AVISTA CORPORATION

2018

ANNUAL BALD EAGLE MONITORING REPORT

ARTICLE 414

SPOKANE RIVER HYDROELECTRIC PROJECT
FERC PROJECT NO. 2545

Prepared by
Licia A. Stragis
Timberland Management Company

For
Avista Corporation
Spokane, Washington

December 27, 2018

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

On June 18, 2009, the Federal Energy Regulatory Commission (FERC) issued a License for Avista Corporation's (Avista) Spokane River Project, FERC Project No. 2545 (Project), for a 50-year license term. The Project consists of five hydroelectric developments located on the Spokane River in northern Idaho (in Kootenai and Benewah counties) and eastern Washington (in Spokane, Stevens, and Lincoln counties). The Project boundary generally follows the normal full pool elevation of each hydroelectric development's impoundment, which from upstream to downstream, include:

- Post Falls (River Mile [RM] 102),
- Upper Falls (RM 74.2),
- Monroe Street (RM 74),
- Nine Mile (RM 58), and
- Long Lake (RM 34).

Article 414 of the License required Avista to develop a Bald Eagle Management Plan (Plan), which was approved by FERC on May 11, 2011. The Plan included: (i) bald eagle (Haliaeetus leucocephalus) nests associated with waters impounded by the Project; (ii) a framework for annual occupancy and productivity monitoring (Monitoring); (iii) annual surveys to identify new nests (Surveys); (iv) investigations to identify bald eagle nesting territories including primary use areas, home ranges, and key use sites (Investigations); and (v) reporting requirements (Annual Reports). This Annual Bald Eagle Monitoring Report (Report) summarizes the results of implementing the Plan in 2018.

The Plan defines the Monitoring Area as the area that encompasses bald eagle nest sites associated with waters impounded by the Project. In general, this area extends one-half mile beyond the Project boundaries. Annual Monitoring, Surveys, and Investigations are completed within this area. Within the Monitoring Area the Plan further defines the Planning Area, which is the geographic area associated with nests that occur on Avista-owned lands and with the requirement to prepare site-specific management plans for bald eagle nests. The Planning Area includes Avista-owned lands where an active or alternate nest, associated with waters impounded by the Project is present, and specific additional nesting territories, where investigations indicate,

that (1) Project operations may have negative effects on bald eagle productivity or habitats, and (2) opportunities for protection are available.

Avista met with the U.S. Fish and Wildlife Service (USFWS), Idaho Department of Fish and Game (IDFG), and the Washington Department of Fish and Wildlife (WDFW) on February 26, 2018 to discuss the annual implementation of the Plan. Licia Stragis, Timberland Management Company Senior Biologist, assisted Avista in implementing the Plan and prepared the Report. Original and electronic copies of all field forms, photographs, geographic information system (GIS) databases, and reports are filed at Avista.

2.0 OCCUPANCY AND PRODUCTIVITY MONITORING

2.1 Methods

Location of Territories Monitored. Thirty-four nesting territories were monitored in 2018 to determine annual occupancy and productivity. Figures 1 and 2 show the locations of these nesting territories.

Dates of Monitoring. Monitoring occurred between February 1 and July 31, following the methods described below and detailed in the Plan. Supplemental efforts included additional observation dates and extending the observation period to midday for watercraft and some land-based monitoring.

According to the Plan, each known nest is to be observed a minimum of three times during the nesting season to determine occupancy and productivity. The first observation was an initial determination of occupancy that occurred between February 1 and April 15; the second observation, an update of nesting status, occurred between April 15 and June 15 and the third observation, a determination of productivity, occurred between June 15 and July 31. Observations were generally made from first light to midday and required up to one and one half hours to determine the occupancy and productivity. High-resolution optics were used to facilitate observations. Observations were conducted from watercraft, land vehicle, and on foot. Land-based observations took place from a vehicle whenever possible to avoid disturbance to eagles. Nests approached on foot, took place with the observer remaining at least 330 feet from

the nest and/or hidden from view, and observers retreated if eagles displayed agitated behavior. During each visit, data pertinent to the determination of nest occupancy and productivity were recorded. This included:

- Nest condition,
- Nest repair or construction,
- Presence and behavior of adults,
- Adult incubation or brooding posture,
- Number of eggs (where visible), and
- Number and age of young using a standardized aging key based on plumage, size, and posture (Carpenter 1990).

Observers also noted any habitat alterations or activities that have occurred near the nest site that may affect eagle productivity. Based on the results of observations and professional judgment, one of the following occupancy determinations was made for each monitored territory.

1. **Active:** Two adults present in a territory containing a nest during the nesting season, or one adult observed incubating with young, or near a known nest. Nesting determination is the activity status of the nest. "Active" is a transitional designation. A nest that is deemed "Active" at the beginning of the nesting season received a determination of "Successful", "Active, Not Successful", or "Active, Success Unknown" at the completion of monitoring.

   Active Successful: One or more young fledged from the nest. When the "Successful" determination is used, the Report includes the number of eagles fledged from the nest. According to the Plan, productivity results assume the young noted in the nest during the last observation have successfully fledged. However, the pre-fledging period is considered a very sensitive period. Nestlings at this stage are developing flight abilities, may flush from the nest prematurely, and perish due to disruption (USFWS 2007). Therefore, actual numbers of fledglings and percentages may be the same or lower.

   Active, Not Successful: An occupied territory where no young were produced. When the "Active, Not Successful" determination is used, observers tried to determine the cause of reproductive failure where possible, and note the nature, extent, and location of activities or habitat alterations in the territory. During the 2015 annual meeting, Avista and the agencies agreed this determination includes

previous "nest abandoned" designation where eagles had deserted or stopped attending the nests.

Active, Success Unknown: Occupied territory not adequately monitored to determine success. The use of this determination requires an explanation as to why the territory was not adequately monitored to determine success. The annual report will include recommendations to rectify inadequacies in subsequent monitoring.

2. **Not Active:** No nesting activity and no adults in a nesting territory. When the "Not Active" determination is used, observers recorded any modifications or disturbances to habitat that have occurred near the nest site and the distance to those disturbances. The nature, extent, and proximity of habitat modifications/disturbances should be included in the annual report. These nests are not included in the analysis of Monitoring Area productivity, nest productivity, and nest failure rates.

3. **Status Unknown:** Territory not checked or incompletely checked to determine occupancy. The use of the "Status Unknown" determination requires an explanation of why the territory was not checked or why observations were not adequate to determine occupancy. The annual report includes recommendations to allow for adequate observations during subsequent monitoring.

All territory occupancy, nesting activity status, and productivity data was recorded on standardized data forms. Copies of these forms are included in Appendix A.

2.2 Results 2018 Territory Occupancy, Nesting Activity Status, and Productivity Determination

Thirty-four nests were monitored in 2018. The 2012-2018 monitoring results are shown in Table 1 and summarized below.

- Occupancy: 82%: Of the 34 nests that were monitored; 28 nesting territories were occupied with active nests. Six did not have active nests.
- Active nests: Of the 28 active nests; 25 had known productivity.
    - Active, Successful: 23 nests.
    - Active, Not successful: 2 nests.

- Active, Success Unknown: 3 nests.

- Monitoring Area productivity: Thirty-two young were fledged from the 25 active nests with known productivity, (n=25). The average number of fledglings per active nest was 1.28.
- Successful nest productivity: 92%. Of the 25 active nests with known productivity, 23 were successful. Thirty-two young were fledged from the twenty-three successful nests. (n=23). The average number of fledglings per successful nest was 1.39.

