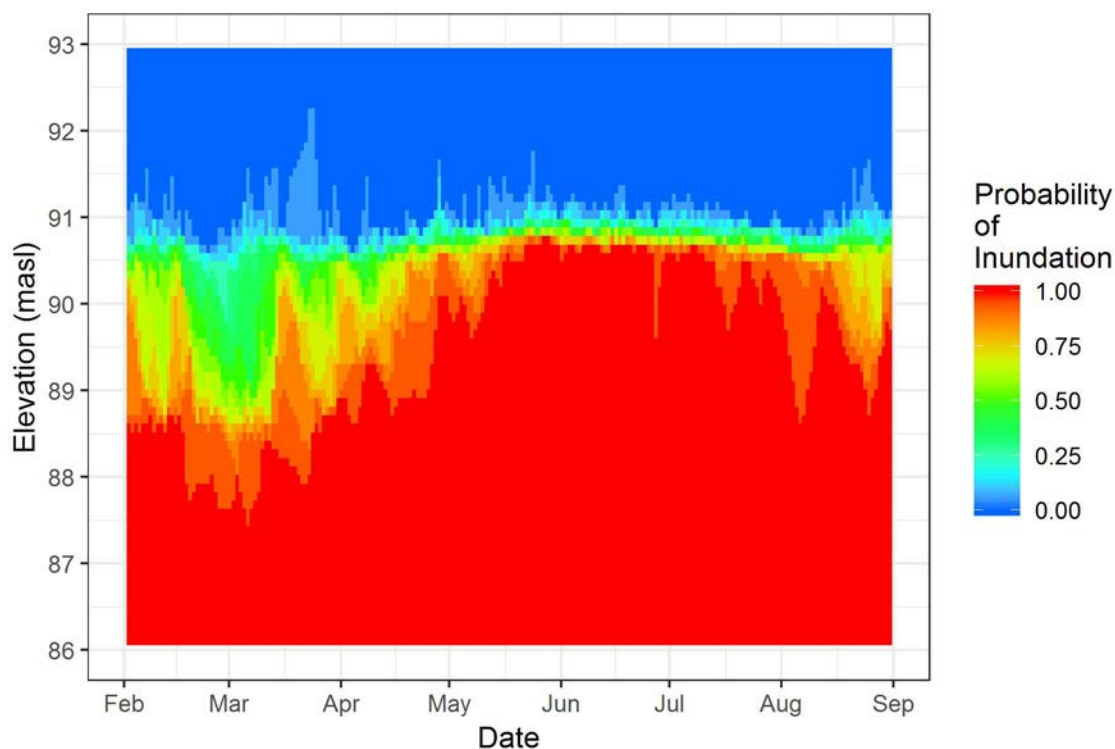


Figure 2. The Big Falls Reservoir is operated as a run of river head pond, with relatively unpredictable water level fluctuations throughout the year. The colour in this graphic indicates the probability of inundation based on time of year and elevation, as calculated from historic operations between 2003 and 2019

## 2 Methods

### 2.1 Regional species list

The preliminary scoping list was derived for FLSMON-6 in Year 1 (Cambria Gordon 2008). The authors developed “a comprehensive list of all species that could potentially be found in the study area at any time of year” excluding “species that do not den or nest” (page 9).

Big Falls Reservoir is remote, and in a setting/region with relatively sparse ecological information; however, additional sources of information were used to cross-check the adequacy of the preliminary scoping:

- A species list was generated using the Provincial Ecosystem Explorer web tool (Government of BC 2018) selecting for all birds that breed in BC found in the Central Coast, Kitimat-Stikine, and Skeena-Queen Charlotte regional districts. This produced a list of 32 different taxa, some of which were sub-specifically distinct. Results did not change when criteria were relaxed to include all bird species.
- Lists of observed species were downloaded for five representative locations in the Skeena region using the e-bird online database (Bird Studies Canada 2018): Diana Lake Provincial Park, Galloway Rapids Rest Area, Oliver Lake Provincial Park, Skeena Flats, and the Skeena-Kwinitsa confluence.

These bird lists were combined, checked, and amalgamated to create a master list of potential species (Appendix 1).

## 2.2 Short list of species vulnerable to impacts

Two types of information were generated to create the short list: (1) whether the species breeds at low elevation in the Skeena Region; and (2), whether the species potentially nest near the ground in habitats similar to those found in the Big Falls Reservoir drawdown zone (e.g., gravel, sand, mud, sedges, shrubs). Sources included the Birds of BC (Campbell et al. 1990a, 1990b, 1997, 2001, Sibley 2000, and the Birds of North America online). For both criteria, each species was classified as either 'yes' or 'no' regarding their potential inclusion on the short list. These were assessed liberally to be inclusive of marginal cases.

