

# **Bald Eagle Wintering Activity Rocky Reach Reservoir**



**2011 - 2012**

**Public Utility District No. 1 of Chelan County  
Fish & Wildlife Department  
Wenatchee, WA 98807-1231**

## INTRODUCTION

The Public Utility District No. 1 of Chelan County (Chelan PUD) owns and operates the Rocky Reach Hydroelectric Project along the Columbia River in central Washington. This project operates under Federal Energy Regulatory Commission (FERC) license #2145-060. Rocky Reach Dam was licensed in 1957 and began generating electricity in 1961. The operating license was renewed in 2009. As prescribed in the Rocky Reach Wildlife Habitat Management Plan required by Article 403 of the Rocky Reach license, Chelan PUD continues to monitor numbers of wintering eagles along Rocky Reach Reservoir (Chelan PUD 2010). This annual report summarizes data collected on wintering bald eagles for the winter of 2011 - 2012.

## HISTORY

From 1975 – 1984, the United States Fish and Wildlife Service (USFWS) conducted monthly aerial surveys for wintering bald eagles along the mid-Columbia River, including Rocky Reach Reservoir (Fielder and Starkey 1980). In 1985, Chelan PUD began regularly monitoring eagles during the winter months along Rocky Reach Reservoir.

The bald eagle was delisted on August 9, 2007. As a result, Chelan PUD reduced the monitoring effort from weekly to monthly during the winter months (November – March). This frequency of monitoring exceeds the level suggested in the bald eagle post-delisting monitoring plan (USFWS 2009) and should provide sufficient trend information into the future. Winter surveys allow Chelan PUD to determine distribution of wintering eagles along the Reservoir and to determine the age ratio of sub-adults: adults.

## STUDY AREA

Rocky Reach Dam is located approximately 7 miles north of the city of Wenatchee, Washington along the Columbia River at river mile 473.5. The pool behind the dam (Reservoir) extends 42 river miles to Wells Dam (operated by Douglas County PUD) at river mile 515.5. Chelan and Douglas counties border the west and east shores of the reservoir, respectively.

The Reservoir is considered run-of-river with relatively limited water storage capability and active river currents, particularly in the deep main channel of the Columbia River. The Reservoir also has a combination of shallow bays, islands and island complexes, parks, residential, agricultural and natural habitats. Where natural habitat exists, steep cobble or dirt banks comprise much of the reservoir shoreline. Shrub steppe vegetation, fruit orchards, and residential or industrial areas occupy areas up-slope from the riparian edge of the river. Shrub steppe habitat of central Washington is dominated by big sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus* spp.), and bluebunch wheatgrass (*Pseudoroegneria spicata*) and is interspersed with pines such as ponderosa pines (*Pinus ponderosa*) and Douglas-fir (*Pseudotsuga menziesii*), especially along the hills to the west that comprise the Eastern Cascades Physiographic province (Franklin and Dyrness 1973). Cottonwoods (*Populus balsamifera* ssp. *trichocarpa*) of differing age groups can also be found along the shores of the river.

## SURVEY METHODS

Since golden eagles are a sensitive species in Washington State, both bald and golden eagles are documented during winter surveys. Eagle surveys were conducted by boat monthly from November 2011 – March 2012. A minimum of 2 observers were used on each survey. Surveyors on each side (port and starboard) of the boat monitored the respective shoreline (i.e., Chelan or

Douglas) and both shorelines were surveyed concurrently while traveling upriver along Rocky Reach Reservoir.

Eagles are identified to species (bald or golden) and age class whenever possible. Bald eagles were classified as an adult if they exhibited an all-white head or as a sub-adult in any other color phase. Golden eagles were also aged based on plumage characteristics as described in Wheeler & Clark (1995). If age or species of eagles could not be identified, they were recorded as unknown species or unclassified age status. The location of eagles observed was recorded to the 1/10<sup>th</sup> river mile as well as bank (Chelan or Douglas) and the perch substrate.

Monthly eagle surveys begin at the Lincoln Rock State Park boat launch and proceeded along the Douglas County shoreline downriver to Rocky Reach Dam, then across the Reservoir to the Chelan County side and upriver along the Chelan County Shore to the upriver end of Turtle Rock Island (river mile 476). At this point the route crosses back over the main channel and downriver along the west side of Turtle Rock Island. At the downriver end of Turtle Rock Island the boat traveled back upriver, along the east shoreline of Turtle Rock Island and the Douglas County shoreline. From the upriver end of Turtle Rock Island, the survey route then continued upriver to the tailrace at Wells Dam. The river just below Wells Dam is quite wide, making it difficult for surveyors to see adequately from the middle of the river. Therefore, the boat cruised near the Douglas County shore beginning at river mile 515.0. Surveyors focused solely on the Douglas County shoreline at this point, continuing upriver to a safe distance below Wells Dam. After the tailrace area was thoroughly surveyed, the Chelan County shoreline was surveyed downriver to river mile 514.9 where the survey then terminated.