Annual productivity of nesting territories in the Monitoring Area is summarized in *Table 2.*

Table 1. Annual Bald Eagle Monitoring Results

Territory Name	Nest Number	Nest in Planning Area	Potential Disturbance Factors	2018 Nest Determination	# of Fledglings						
					2018	2017	2016	2015	2014	2013	2012
IDAHO											
Ahrs Creek	08I10301	No	Jet boat race, ranch	Active, Successful	2	1	1	1	NA	NA	NA
Bull Run	07I10401	No	Nest on trans. pole removed	Not Active	0	0	NA				
Chippy Point	08I10501	No	Residential	Active, Successful	1	NA					
Cougar Bay	07I03502	No	Residential, osprey nests	Active, Successful	2	0	2	0	2	UNK	0
Eddyville	07I07701	No	Residential	Active, Successful	2	2	2	2	2	2	2
Falls Creek	07I03702	No	Jet boat race	Active, Success Unknown	UNK	1	UNK	1	1	0	0
Fernan W	07I03401	No	Recreation	Active, Successful	1	2	1	1	1	1	NA
Fernan E	07I03402	No	Recreation	Not Active	0	1	-				
Hepton Lake	08I10102	No	Residential, Hwy 3	Active, Not Successful	0	1	1	2	2	2	NA
Heyburn Park S	08I05702	No	Park, roads, Trail of CDA.	Active, Successful	1	UNK	1	2	1	2	0
Heyburn Park N	08I05701	No	Park, roads, Trail of CDA.	Active, Successful	1	2	2	-	-	-	-
Killarney Lake	07I01702	No	None	Active, Successful	1	1	2	0	1	1	2
Mica Bay	07I05401	No	Residential	Active, Successful	2	2	1	2	2	1	2
Post Falls	07I08002	Yes	Residential, roadway, osprey	Active, Success Unknown	UNK	0	1	2	1	2	1
Rainy Hill	07I07402	No	None	Active, Successful	1	0	0	1	2	UNK	UNK
Rose Lake	07I01902	No	Residential	Active, Successful	1	1	0	1	0	1	0

Territory Name	Nest Number	Nest in Planning Area	Potential Disturbance Factors	2018 Nest Determination	# of Fledglings 2018	2017	2016	2015	2014	2013	2012
St, Joe/Benewah	08I10601	No	None	Active, not Successful	0	NA					
St. Maries	08I04301	No	None	Active, Successful	1	1	UNK	UNK	0	2	1
Turner Bay	07I06604	No	Residence, near Hwy.	Active, Successful	2	2	2	0	0	1	2
Turtle Lake	08I02402	No	Jet boat race	Active, Successful	1	1	1	1	2	2	0
Upper Spokane River	07I10202	No	Development across river	Active, Successful	1	1	0	UNK	0	UNK	NA
Windy Bay	08I00103	No	None	Active, Successful	2	2	2	1	2	UNK	1
WASHINGTON											
Charles Maas	06W30504	No	WA Park and residential	Active, Success Unknown	UNK	2	2	1	1	1	1
Deep Creek	06W10902	Yes	Trails	Not Active	0	0	UNK	2	NA	NA	NA
Four Mound	06W10502	No	Residential	Active, Successful	2	1	1	2	NA	NA	NA
Long Lake South	06W22010	Yes	Residential	Active, Successful	2	1	0	0	0	0	2
Lower Spokane River	06W10101	No	Osprey, Hwy 291,residential	Active, Successful	1	0	2	1	1	0	NA
North Shore	06W10403	Yes	Dock	Not Active	0	0	1	1	2	NA	NA
Powerball	06W10701	Yes	Osprey, other eagles	Active, Successful	1	2	2	2	NA	NA	NA
Riverside Launch	06W10601	No	Osprey, recreation	Not Active	0	2	2	2	NA	NA	NA
Sportsman	06W10801	No	Residence	Active, Successful	2	2	1	1	NA	NA	NA
Suncrest	06W10301	No	Residential, trails	Active, Successful	1	1	1	1	0	NA	NA
Whalen	06W29703	Yes	Osprey	Not Active	0	UNK	UNK	1	1	2	3

Territory Name	Nest Number	Nest in Planning Area	Potential Disturbance Factors	2018 Nest Determination	# of Fledglings 2018	2017	2016	2015	2014	2013	2012
Willow Bay	06W10201	No	Other eagles, osprey, resort, Hwy 291	Active, Successful	1	1	2	2	1	NA	NA
Total fledglings					**32 (n=25)**	**32 (n=26)**	**33 (n=25)**	**33 (n=23)**	**27 (n=22)**	**20 (n= 16)**	**19 (n=17)**
Fledglings/ nest					**1.28 (n=25)**	**1.23 (n=26)**	**1.32 (n=25)**	**1.44 (n=23)**	**1.23 (n=22)**	**1.25 (n=16)**	**1.12 (n=17)**
Fledglings/ successful nest					**1.39 (n=23)**	**1.39 (n=23)**	**1.50 (n=22)**	**1.44 (n=23)**	**1.50 (n=18)**	**1.54 (n=13)**	**1.73 (n=11)**

NA=monitoring start in year indicated, no previous year information

UNK=Success or status unknown

Table 2. Annual Summary of Monitoring Area Bald Eagle Productivity

	2018	2017	2016	2015	2014	2013	2012
Number of territories checked	34	33	32	32	27	23	19
Number of active territories	28	28	29	26	22	21	19
Percent active (occupancy)	82	85	91	81	81	91	100
Number of nests with known productivity	25	26	25	23	22	16	17
Number of successful nests	23	23	22	23	18	13	11
Number of active nest failures	2	3	3	0	4	3	6
Number success unknown	3	2	4	2	0	5	2
Percent active nest success	92	88	88	100	82	81	65
Percent active nest failure	8	12	12	0	18	19	35
Number of fledglings	32	32	33	33	27	20	19
Fledglings /nest	1.28	1.23	1.32	1.44	1.23	1.25	1.12
Fledglings/ successful nest	1.39	1.39	1.50	1.44	1.50	1.54	1.73

The following section discusses the factors affecting occupancy and productivity of the individual nesting territories. They are ordered according to the final nesting determination.

Active, Successful. Twenty-three of 28 active nests were successful, fledging a total of 32 nestlings.

Active, Not Successful. There were two territories where adults were present in the territory during the nesting season but nesting was not successful: Hepton Lake and St. Joe/ Benewah.

The Hepton Lake nest and territory was determined active on March 29 with an adult incubating at the new nest location. The previous nest had collapsed. On the May 20 and June 14 observation dates no adults were observed in the territory and no activity was observed at the nest. Therefore, initial adult incubation indicated an active nest, but due to the lack of observed

adults or young in subsequent observations the nest was determined to be not successful. There were no observed disturbances or habitat alterations to indicate the cause of failure.

The St. Joe /Benewah new nest and territory was determined active with one incubating adult on March 29. No adults were observed near the nest or in the territory at later observation dates on May 18 and June 14. No activity was observed at the nest. The newly documented nest was in good condition. Therefore, adult presence and incubation indicated an active nest but due to lack of adult presence later in the nesting season and lack of young, the nest was determined to be not successful. There were no observed or potential disturbances or habitat alterations to indicate the cause of failure.

Active, Success Unknown: There were three territories where adults were present in the territory during the nesting season but nesting success was not confirmed: Falls Creek, Post Falls Dam and Charles Maas. All three nests were determined active early in the season, but at no point were nestlings or fledglings observed. The recommended change in monitoring methods for these territories and other potential Success Unknown territories is to extend the duration of monitoring observations to make either a Successful or Not Successful determination.

The Falls Creek East nest and territory was determined active with an adult first observed March 30. The nest was in good condition. On April 20, one adult was observed incubating on the nest. On June 8, no adults were observed in the territory and no activity was observed at the nest. No nestlings or fledglings were observed. Therefore, continued adult presence near the nest indicates an active nest and continued nesting behavior, but due to the lack of young and later lack of adults, success was unknown. No disturbances or habitat alterations were observed.

The Post Falls Dam nest and territory was determined active with one adult perched and another incubating on March 16. On May 10 and June 26 an adult was observed perched nearby. However no nestlings or fledglings were observed at or near the nest. Therefore, continued adult presence near the nest indicated an active nest and continued nesting behavior, but due to the lack of young, success was unknown. No disturbances or habitat alterations were observed.

The Charles Maas nest and territory was determined active with an adult first observed on March 23 and an adult incubating on May 4. No adults were observed on June 26. No nestlings or

fledglings were observed. Therefore, continued adult presence indicates an active nest, but due to the lack of observed young and later lack of adults, success was unknown. No disturbances or habitat alterations were observed.