The short list represents a broad list of species that are potentially vulnerable to impacts from WUP reservoir operations in the Big Falls Reservoir.

## 2.3 Temporal nest vulnerability

To assess for potential interactions between nesting birds and the FLS WUP operation involving flashboards, the onset date of nesting was determined for each short-listed species. Sources included the Birds of BC (Campbell et al. 1990a, 1990b, 1997, 2001). This assessment was done liberally, using the earliest nest dates reported for the Province. Because breeding records of many of the species on this list are from the south coast, 600 kilometers south of Falls River, it is likely that the earliest nest dates estimated for the short list bird species are biased to be earlier than when nesting occurs in the Big Falls Reservoir/Skeena region.

### 3 Results

The inclusion of additional information sources greatly improved the scope of the preliminary screening done in Year 1 (Appendix 1). Key results include the following:

- 60 bird species were identified which were not considered in the Year 1 report, bringing the total number of bird species considered to 141;
- The preliminary scoping phase in the Year 1 report included inappropriate species (e.g., pelagic (open ocean) marine species: Short-tailed Albatross, Tufted Puffin);
- The preliminary scoping phase in the Year 1 report failed to identify some common landbirds such as Steller's Jay; this latter species was included on all other six of the lists;
- Six species were included on six of the seven component lists; other species were less consistently represented across lists; and
- No species were consistently found on all of the seven component lists.

From the master list of 141 potential species (Appendix 1), the short list included 27 species that could potentially nest in the Big Falls Reservoir drawdown zone (Table 1) eight of these were species not previously identified in FLSMON-6 reports.

There were five species that could potentially nest early enough to experience nest flooding issues at the Big Falls Reservoir due to flashboard installation under WUP operations; only one of these species potentially nests prior to the flashboard installation period, and the other four species could nest during the installation window (Table 1). There were also three species that could potentially experience nest stranding issues such as loons and grebes which are good swimmers but not adept at moving on land (Table 1).

**Table 1. The short list of potential species with vulnerability to nest flooding impacts in the drawdown zone of Big Falls Reservoir. The list is organized in order of the species' earliest nesting "Start Date". "Flashboard Operation" denotes during which phase of the WUP nesting could be initiated**

<b>Common Name</b>	<b>Earliest Possible Nest Initiation Date</b>	<b>Flashboard Operation<sup>2</sup></b>
Mallard	10-Feb	Before
Song Sparrow	20-Feb	Installation
Canada Goose	1-Mar	Installation
Killdeer	1-Mar	Installation
Spotted Sandpiper	10-Mar	Installation
Dark-eyed Junco	20-Mar	During
Short-eared Owl	20-Mar	During
Pied-billed Grebe*	1-Apr	During
Blue-winged Teal	1-Apr	During
Common Loon*	1-Apr	During
Wilson's Snipe	1-Apr	During
Red-winged Blackbird	5-Apr	During
Sandhill Crane	10-Apr	During
Fox Sparrow	15-Apr	During
Northern Pintail	15-Apr	During
Savannah Sparrow	15-Apr	During
Green-winged Teal	28-Apr	During
Common Yellowthroat	1-May	During
Red-throated Loon*	1-May	During
American Widgeon	1-May	During
Cedar Waxwing	1-May	During
Chipping Sparrow	1-May	During
Red-breasted Merganser	10-May	Removal
Trumpeter Swan	10-May	Removal
Lincoln's Sparrow	15-May	Removal
Common Nighthawk	20-May	After
Pacific Loon	20-May	After

\* These species cannot walk on land and are vulnerable to nest stranding after flashboard removal

<sup>2</sup> Nests initiated in the 'Before' period, or during 'Installation' period, are vulnerable to nest flooding.

## 4 Discussion

The FLSMON-6 TOR considered risks of nest flooding specifically associated with the installation of flashboards in accordance with the FLS WUP. The FLSMON-6 Big Falls Reservoir Wildlife Shoreline Habitat Monitoring program was initiated in August 2007. In Year 1 a preliminary scoping desktop exercise was used as a starting point from which to approach the risk assessment. The final implementation year of the FLSMON-6 program (Year 3) was in 2010.

The desktop review conducted for this report followed the completion of the FLSMON-6 study as it was noted that nest flooding risks were not assessed adequately at the desktop level (e.g., considering nesting habitat and phenology). While the WUP operation of flashboards has not been implemented due to safety concerns, it was determined that basic information on which species could be affected, and how the timing of the flashboard installation overlaps with these species' nesting activities was an achievable outcome which was not met in the FLSMON-6 program from 2007 to 2010.