Not Active. Six nests in territories were not active: Bull Run, Fernan Lake East, Deep Creek, North Shore, Riverside Launch, and Whalen. There were no eagle nesting activities observed in these territories during the 2018 monitoring period.

The Bull Run territory was inactive in 2018 and 2017. Adults were only observed flying through the area. No nests or other use sites were observed. As a result of the 2017-2018 territory investigation it was determined not to be an occupied territory.

The Fernan Lake East territory was inactive in 2018. Adults were observed flying through the area and perching near the Fernan Lake West territory boundary, but no nests or nesting activity were observed. In 2017, there were two territories, Fernan Lake East and Fernan Lake West. Fernan Lake East fledged one young in 2017. In the previous four years, it was an alternate nest to Fernan Lake West. There were no observed disturbances or habitat alterations.

The Deep Creek territory was inactive in 2018. Adults were observed regularly during the monitoring period and during the second year of the Territory Investigation, but no nests or nesting activity was observed. In 2017 the nest was assumed predated. In 2016 it was active but its success unknown. In 2015, it was active and fledged two. Potential disturbances and habitat alterations in 2018 include two residential construction projects along the Spokane River's east shore, approximately 530 feet away from perch trees at the closest proximity. Recreational use in Riverside State Park near primary perch locations was regularly observed.

The North Shore territory was inactive in 2018 and 2017. No adults were observed in the territory or at alternative nest locations. The territory was active and successful in 2016, 2015 and 2014. There were no observed disturbances or habitat alterations aside from the usual potential disturbances of other eagles and recreation.

The Riverside Launch territory was inactive in 2018. An adult was observed in flight on one occasion during the monitoring period. The nest was present, but no nesting activity was

observed. There were no habitat alterations. Potential disturbances include recreational use at Riverside State Park's Highway 291 boat launch located across the Spokane River about 620 feet from the nest and the residences within 100 feet of the nest and primary perches. This territory was active and successful in 2017, 2016, and 2015.

The Whalen territory was inactive in 2018. An adult was observed once perched in the territory on March 23 and once in flight. No nesting activity was observed during the monitoring period. The nest was active with success unknown in 2017 and 2016. It was successful in previous years. There were no observed disturbances or habitat alterations in 2018.

Historic Territories. Territories not active or not occupied by adult eagles for three successive years are considered historic territories and are not included in monitoring results. However, the location of these nests is retained in the GIS database and the area is included in surveys for new nests.

The Blessing Slough territory, nest 07I07601 became historic in 2018. It was inactive in 2017, 2016, and 2015. No nests were located in these years. It was active and successful in 2014. There were no observed potential disturbances or habitat alterations.

Other historic territories include Swan Lake in 2017, Harrison West in 2016, and Anderson Lake in 2015.

2.3 Discussion

The occupancy and productivity percentages in 2018 are similar to the previous 2012-2017 Project monitoring results, and previous studies conducted by Idaho Fish and Game (IDFG) from 1979 to 2006 in the Idaho Eagle Management Area 7 of north Idaho and Montana (Sallabanks 2006).

The number of identified nesting territories has been stable since 2015. The increase from 19 in 2012 to 34 in 2018 is likely due to Plan implementation, i.e. annual survey for new nests. The Monitoring Area also appears to be at or close to carrying capacity to support nesting pairs of bald eagles. Figures 1 and 2 show the locations of the nests and Tables 3 and 4 measure the distances between some of the nests and territories. From this information we have found that

eagle nests are nearly predictable within a five mile interval. In which case, it can be concluded that most of the territories in the monitoring area may currently be identified.

It is important to note though, it is not an absolute count of nests. There are locations in the Monitoring Area where nests have not been found. For example, some remote river locations are inaccessible. Some lake locations are exposed to severe weather and winds, which have minimized available tall and mature trees or nest sites protected from the wind. Ospreys, which are numerous at Anderson Lake and other parts of the Monitoring Area, are the most frequent disturbance to nesting eagles and in sufficient numbers may deter nesting attempts. Other natural disturbances that can impact nesting include competing eagles or other species such as owls, hawks, other birds, and predators. See *Tables 1 and 4.*

Most of the territories experience some human caused disturbance and habitat alterations from nearby residences, transportation elements, infrastructure or human recreation as shown in *Tables 1 and 4.* Only a few of the nests are in isolation from these types of ongoing disturbances. There has been no documentation or observations of disturbances to eagles as a result of Project activities.

3.0 SURVEYS TO IDENTIFY NEW NESTS

3.1 Methods

The methods described below follow those detailed in the 2010 Plan, with a minor adjustment that extended the survey period through the monitoring period.

Avista coordinates with the USFWS, IDFG, WDFW and other entities to identify potential new bald eagle territories or nests. Supplemental efforts included communications with local and nearby residents of the Monitoring Area during the course of ongoing investigations to obtain local information of eagle sightings and potential new nests.

Survey Routes. The survey routes by watercraft followed the Project shorelines. Other surveys were conducted by land-based vehicle, watercraft, or on foot to locations where there were new observations of adult eagles.

Survey Dates. Surveys were in initiated in March with the monitoring efforts, during the ongoing monitoring, and during territory investigations. Documentation for any new nest, or suspected new nest encountered during the surveys include a minimum of two nest photographs, GPS location, and relevant descriptive information indicating nest location, nest condition, proximity to known nests, and significant habitat alterations. All new nest data is recorded on standardized data forms and are included in *Appendix B.*

3.2 Results

Four new nests were located during the survey efforts in 2018: two new territories with nests and two new alternative nests (*Table 3*). The new territories of Chippy Point and St. Joe/ Benewah nests were first identified this year. The new alternative Hepton Lake and Turtle Lake nests were constructed this year with the documented collapse of the original nests in 2017. All four new nests are included in the 2018 monitoring effort. These new nests are included in the GIS database along with the locations of the previous bald eagle nests (*Figures 1 and 2*).

Table 3. 2018 New Bald Eagle Nests

Territory Name	Number	Latitude, Longitude	Nest in Planning Area	Location/ Relationship to known territories	Notes
NEW NEST, NEW TERRITORY					
Chippy Point, ID	08I10501	47.428659, -116.778030	No	3.6 mi. north of Heyburn Park North	Active in 2018
St. Joe/ Benewah, ID	08I10601	47.357899, -116.701194	No	3.0 mi. southeast of Heyburn Park North	Active in 2018
NEW NEST, EXISTING TERRITORY					
Hepton Lake , ID	08I10102	47.330930, -116.594543	No	3.3 mi. northwest of St. Maries nest	Active in 2018
Turtle Lake, ID	08I02403	47.336321, -116.488513	No	3.7 mi. northeast of St. Maries nest	Active in 2018

4.0 NESTING TERRITORY INVESTIGATION

The nesting territory investigations are conducted over two consecutive years. The purpose of these investigations is to identify nesting territories and associated primary use areas, home ranges, and key use sites of all known bald eagle nesting territories that include active or alternate nests within the Monitoring Area.

Site-specific management plans are included in Appendix C for nesting territories located within the Planning Area. Deep Creek and Bull Run territories were located in the Planning Area and the two year investigations were completed in 2018.

Results of the investigations for nesting territories that are not located in the Planning Area are summarized in this Report, however for 2018 there were no investigation results for the territories located outside of the Planning Area. The year 2018 was year one of investigations for the Fernan West and Heyburn Park South nesting territories in Idaho.

4.1 Results

Table 4 summarizes the current results of the seasons investigations through 2018.