The present desktop review identified 27 potential species that could nest in the Big Falls Reservoir drawdown zone with vulnerability to nest flooding (Table 1). This list is the result of high level and inclusive screening (i.e., seven bird lists were used in the screening). It is possible (but unlikely) that a species that regularly nests in/near the reservoir was not recognized. There were likely to be species identified and included in this assessment that are unlikely to be observed nesting in the drawdown zone including, for example: Pacific Loon, Pied-billed Grebe, Sandhill Crane, Trumpeter Swan, Common Nighthawk, Short-eared Owl, Dark-eyed Junco, Chipping Sparrow, and Fox Sparrow. There are 18 species on the list which are known to nest in other reservoir drawdown zones (HvO *personal observation*; see also Craig et al. 2018). Compared with data from other reservoirs, a potential community of 27 species is considerable, but not an unusually large list for birds to be nesting in a reservoir drawdown zone. Respectively, in the Kinbasket Reservoir and the Arrow Lakes Reservoir, 30 and 65 species have been observed nesting below the full pool elevation (Craig et al. 2018).

The desk-top generated list of expected nesting species lacks precision due to the unique habitat (FLS drawdown zone) and the lack of data from the region. Field observations are the most appropriate method to improve knowledge of which species regularly nest in the drawdown zone of Big Falls reservoir. A well-timed field visit by an ornithologist during ideal conditions could quickly generate a list of the common species. However, refining knowledge of the bird community via additional field work is not necessary for addressing the FLSMON-6 MQ's because flashboard operation is not safely feasible.

#### **4.1 MQ-1: Is there active nesting and denning in the drawdown of the Big Falls Reservoir at elevations and during periods when they may be flooded when flashboards are installed?**

This desktop review identified five bird species which could potentially nest early enough in BC to warrant some concern of vulnerability associated with the WUP flashboard operation; Mallard, Song Sparrow, Canada Goose, Killdeer, and Spotted Sandpiper. Only one of these species (Mallard) has been observed to nest in BC prior to flashboard installation as outlined in the WUP; the other four species have been recorded to nest during the flashboard installation period. These results are based on BC nesting records, and do not reflect regional nesting phenologies at FLS. Geographic variability in nesting phenology is considerable, and nesting is expected to start later in more northerly latitudes (e.g., L'Hyver and Miller 1991, ECCC 2019). As such, it is likely that the five identified species nest later in the region compared with the earliest dates that were identified in this study, and this bias will reduce the risk of nesting before or during flashboard installation. Due to the early installation of flashboards, the likely late nesting phenology at FLS, and the marginal risk that was identified here without adjusting for late nesting at FLS, it is likely that true risk of nest flooding associated with the hypothetical FLS WUP flashboard operation is exceeding low, as concluded in the Final Year 3 Report (Cambria Gordon 2010).

A second reason why the risk of nest flooding would be less likely is that not all of the five identified species are necessarily nesting at FLS. However among the five species identified, two (Mallard and Canada Goose) were observed at the reservoir during the FLSMON-6 field visits (Cambria Gordon 2010), none are near the edge of their geographic ranges at FLS, and all five are known to nest in other reservoir drawdown zones; as such, all five species have a considerable potential to nest at FLS.

To assess MQ-1 more quantitatively, BC Hydro would need to acquire (1) a digital elevation modal of the FLS drawdown zone, (2) vegetation mapping of the drawdown zone, and (3) improved field data on the drawdown zone bird community. In conjunction with reservoir elevation data (e.g., data used to create Figure 2), the flooding regime can be determined for each habitat type. Given that flashboard operation is not safely feasible, we do not recommend that this type of data collection or further analysis is required to meet the objective of the FLSMON-6 study.

With respect to bird nest flooding impacts, this desktop risk assessment corroborates conclusions made previously in the Final Year 3 report (Cambria Gordon 2010), that the risk that WUP flashboard operation would flood bird nests is very low.

#### **4.2 MQ-2: Does extent of nest and den flooding under WUP operations differ from the flooding that would occur under base case operations?**

Because WUP operations could not utilize flashboards, it can be assumed that the operation of the reservoir has remained unchanged. It was beyond the scope of FLSMON-6 to consider baseline nest flooding impacts, but based on the assumption that WUP operations are identical to pre-WUP operations, it can be concluded that the extent of nest flooding has not changed. This same conclusion is reached logically by considering the MQ-1 conclusions: WUP flashboard operation is unlikely to flood nests, so the extent of nest flooding remains unchanged even if flashboards were used. This latter point of view was implied in the Final Year 3 Report, which also did not identify alterations to the risk of nest flooding (Cambria Gordon 2010).