Table 4. Bald Eagle Nesting Territory Investigation Summary (2012 – 2018)

Territory Name	Territory Number	Planning Area	Distance to Nearest Nest	Location	Study Dates	Home Range Estimate	Nesting Territory Estimate	Disturbance to Eagles or Habitat
Whalen, WA	06W2973	Yes	1 mile	RM 44.5	2012/ 2013	675 ac.	120 ac.	Osprey, other eagles, angler
Long Lake South, WA	06W2209	Yes	2 miles	RM 39.5	2012/ 2013	800 ac.	260 ac.	Other eagles, ranching operations
Lower Spokane River, WA	06W2209	No	2.1 miles	RM 33.3	2013/ 2014	208 ac.	88 ac.	Osprey, other eagles, human
Post Falls, ID	07I08001	Yes	2.5 miles	RM 102	2013/ 2014	201 ac.	42.5 ac.	Osprey, other eagles, construction
North Shore, WA	06W10401	Yes	2 miles	RM 36	2014/ 2015	1247 ac.	103 ac.	Ravens, other eagles, recreation
Suncrest, WA	06W10301	No	2 miles	RM 53	2014/ 2015	434 ac.	106 ac.	Human, great horned owl
Mica Bay, ID	07I05401	No	3.5 miles	RM 117.5	2015/ 2016	567ac.	113 ac.	Residential
Willow Bay, WA	06W10201	No	1mile	RM 45.6	2015/ 2016	966 ac.	202 ac.	Other eagles, osprey, Hwy, resort
Powerball, WA	06W10701	Yes	2.2 miles	RM 42.5	2016/ 2017	598 ac.	240 ac.	Osprey, other eagles
Riverside Launch, WA	06W10601	No	1.3 miles	RM 56.6	2016/ 2017	410 ac.	102 ac.	Osprey, recreation

Deep Creek, WA	06W10902	Yes	2.2 miles	RM 60	2017/ 2018	529 ac	191 ac	Osprey, recreation, residential
Fernan West, ID	07I03401	No	1.3 miles	RM 2.3	2018	TBD	TBD	TBD
Heyburn Park South, ID	08I05702	No	1.2 miles	RM 1.7	2018	TBD	TBD	TBD

4.2 Discussion

Fourteen territory investigations have been initiated since 2012. The Bull Run territory is not included in the Table 4 summary because it was determined, as a result of the 2017-2018 territory investigation, that it was not a territory. There was no quantifiable territory data. See Appendix C for further details. The Fernan West and Heyburn Park South investigations began in 2018 and will be completed in 2019.

Within the Planning Area, there are currently six bald eagle territories, all of which have had territory investigations and site-specific management plans completed. These plans are located in Appendix C of the Annual Bald Eagle Management Plan reports dated 2012-2018 as shown in *Table 4.* Any new nests located within the Planning Area will have site-specific management plans completed.

5.0 REFERENCES

Carpenter, G. 1990. An Illustrated Guide for Identifying Developmental Stages of Bald Eagles Nestlings in the Field. San Francisco Zoological Society, San Francisco, CA.

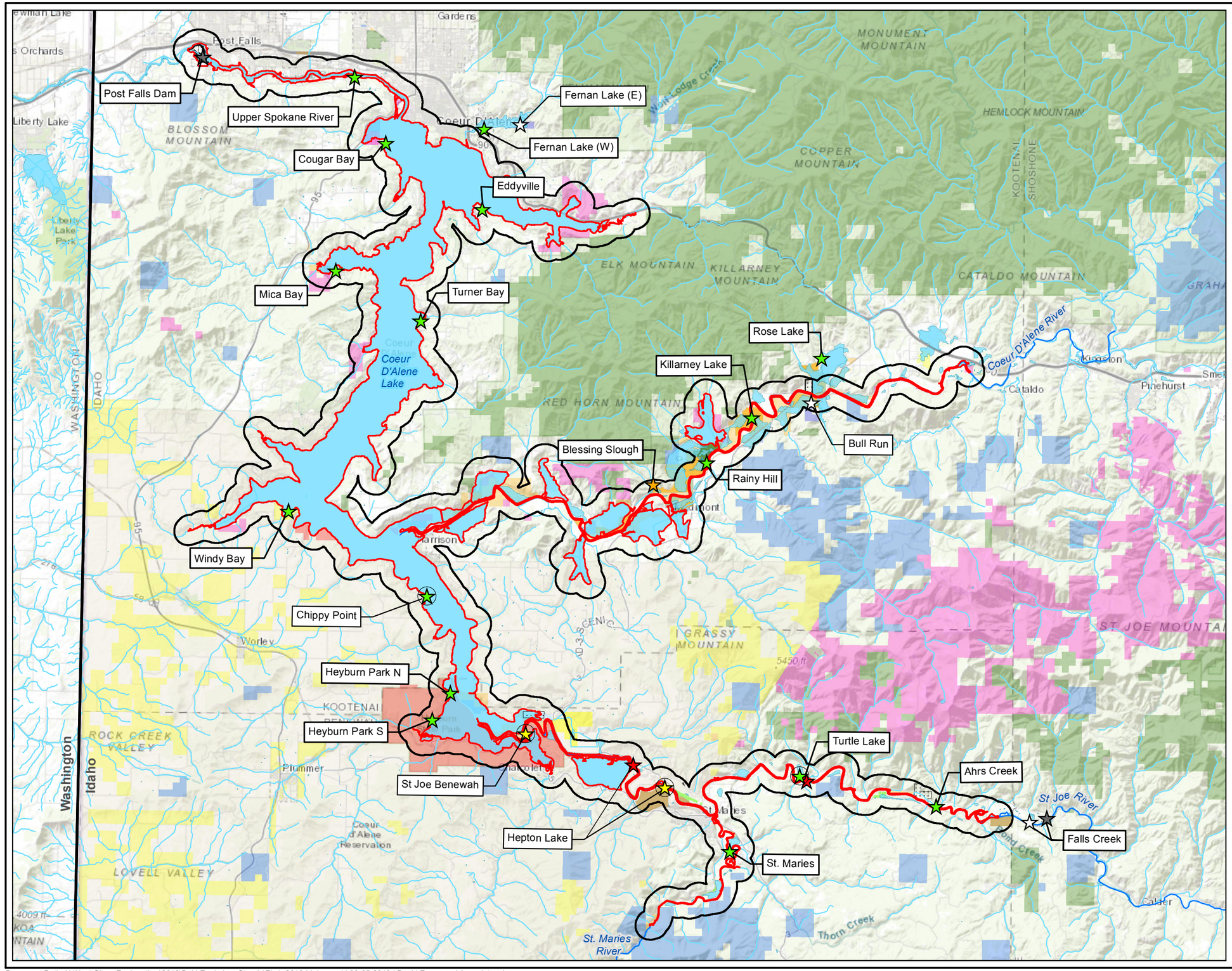
Golder Associates, Inc. 2010. Bald Eagle Management Plan; Spokane River Hydroelectric Project: FERC Project No. 2545. 55pp. May 7, 2010.

Montana Bald Eagle Working Group. 1994. Montana Bald Eagle Management Plan. 2nd edition. Bureau of Reclamation. 104 pp.

Sallabanks, Rex. Idaho Bald Eagle Nest Monitoring 2006 Annual Report. Idaho Department of Fish and Game Nongame and Endangered Wildlife Program. Boise, Idaho. https://collaboration.idfg.idaho.gov/WildlifeTechnicalReports/Bald%20Eagle%20Nesting%20Report%202006.pdf. Retrieved December 4, 2018

US Fish and Wildlife Service (USFWS) 2006. National Bald Eagle Management Guidelines. U.S. Fish and Wildlife Service. May 2007. https://www.fws.gov/pacific/eagle/all_about_eagles/Bald_Eagle_Management_Guidelines.html. Retrieved December 4, 2018.

FIGURES



LEGEND

2018 Bald Eagle Nests

- New
- Active, Successful
- Active, Not Successful
- Active, Success Unknown
- Not Active/Alternate
- Collapsed
- Success Unknown
- Historic
- Post Falls HED Boundary
- Survey Area
- Avista-Owned Land/Planning Area

Surface Land Management/Ownership

- Benewah County
- Bureau of Land Management
- City of St. Maries
- Forest Service
- Idaho Department of Fish and Game
- Idaho Department of Lands
- Idaho Department of Parks and Recreation
- Other Idaho State Agencies
- Tribal Land

Bald eagle nest location data are confidential and are not for public circulation

N

0 4

Scale in Miles

Map Projection:
Idaho State Plane
West Zone (ft) NAD 1983

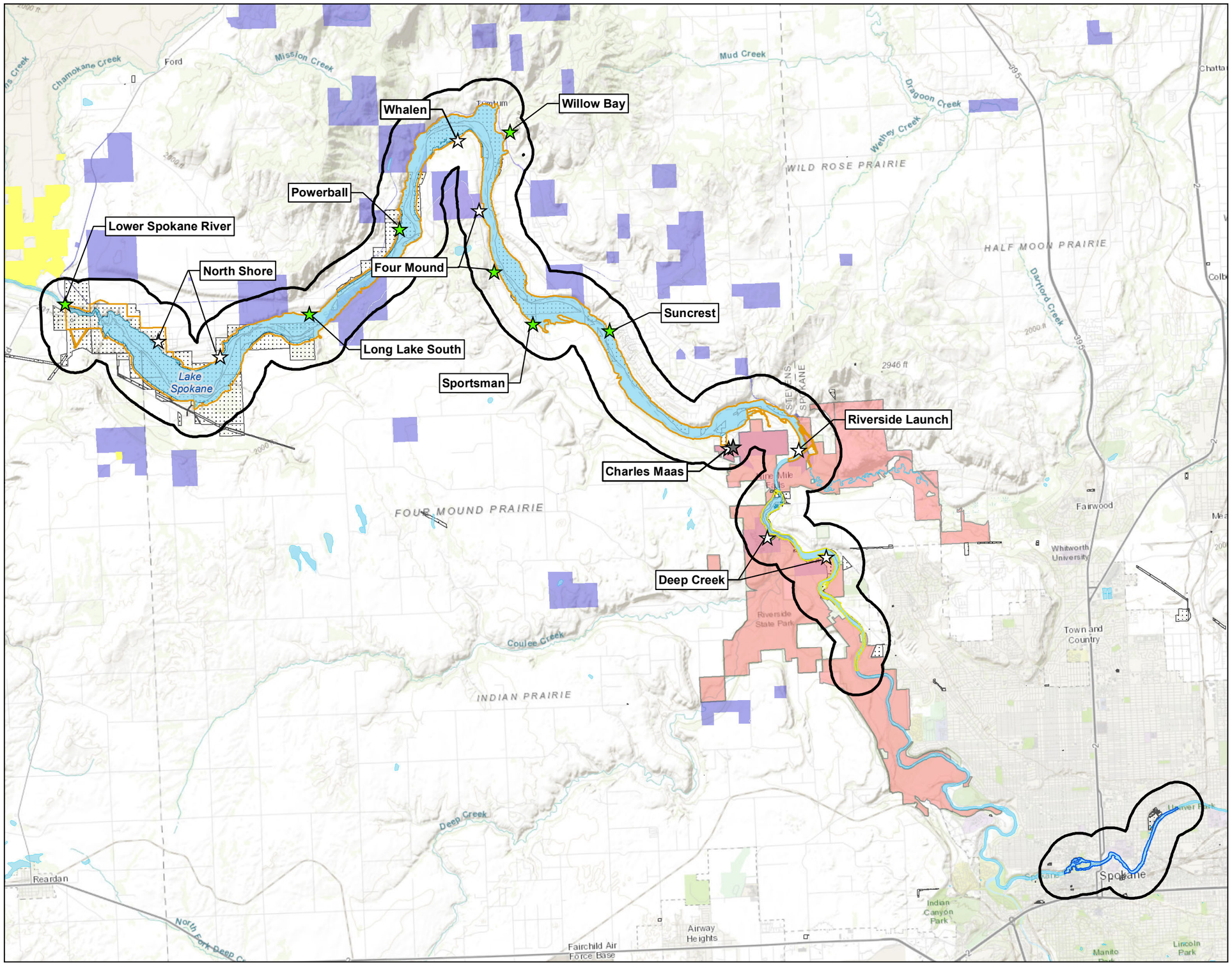
Source:
Avista (HED areas, land ownership),
USDA-NRCS (quadrangle county mosaics),
Bureau of Land Management (surface land management),
WDFW (bald eagle locations),
David Evans and Associates, Inc. (bald eagle locations),
Background Service Layers: ESRI, DeLorme, NAVTEQ, TomTom, Intermap, USGS

FIGURE **1**

BALD EAGLE NESTING LOCATIONS ASSOCIATED WITH WATERS IMPOUNDED BY THE SPOKANE RIVER PROJECT IN IDAHO

AVISTA/ECOLOGY 401 CERT/WA

Document Path: H:\Nest Sites, Eagle, other\2018\Bald Eagle Lee Stragis\Fig1_2018-Idaho.mxd | 09-05-2018 | David Evans and Associates, Inc.



LEGEND

2018 Bald Eagle Nests

- New
- Active, Successful
- Active, Not Successful
- Active, Success Unknown
- Not Active/Alternate
- Collapsed
- Historic
- Survey Area
- Monroe St./Upper Falls HED Boundary
- Nine Mile HED Boundary
- Long Lake HED Boundary

Surface Land Management/Ownership

- Riverside State Park
- Tribal Land
- Washington State Land
- Avista-Owned Land

Bald eagle nest location data are confidential and are not for public circulation

N

0 2 4

Scale in Miles

Map Projection:
Washington State Plane
North Zone NAD 1983

This figure was originally produced in color. Reproduction in black and white may result in a loss of information.

Source:
Avista (HED areas, land ownership), ESRI (hillshade), USDA-NRCS (quadrangle county mosaics), Bureau of Land Management (surface land management), WDFW (bald eagle nests), Golder Associates Inc.

FIGURE **2**

BALD EAGLE NESTING LOCATIONS ASSOCIATED WITH WATERS IMPOUNDED BY THE SPOKANE RIVER PROJECT IN WASHINGTON

AVISTA/ECOLOGY 401 CERT/WA

APPENDIX A

2018 OCCUPANCY AND MONITORING FORMS

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Charles-Maas Territory/Nest Number: 06W 305 04 Observer Initial: DA Reviewer Initial: LS

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☐ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☒ (6) Unsuccessful ☐ (7) Successful

Nest Condition Code
☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination
☐ (1) Status Unknown ☐ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☒ (5) Active, Success Unknown ☐ (6) Successful

Number of Fledglings: UNK young (at or near fledging age)

no @ nest
no other nesting information

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)							
	3/23/18			1 AD flying			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)							
	5/4/18			AD w/nest			
Determine Productivity **June 15 – July 31** (late nestling and fledging)							
	6/26/18			ø		unk	

Page 1 of 1

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Deep Creek Territory/Nest Number: OCW 109 01/02 Observer Initial: LS Reviewer Initial: N/A

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☐ (7) Successful

Nest Condition Code No nest located Territory
☐ (1) New ☐ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination
☐ (1) Status Unknown ☒ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☐ (6) Successful

Number of Fledglings: 0 young (at or near fledging age) no nest or nesting AD

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)	3/21			AD PER			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)	4/2			2 AD PER			
	4/19 & 5/5			2 AD "			
	5/18 & 5/31			2 AD "			
	6/14			2 AD "			
Determine Productivity **June 15 – July 31** (late nestling and fledging)	6/28			2 AD "			
	7/12 & 25			2 AD "			

Zone located

No nest was observed, no nestling or fledglings observed. A territory investigation was completed this year. Despite numerous dates of observation by land and water,

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Four Mound Territory/Nest Number: 06W 105 02 Observer Initial: DA Reviewer Initial: KS

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☒ (7) Successful

Nest Condition Code
☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination
☐ (1) Status Unknown ☐ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☒ (6) Successful

Number of Fledglings: 2 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy							
February 1 – March 31 (pre-egg laying and early incubation)	3/23/18	good		1 AD			
Update Nesting Status							
April 1 – June 15 (late incubation and nestlings)	5/3/18	good		1 AD PER side of nest			
Determine Productivity							
June 15 – July 31 (late nestling and fledging)	6/26/18	good		∅		2	fldg 2

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Long Lake S Territory/Nest Number: 06W 220 10 Observer Initial: DA Reviewer Initial: KS

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☒ (7) Successful

Nest Condition Code
☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination
☐ (1) Status Unknown ☐ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☒ (6) Successful