### **4.3 Other Considerations**

It should be noted that nesting the FLS drawdown zone risks flooding impacts during any point of the spring/summer, irrespective of flashboard operation. It is unclear how birds respond to flashy and unpredictable reservoir fluctuations at this and other facilities with similar operations. The degree to which birds could be affected depends on if and when the various types of drawdown zone habitats are inundated, and ability of birds recognize and respond to nest flooding risks.

In the Final Year 3 Report (Cambria Gordon 2010), it was noted that some species may be vulnerable to nest stranding. Some species cannot walk on land, and must nest at the water's edge; nest stranding impacts occur when receding water levels draw shorelines away from nest sites, rendering them un-reachable. Three species were identified as potentially nesting along the shores of Big Falls Reservoir, with vulnerability to nest stranding during normal reservoir operations, and in particular, if flashboards are used (Table 1). Although nest stranding was considered in the Order and/or FLS WUP, this was not considered in the TOR for FLSMON-6 and is therefore not considered under this WLR program. However, if flashboard operation is considered in the future, it would be worth considering this impact.

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**Appendix 1. A list of species identified for the Skeena Region from the Year 1 FLSMON-6 report, five e-bird lists, and from the query generated using the BC Ecosystem Explorer. The list is presented in the decreasing order of No. Sources, to highlight commonly observed species in the region (e.g., 6 indicates that the species was on 6 of the 7 initial lists).**

Common Name	FLSMON-6	No. Sources	Breeding Range	Nesting Habitat	Short List
Barn Swallow	1	6	yes	no	no
Belted Kingfisher	1	6	yes	no	no
Chestnut-backed Chickadee	1	6	yes	no	no
Mallard	1	6	yes	yes	yes
Song Sparrow	1	6	yes	yes	yes
Steller's Jay	0	6	yes	no	no
American Robin	0	5	yes	no	no
Bald Eagle	0	5	yes	no	no
Common Raven	0	5	yes	no	no
Hairy Woodpecker	1	5	yes	no	no
Orange-crowned Warbler	1	5	yes	no	no
Tree Swallow	1	5	yes	no	no
Bufflehead	1	4	no	no	no
Canada Goose	1	4	yes	yes	yes
Common Goldeneye	1	4	yes	no	no
Dark-eyed Junco	1	4	yes	yes	yes
Glaucous-winged Gull	0	4	yes	no	no
Great Blue Heron	1	4	yes	no	no
Northern Flicker	1	4	yes	no	no
Northwestern Crow	0	4	yes	no	no
Pacific-slope Flycatcher	0	4	yes	no	no
Pacific Wren	0	4	yes	no	no
Pine Siskin	0	4	yes	no	no
Swainson's Thrush	0	4	yes	no	no
Barrow's Goldeneye	1	3	yes	no	no
Brown Creeper	1	3	yes	no	no
Common Merganser	1	3	yes	no	no
Common Yellowthroat	1	3	yes	yes	yes
Downy Woodpecker	1	3	yes	no	no
Golden-crowned Kinglet	1	3	yes	no	no
Golden-crowned Sparrow	0	3	yes	no	no
Hermit Thrush	0	3	yes	no	no
Hooded Merganser	1	3	yes	no	no
Iceland Gull	0	3	no	no	no
Killdeer	1	3	yes	yes	yes
Mew Gull	0	3	yes	no	no
Olive-sided Flycatcher	1	3	yes	no	no
Pied-billed Grebe	0	3	yes	yes	yes
Red-breasted Merganser	1	3	yes	yes	yes
Red-breasted Sapsucker	1	3	yes	no	no
Red Crossbill	0	3	yes	no	no
Ruby-crowned Kinglet	0	3	yes	no	no
Spotted Sandpiper	1	3	yes	yes	yes
Townsend's Warbler	0	3	yes	no	no
Trumpeter Swan	1	3	yes	yes	yes
Varied Thrush	0	3	yes	no	no
Warbling Vireo	0	3	yes	no	no
Western Tanager	1	3	yes	no	no
Yellow Warbler	0	3	yes	no	no
American Dipper	1	2	yes	no	no
Ancient Murrelet	1	2	no	no	no
Black Swift	0	2	yes	no	no
Blue-winged Teal	1	2	yes	yes	yes
Cassin's Auklet	1	2	no	no	no
Common Loon	1	2	yes	yes	yes
Common Murre	1	2	no	no	no
Common Nighthawk	1	2	yes	yes	yes
Double-crested Cormorant	1	2	no	no	no
European Starling	0	2	yes	no	no
Fox Sparrow	1	2	yes	yes	yes
Green-winged Teal	1	2	yes	yes	yes
Lincoln's Sparrow	0	2	yes	yes	yes
Marbled Murrelet	1	2	yes	no	No

Common Name	FLSMON-6	No. Sources	Breeding Range	Nesting Habitat	Short List
Northern Goshawk	1	2	yes	no	no
Northern Pintail	1	2	yes	yes	yes
Northern Saw-whet Owl	1	2	yes	no	no
Osprey	1	2	yes	no	no
Peregrine Falcon	1	2	yes	no	no
Pine Grosbeak	1	2	yes	no	no
Red-breasted Nuthatch	1	2	yes	no	no
Red-necked Grebe	1	2	no	yes	no
Red-throated Loon	0	2	yes	yes	yes
Red-winged Blackbird	1	2	yes	yes	yes
Rufous Hummingbird	0	2	yes	no	no
Rusty Blackbird	1	2	no	no	no
Sandhill Crane	1	2	yes	yes	yes
Savannah Sparrow	0	2	yes	yes	yes
Sooty Grouse	0	2	yes	no	no
Tufted Puffin	1	2	no	yes	no
Violet-green Swallow	1	2	yes	no	no
Western Grebe	1	2	no	yes	no
Western Screech-Owl	1	2	yes	no	no
White-crowned Sparrow	0	2	yes	no	no
Wilson's Snipe	1	2	yes	yes	yes
Wilson's Warbler	1	2	no	no	no
Yellow-rumped Warbler	0	2	yes	no	no
Alder Flycatcher	1	1	yes	no	no
American Bittern	1	1	yes	no	no
American Coot	1	1	yes	no	no
American Widgeon	1	1	yes	yes	yes
Band-tailed Pigeon	0	1	yes	no	no
Bank Swallow	1	1	no	no	no
Barred Owl	1	1	yes	no	no
Black-backed Woodpecker	1	1	no	no	no
Black-capped Chickadee	0	1	yes	no	no
Black Turnstone	0	1	no	no	no
Bonaparte's Gull	0	1	no	no	no
Boreal Owl	1	1	no	no	no
Brandt's Cormorant	0	1	no	no	no
Cackling Goose	0	1	no	no	no
California Gull	0	1	no	no	no
Cedar Waxwing	0	1	yes	yes	yes
Chipping Sparrow	0	1	yes	yes	yes
Cliff Swallow	1	1	yes	no	no
Common Redpoll	0	1	no	no	no
Eared Grebe	0	1	no	yes	no
Evening Grosbeak	0	1	no	no	no
Gadwall	1	1	no	yes	no
Great Grey Owl	1	1	no	no	no
Great Horned Owl	1	1	yes	no	no
Greater Yellowlegs	0	1	no	yes	no
Gyr Falcon	0	1	no	no	no
Hammond's Flycatcher	0	1	yes	no	no
Herring Gull	0	1	no	no	no
Horned Grebe	1	1	no	yes	no
Horned Puffin	0	1	no	no	no
Lesser Scaup	0	1	no	no	no
MacGillivray's Warbler	0	1	yes	no	no
Merlin	1	1	yes	no	no
Mountain Chickadee	1	1	no	no	no
Northern Pygmy Owl	1	1	yes	no	no
Northern Rough-winged Swallow	0	1	yes	no	no
Northern Shoveler	0	1	no	yes	no
Pacific Loon	0	1	yes	yes	yes
Pelagic Cormorant	1	1	no	no	no
Pileated Woodpecker	1	1	yes	no	no
Red-necked Phalarope	0	1	no	yes	no
Red-tailed Hawk	0	1	yes	no	no
Red Knot	1	1	no	yes	no
Ruddy Duck	0	1	no	yes	no

Short-billed Dowitcher	0	1	no	yes	no
Short-eared Owl	0	1	yes	yes	yes
<b>Common Name</b>	<b>FLSMON-6</b>	<b>No. Sources</b>	<b>Breeding Range</b>	<b>Nesting Habitat</b>	<b>Short List</b>
Short-tailed Albatross	1	1	no	no	no
Smith's Longspur	0	1	no	yes	no
Three-toed Woodpecker	1	1	no	no	no
Wandering Tattler	0	1	no	yes	no
Western Flycatcher	1	1	yes	no	no
White-winged Scoter	1	1	no	yes	no
Wilson's Phalarope	1	1	no	yes	no
Wood Duck	1	1	no	no	no
Yellow-billed Loon	0	1	no	yes	no