Number of Fledglings: 2 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)							
	3/23/18	good		1 AD PER			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)							
	5/4/18	good		1 AD PER side of nest			
Determine Productivity **June 15 – July 31** (late nestling and fledging)							
	6/26/18	good		ø		2	flgd

Page 1 of 1

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)

BALD EAGLE NEST MONITORING FORM

2018

I. ID

Territory Name: Lower Spokane River Territory/Nest Number: 06W 101 01 Observer Initial: LS Reviewer Initial: NA

II. SURVEY SUMMARY

Survey Code

☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code

☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☒ (7) Successful

Nest Condition Code

☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination

☐ (1) Status Unknown ☐ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☒ (6) Successful

Number of Fledglings: 1 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)	4/2/18	good	adjacent nest gone	♂	NA		
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)	5/14/18	good		♀ down stream near Creek, ♂ flying Ridge	NA	?	
Determine Productivity **June 15 – July 31** (late nestling and fledging)	6/15/18	good		AD(♂?) just below nest @ creek		1 (+?)	
	7/12/18	good		♂	♂	1 not obs	fledged

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)

BALD EAGLE NEST MONITORING FORM

2018

I. ID

Territory Name: Northshore Territory/Nest Number: 06W 104 02/03 Observer Initial: DA Reviewer Initial: LS

II. SURVEY SUMMARY

Survey Code

☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code

☒ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☐ (4) Occupied ☐ (5) Active ☐ (6) Unsuccessful ☐ (7) Successful

Nest Condition Code

☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination

☐ (1) Status Unknown ☒ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☐ (6) Successful

Number of Fledglings: 0 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)	3/23/18			Ø			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)	5/4/18			Ø			
Determine Productivity **June 15 – July 31** (late nestling and fledging)	6/26/18			Ø			

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Powerhall Territory/Nest Number: 06 W 107 01 Observer Initial: DA Reviewer Initial: LS

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☒ (7) Successful

Nest Condition Code
☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination
☐ (1) Status Unknown ☐ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☒ (6) Successful

Number of Fledglings: 1 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)							
	3/23/18	Good		1 AD PER			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)							
	5/4/18	"		1 AD PER			
Determine Productivity **June 15 – July 31** (late nestling and fledging)							
	6/26/18	"				1	fldg

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Riverside Launch Territory/Nest Number: 06 W 106 01 Observer Initial: DA Reviewer Initial: LS

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☒ (5) Productivity Not Determined
☐ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☐ (5) Active ☐ (6) Unsuccessful ☐ (7) Successful

Nest Condition Code
☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination
☐ (1) Status Unknown ☒ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☐ (6) Successful

Number of Fledglings: 0 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy							
February 1 – March 31 (pre-egg laying and early incubation)	3/23/18			1 AD fly			
Update Nesting Status							
April 1 – June 15 (late incubation and nestlings)	5/4/18			∅			
	5/31/18			∅		∅	
Determine Productivity							
June 15 – July 31 (late nestling and fledging)	6/26/18			∅ same			

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Sportsman Territory/Nest Number: 06W 108 01 Observer Initial: DA Reviewer Initial: KS

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☒ (7) Successful

Nest Condition Code
☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination
☐ (1) Status Unknown ☐ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☒ (6) Successful

Number of Fledglings: 2 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)	3/23/18	good		1 AD PER			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)	5/4/18	good		1 AD PER + INC			
Determine Productivity **June 15 – July 31** (late nestling and fledging)	6/26/18	good		Ø		2	fldg

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)

BALD EAGLE NEST MONITORING FORM

2018

I. ID

Territory Name: Suncrest Territory/Nest Number: 0640 103 01 Observer Initial: DA Reviewer Initial: LS

II. SURVEY SUMMARY

Survey Code

☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code

☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☒ (7) Successful

Nest Condition Code

☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination

☐ (1) Status Unknown ☐ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☒ (6) Successful

Number of Fledglings: 1 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)							
	3/23/18	good		1AD PER, 1AD INC			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)							
	5/4/18	good		1AD PER, 1AD INC			hatch?
Determine Productivity **June 15 – July 31** (late nestling and fledging)							
	6/20/18	good		∅		1	fldg

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Whalen Territory/Nest Number: 06W 29702 Observer Initial: DA Reviewer Initial: LS

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☐ (7) Successful

Nest Condition Code
☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed:

Nesting Determination
☐ (1) Status Unknown ☒ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☐ (6) Successful

Number of Fledglings: 0 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)	3/23/18	good		1 AD PER			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)	5/4/18	good		∅	∅		
Determine Productivity **June 15 – July 31** (late nestling and fledging)	6/4/18	good		1 AD PER, ¼ mile away	∅		

Page 1 of 1

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
BALD EAGLE NEST MONITORING FORM
2018

I. ID

Territory Name: Willow Bay Territory/Nest Number: 06W 102 01 Observer Initial: DA Reviewer Initial: LS

II. SURVEY SUMMARY

Survey Code
☐ (1) Not Checked ☐ (2) Not Located ☐ (3) No Initial Occupancy Determination ☐ (4) No Nesting Status Update ☐ (5) Productivity Not Determined
☒ (6) Complete Survey, Productivity Determined

Status Code
☐ (1) Unoccupied ☐ (2) Other Species ☐ (3) Single Adult ☒ (4) Occupied ☒ (5) Active ☐ (6) Unsuccessful ☒ (7) Successful

Nest Condition Code
☐ (1) New ☒ (2) Good ☐ (3) Fair ☐ (4) Poor ☐ (5) Nest Destroyed: _____

Nesting Determination
☐ (1) Status Unknown ☐ (2) Not Active ☐ (3) Nest Abandoned ☐ (4) Active, Not Successful ☐ (5) Active, Success Unknown ☒ (6) Successful

Number of Fledglings: 1 young (at or near fledging age)

III. SURVEY RESULTS

OBSERVATION PERIOD	Date Checked	Nest Condition	Nesting Activity (construction etc.)	Adult Presence / Behavior	Incubation/Brooding Posture	Number of Young	Stage of Young
Initial Determination of Occupancy **February 1 – March 31** (pre-egg laying and early incubation)							
	3/23/18	good		1AD PER			
Update Nesting Status **April 1 – June 15** (late incubation and nestlings)							
	5/4/18	"		1 AD PER side of nest			
Determine Productivity **June 15 – July 31** (late nestling and fledging)							
	6/26/18	"		Ø		1	fldg

APPENDIX B

2018 NEW NEST DOCUMENTATION

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
RAPTOR NEST RECORD

Species: Bald eagle

Territory name (if known): Chippy Point

Territory/nest number (if known): 07I 105 01

Reported by: David Armes Date: 03/29/2018

Location: T 47 N R 4W Section 12 ¼ NW of ¼ SE

State: ID County: Kootenai

Elevation: 2200 feet Aspect: East

Lat/Lon: 47.428809, -116.777891 Hydrologic unit: Lake Coeur d'Alene

Nest stratum: Tree Nest height (circle ft or m): ~100

Position on slope: Hillslope just above shoreline Nest condition: good

Tree species: Ponderosa Tree height (circle ft or m): ~120 DBH (circle in or cm): ~22

Land ownership: Private

USGS Quad name: Harrison

Directions to nest: Viewed by boat from Lake Coeur D'Alene, about 1.5 miles directly south of Harrison on the west shore at Chippy Point. Located on the point between two homes just above shoreline.

Comments: First observed in 2018 nesting season. 4.5 miles N of North Heyburn Park nest. But close (1.65 miles) and south of the historic Harrison West nest.

Observer Initial: DA Date 03/29/2018 Reviewer Initial: LS Date: 9/4/2018

Attach locator map and photos showing nest site and nest

Locator Map

Photo 1. View west over Lake CDA on point between homes.

Photo 2. View west, near top of Ponderosa pine.

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
RAPTOR NEST RECORD

Species: Bald eagle

Territory name (if known): Hepton Lake

Territory/nest number (if known): 07I 101 02

Reported by: David Armes Date: 03/29/2018

Location: T 46 N R 2W Section 16 ¼ NW of ¼ SE

State: ID County: Benewah

Elevation: 2150 feet Aspect: Southwest

Lat/Lon: 47.330922, -116.594547 Hydrologic unit: St. Joe River

Nest stratum: Tree Nest height (circle ft or m): In fork of tree ~70

Position on slope: at dike Nest condition: good

Tree species: Cottonwood clump Tree height (circle ft or m): 90 DBH (circle in or cm): 22+

Land ownership: State of Idaho

USGS Quad name: St. Maries

Directions to nest; By boat, about ½ mile north of the St, Joe airport runway on the northeast bank of the St. Joe River. Or Drive 2.5 miles north of St. Maries on Hwy 3. The nest is southwest of the highway along the dike on the wedge south of Meadowhurst Rd. Shephard Rd.is across the river.

Comments: This alternative nest first observed in 2018 nesting season. 1.5 miles SE of previous Hepton Lake Nest, which collapsed since 2017.

Observer Initial: DA Date 03/29/2018 Reviewer Initial: LS Date: 09/04/2018

Attach locator map and photos showing nest site and nest

Locator Map


Endova Ln
Cottonwood Dr
Pri Dr
Hepton Lake
Shepherd Rd
Railroad Ave
Airport Rd
Mill Rd
W Meadowhurst Rd
Hells Gulch Rd
3
Google earth
© 2018 Google
3000 ft
N

Photo 3. View northeast on St. Joe River to northeast bank. In tree at back of the bank.

Photo 4. View north, nest is in fork of smaller cottonwood cluster.

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
RAPTOR NEST RECORD

Species: Bald eagle

Territory name (if known): St. Joe/ Benewah

Territory/nest number (if known): 07I 106 01

Reported by: David Armes Date: 03/29/2018

Location: T 46 N R 3W Section 3 ¼ SW of ¼ SE

State: ID County: Benewah

Elevation: 2140 feet Aspect: West

Lat/Lon: 47.357899, -116.701194 Hydrologic unit: St. Joe River

Nest stratum: Tree Nest height (circle ft or m): ~75

Position on slope: Along dike Nest condition: good

Tree species: Cottonwood Tree height (circle ft or m): 85+ DBH (circle in or cm): 20+"

Land ownership: Heyburn State Park Boundary

USGS Quad name: Benewah Lake

Directions to nest: Viewed by boat from St. Joe River ½ mile southeast of Silvertip Landing, between Round Lake and Chatcolet Lake. Nest along dike of St. Joe River main.

Comments: First observed in 2018 nesting season. About 3 miles east across the river basin from the two Heyburn Park nests. There is also an alternate inactive nest just east of this active one.

Observer Initial: DA Date 03/29/2018 Reviewer Initial: LS Date: 9/4/2018

Attach locator map and photos showing nest site and nest

Locator Map

Photo 5. View north across St. Joe River.

Photo 6. View northeast. Nest near top of cottonwood.

SPOKANE RIVER HYDROELECTRIC PROJECT (FERC Nos. 2545-091 and 12606-000)
RAPTOR NEST RECORD

Species: Bald eagle

Territory name (if known): Turtle Lake

Territory/nest number (if known): 07I 024 03

Reported by: David Armes Date: 03/29/18

Location: T 48 N R 1W Section 17 ¼ SW of ¼ NE

State: ID County: Benewah

Elevation: 2220 feet Aspect: South

Lat/Lon: 47.336321, -116.488513 Hydrologic unit: St. Joe River Nest stratum: Tree Nest height (circle ft or m): 80' in fork of tree

Position on slope: on bank of river Nest condition: good

Tree species: Cottonwood Tree height (circle ft or m): 100+ DBH (circle in or cm): 20+

Land ownership: Private

USGS Quad name: St. Joe Baldy

Directions to nest: St. Joe River Road from St, Maries. Travel east 5.8 miles. Go past Turtle Lake. The nest is south of the road on the north bank of the river, northeast of the ranch.

Comments: This alternate nest first observed in 2018 nesting season. Across the road and a bit upstream from the previous nest location which was in a tree above the cattle ranch.

Observer Initial: DA Date 03/29/2018 Reviewer Initial: LS Date: 9/4/2018

Attach locator map and photos showing nest site and nest

Locator Map

Photo 7. View northeast across St. Joe River.

Photo 8. View north in fork of cottonwood.

APPENDIX C

SITE-SPECIFIC MANAGEMENT PLANS

SITE-SPECIFIC MANAGEMENT PLAN

Territory Investigations

Avista's 2010 Bald Eagle Management Plan (Plan) requires the preparation of a Site-specific Management Plan for nesting territories located within the Planning Area. The Plan defines the Planning Area as Avista owned lands where an active or alternate nest associated with Project waters is present, and select additional nesting territories where investigations indicate that (1) Project operations may have negative effects on bald eagle productivity or habitats, and (2) opportunities for protection are available. This Site-specific Management Plan contains the results of the habitat-use investigations and identifies nesting territory, home range, primary use areas, and key sites used during nesting, brood rearing, and fledging periods as well as activities that result in potential disturbances to nesting eagles and ongoing activities that result in loss or degradation of habitat within a nesting territory. Additionally, measures are proposed to reduce bald eagle/human conflicts based on identified threats primarily on areas where Avista has some management authority to protect habitat and may have the ability to enforce seasonal restrictions on activities found to disturb nesting eagles. Avista will coordinate with United States Fish and Wildlife Service (USFWS), Idaho Department of Fish and Game (IDFG), and Washington Department of Fish and Wildlife (WDFW), as appropriate to determine whether management plans are already available.

This Site-specific Management Plan may need periodic updating as home ranges, nest territories, nest sites, perch trees, night roost stands are not permanent locations. Therefore, spatial and temporal restrictions in regard to buffer zones for nest sites, perching, foraging, and roosting stands may require updating.

In 2018 the Deep Creek, WA and the Bull Run, ID Territory Investigations concluded. The Deep Creek Site Specific Management Plan is presented below.

A Bull Run Site Specific Management Plan was not prepared due to lack of data. The territory was initially identified by a nest with a perched eagle in 2016 on a transmission line. Osprey were also observed perched upon it. The nest was removed from the transmission line in fall of 2016 as permitted by the USFWS. A Territory Investigation was conducted in 2017 and 2018 because of the nest location in the Planning Area. No primary use sites, nesting area, or home range could be determined during the two year investigation. No nest was observed or located. Bald eagles were rarely observed in the area. When observed, they flew though and out of the area. There was only one observation of a perched eagle. The territory was determined to be inactive in both 2017 and 2018, moreover it was determined not to be an eagle territory.

DEEP CREEK SITE SPECIFIC MANAGEMENT PLAN

Location. The Deep Creek bald eagle territory is located at RM 60 of the Spokane River upstream of the Nine Mile Dam. The territory is located primarily in Sections 7, 8, and 17 of Township 26 North, Range 42 East in Spokane County, Washington. Highway 291 is located east of the river and the territory. There is a paved park roadway along the west side of the river that is closed to unauthorized motor vehicles. There are also unpaved roads and foot trails within the territory. The landforms in the territory include river terraces and hillslopes to the shorelines of the Spokane River. The habitat within the territory includes undeveloped seral conifer forest in the Riverside State parklands west of the river, farmland and rural residences east of the river, and the Spokane River aquatic habitat. An electric transmission corridor bisects the territory. The topography, land use, home range, and nesting territory elements are shown in *Figure 1.*

Study Dates and Schedules. Territory observations in 2017 and 2018 were conducted once every two weeks from March 1 through July 31st as detailed in the Plan. A total of 11 territory investigations observation were conducted per year, for a total of 22 territory investigation.

Study Methods. Study methods detailed in the Plan for investigations produced time-interval records about eagle activities, locations, habitat use, and potential disturbances in order to characterize home ranges nesting territory, primary use areas, and key use sites. The data identified disturbances or potential disturbances to nesting eagles. Background research of the territory area, annual monitoring reports, agency communications, and supplemental notes provided information about ongoing activities and those that may or have caused loss or degradation of habitat within a nesting territory.

Results

The results of habitat-use investigations include a brief narrative and maps conveying the information about home range estimates, primary use areas, key use areas, and disturbances to nesting eagles or eagle habitat.

Home range estimates. The home range extends approximately 529 acres: up to 1.57 miles long and 0.99 miles wide as shown in *Figure 1.* The home range includes the Spokane River, the east and west shore, and areas northeast of the highway where eagles were seen soaring. The home range include private holdings, State Park lands, and Avista lands.

Nesting territory estimates. The nesting territory is approximately 191 acres; up to 1.7 miles long and up to 0.13 miles wide as shown in *Figure 1.* Nesting territory boundaries were delineated on the maps incorporating primary use areas. The method to determine the nesting territory used a 300-foot buffer around primary perches to encompass the flight patterns between these sites. A 660-foot buffer is a maximum buffer used at nest sites following USFWS guidelines as shown in *Table 1.* All prey capture sites are included in the nesting territory.

The nesting territory is narrowly located along the Spokane River with most of the primary perches located on the west shore on undeveloped State Park lands. Upland habitat is ponderosa pine and Douglas fir seral forest down to the Spokane River.

Primary use areas are defined as occupied by nesting eagles greater than 75% of the time, included the nest sites, primary perches, and roost stands.

Key use sites (including nest sites, primary perches, prey capture sites, and roost stands)

Nest sites. There has been two nest locations for the Deep Creek territory since monitoring began in 2015. This original active and successful nest was located in Riverside State Park at the northwest end of the home range. It was located up Deep Creek on the top of a Ponderosa pine. No active nest was found in 2016. A second active, unsuccessful nest was located in 2017 at the southeast end of the home range in a pine flat on Avista property. No active nest was found in 2018.

Primary perches. There were six primary perches identified in the territory. One on the east shore, five on the west shore. Perch locations were in tall trees or snags with a view of the river and prey capture sites.

Roost stands. There were no roost stands confirmed in 2017 or 2018.

Prey capture sites. Six prey capture sites were identified. Prey captures in the nesting territory were typically aquatic, in bays nearshore areas close to primary perches. Fish were the most common prey species observed. During a few observations, eagles captured or attempted capture of fish from osprey. Potential prey also included waterfowl hatchlings and upland birds.

Disturbances. Typically the eagles were not disturbed by routine use of roads, residences, or other facilities present prior to nesting and during the nesting period. This territory had many potential and actual disturbances observed. Disturbances noted below were observed during investigations either to disturb nesting eagles or to have the potential to disturb the nesting eagles. They are listed according to the highest degree and frequency of disturbance. Productivity of this territory has been limited with no fledglings since 2015.

Osprey. Osprey were the most common disturbance to the nesting bald eagles. The osprey were first observed the last week of March. At this point, the eagles would have started incubating. Most all of the 13 observed encounters of osprey elicited eagle territory defense behaviors of vocalizations and pursuit of the osprey. Four osprey nests were in the home range, the closest about 900 feet from primary perches and 750 feet from key prey capture sites. This caused high energy expenditures by the eagles for territory defense and high competition for fish, the common prey to both species.

Human activity. Potential recreational disturbances included hikers, hikers with dogs, kayakers, and bicyclists in Riverside State Park. The hikers and bicyclists, if they stayed on the paved roadway did not appear to disturb the eagles. Groups of up to 30 cyclists were observed. Hikers, hikers with dogs, and bicyclists occasionally used the foot paths that were adjacent to both nests locations and four of the six primary perches. Their presence usually disturbed the eagles and caused them to leave their perches. This may have caused undue pressure on nesting efforts. On two occasions kayakers were observed approaching perched eagles and causing them to flush. Land based-motorized vehicle access to the home range and nesting territory was negligible due to restricted access.

In June of 2018 two residences along the east shore line had exterior renovations that included manual and vehicular construction equipment. The eagles avoided that area when the noise began.

Turkey vultures. Groups of up to 16 turkey vultures were observed roosting near the southeast nest and nearby south primary perches in 2017 and 2018. On one instance the bald eagle pair drove out turkey vultures that were feeding at an eagle prey capture site.

Other wildlife observed as potential disturbances. There were singular observances of Coopers hawk, red-tailed hawk, ravens, gulls, and immature eagles in the nesting territory. No eagle reaction was observed.

Avista project construction and operations. The Avista Long Lake dam facilities are not located within the territory home range, except for the electric transmission corridor bisecting the home range and nesting territory. The corridor is a potential habitat influence but there were no observed disturbances to the eagles. The only operational activities during the territory investigations was the seasonally changing water levels.

DEEP CREEK MANAGEMENT PLAN

The primary objective of the site-specific management plan is to identify and characterize activities that result in disturbance to nesting eagles. The site-specific management plan will also describe ongoing activities that result in loss or degradation of habitat within a nesting territory. Site-specific bald eagle management plans will include proposed measures to reduce bald eagle/human conflicts based on identified threats.

Avoidance and Protection Measures. To meet the objectives of the Plan, measures may be proposed to avoid or reduce bald eagle/human conflicts based on identified threats. This site-specific management plan will focus on areas where Avista has the management authority to protect habitat and the ability to enforce seasonal restrictions on activities found to disturb nesting eagles.

There are no proposed measures to reduce bald eagle /human conflicts at this time. The existing level of Avista operations, have not had a deleterious effect on the eagles. Avista does not have management authority on adjacent public or private lands where activities may disturb nesting eagles.

The following guidance is specifically for new or a new change in activities or development such as: timber and forestry operations, vertical infrastructure, linear infrastructure such as roads, trails, canals, power lines, other utilities (USFWS 2007), or recreation facilities. To avoid disturbing nesting bald eagles, the USFWS recommends (1) maintaining natural forested (or vegetative) buffers around nest trees to minimize visual and auditory impacts associated with human activities and (2) avoiding certain activities during the nesting season or breeding season. The breeding season extends from January 1 through August 15 in the Pacific Northwest (USFWS 2007). These recommendations are applicable only to those key sites and activities where Avista has management authority.

Table 1. Recommended Spatial and Temporal Restrictions to Protect Bald Eagles Key Sites from New Disturbances

Bald Eagle Use	Buffer Zone Size	Temporal Restriction	Other Restrictions
Nest sites	330 feet (660 feet if action is visible from the nest.)	January 1 through August 15	Year round- avoid permanent development, pesticides, clear cutting, or removal of over story within 330 feet of nest
Primary perches	case-by-case*	January 1 through August 15	Retain snags. Avoid or minimize impacts
Prey capture sites	case-by-case*	January 1 through August 15	Avoid or minimize impacts
Roost stands	case-by-case*	January 1 through August 15	Avoid or minimize impacts

* Primary perches, prey capture sites, and roost stands do not have a defined buffer by USFWS. However to minimize potentially disruption in the eagles nesting territory, the above buffers are proposed.

Additional Guidelines and Management Practices

The following list is a compilation of guidelines and management practices from various projects and agencies that may be applicable to the Deep Creek territory.

1. Maintain forested habitat in home range to provide secure habitat for eagles.
2. Retain mature trees and old growth stands, particularly within one-quarter mile from water as applicable to Avista-owned lands, to allow for recruitment of snags and other perch trees.
3. Habitat enhancement, i.e. Restoration, thinning, burning, or other activities may be conducted outside of breeding season.
4. Avoid blasting and other activities that produce extremely loud noises within one half mile of active nests during breeding season, unless greater tolerance to the activity (or similar activity) has been demonstrated by the eagles in the nesting area.
5. Monitor nest alternate sites for up to three years.
6. Verify nest sites, key sites and regulatory buffers prior to permanent or intense development activities in order to avoid deleterious effects to nesting pairs.
7. Continue conscientious use of pesticides, herbicides, fertilizers, and other chemicals only in accordance with Federal and State laws to avoid impacts to eagles directly or indirectly thru prey species.

References

US Fish and Wildlife Service (USFWS) 2007. National Bald Eagle Management Guidelines. U.S. Fish and Wildlife Service. May 2007. Retrieved September 27, 2018. https://www.fws.gov/pacific/eagle/all_about_eagles/Bald_Eagle_Management_Guidelines.html

Figure 1. Deep Creek Eagle Territory