## **RESULTS**

During the 2011 - 2012 winter period (November – March), a total of 123 eagles were observed along Rocky Reach Reservoir. Of these, 114 were bald eagles, 8 were golden eagles, and 1 eagle was unidentified. Peak numbers of eagles were observed during February 2012, when a total of 49 eagles (44 bald, 4 golden, and 1 unknown) were observed (Table 1).

### **Age Ratios**

Knowing age ratios of wintering bald eagle populations is important because wintering areas with high proportions of sub-adult bald eagles often indicate an easily available food source which improves the survival chances of younger eagles (Stalmaster 1980, Fitzner et al. 1980, Fielder 1982, Bennetts and McClelland 1991). The maximum number of sub-adult bald eagles (21) observed was on 13 February 2012. The minimum number of sub-adults (4) was observed on 16 November 2011. The average age ratio of bald eagles wintering along the Reservoir for all surveys was 1.1 sub-adults per adult. However, during 2 surveys, this ratio was greater than 1.0 (Table 2). Bald eagle observations by age class are represented in Figure 1.

### **Perch Sites and Distribution**

Perch substrate was recorded for all eagles observed. Eagles were most commonly observed perched in cottonwoods, flying, or perched in ponderosa pine during surveys (Table 3). Eagles were distributed fairly evenly along much of the Reservoir. On average, eagles were more frequently observed in the area upstream of Turtle Rock Island between Tenas George Canyon and the Ribbon Cliff vicinity, and also in the Howard Flats vicinity (Corral Creek to Wells Dam) (Figure 2).

### **National Mid-Winter Bald Eagle Surveys**

The January 13, 2012 survey was conducted during the National Mid-Winter Bald Eagle Survey timeframe. Data for the survey was submitted via mail to Robert C. Kuntz II, Washington State coordinator for the national counts. A total of 27 bald eagles and 2 golden eagles were observed during this survey. Chelan PUD has regularly participated in the mid-winter bald eagle counting effort.

### **DISCUSSION**

The average number of all eagles observed per survey during the winter of 2011 - 2012 was 24.6. This is higher than the long-term average (1983 – 2011) of 20.2 eagles per survey. The ratio of sub-adult bald eagles observed for the 2011 - 2012 winter period was also higher than the long-term average of 0.54 sub-adults per adult. However, the total number of wintering bald eagles ( $n = 114$ ) observed during the 2011 - 2012 winter was less than the long-term annual average of 151 bald eagles observed since surveys began in 1983-1984 (Figure 3). The maximum number of bald eagles observed during any survey during the winter of 2011 – 2012 (44) was above the average maximum number (33) observed during any survey during the winter survey periods from 1983 – 2011.

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**TABLES AND FIGURES**

**Table 1. Rocky Reach Reservoir bald eagle surveys, winter of 2011 - 2012.**

<b>Date</b>	<b>Bald eagles</b>			<b>Golden eagles</b>				<b>Unknown</b>	<b>All Total</b>
	<b>Adult</b>	<b>Subad</b>	<b>Total</b>	<b>Adult</b>	<b>Subad</b>	<b>Unkn</b>	<b>Total</b>	<b>Eagle</b>	
16-Nov-11	3	4	7	0	0	0	0	0	7
14-Dec-11	10	6	16	0	0	1	1	0	17
13-Jan-12	21	6	27	2	0	0	2	0	29
13-Feb-12	23	21	44	3	1	0	4	1	49
13-Mar-12	6	14	20	1	0	0	1	0	21
<b>Total</b>	<b>63</b>	<b>51</b>	<b>114</b>	<b>6</b>	<b>1</b>	<b>1</b>	<b>8</b>	<b>1</b>	<b>123</b>
<b>AVG</b>	<b>12.6</b>	<b>10.2</b>	<b>22.8</b>	<b>1.2</b>	<b>-</b>	<b>-</b>	<b>1.6</b>	<b>0.2</b>	<b>24.6</b>

**Table 2. Age ratios of sub-adult to adult eagles during the survey period.**

<b>Date</b>	<b>Adult</b>	<b>Subad</b>	<b>Total</b>	<b>subadults per adult</b>
16-Nov-11	3	4	7	1.3
14-Dec-11	10	6	16	0.6
13-Jan-12	21	6	27	0.3
13-Feb-12	23	21	44	0.9
13-Mar-12	6	14	20	2.3
<b>Total</b>	<b>63</b>	<b>51</b>	<b>114</b>	<b>0.8</b>
<b>AVG</b>	<b>12.6</b>	<b>10.2</b>	<b>22.8</b>	<b>1.1</b>

**Table 3. Perch detail for all eagles observed along Rocky Reach Reservoir, 2011 - 2012.**

<b>Perch detail</b>	<b>Total</b>
Cottonwood	55
Ponderosa pine	23
Flying	17
Rock	8
Douglas-fir	8
Lombardy poplar	5
Fence post	3
Willow	1
Alder	1
Siberian elm	1
Utility pole	1
<b>Grand Total</b>	<b>123</b>

Figure 1. Age classifications of bald eagles along Rocky Reach Reservoir.

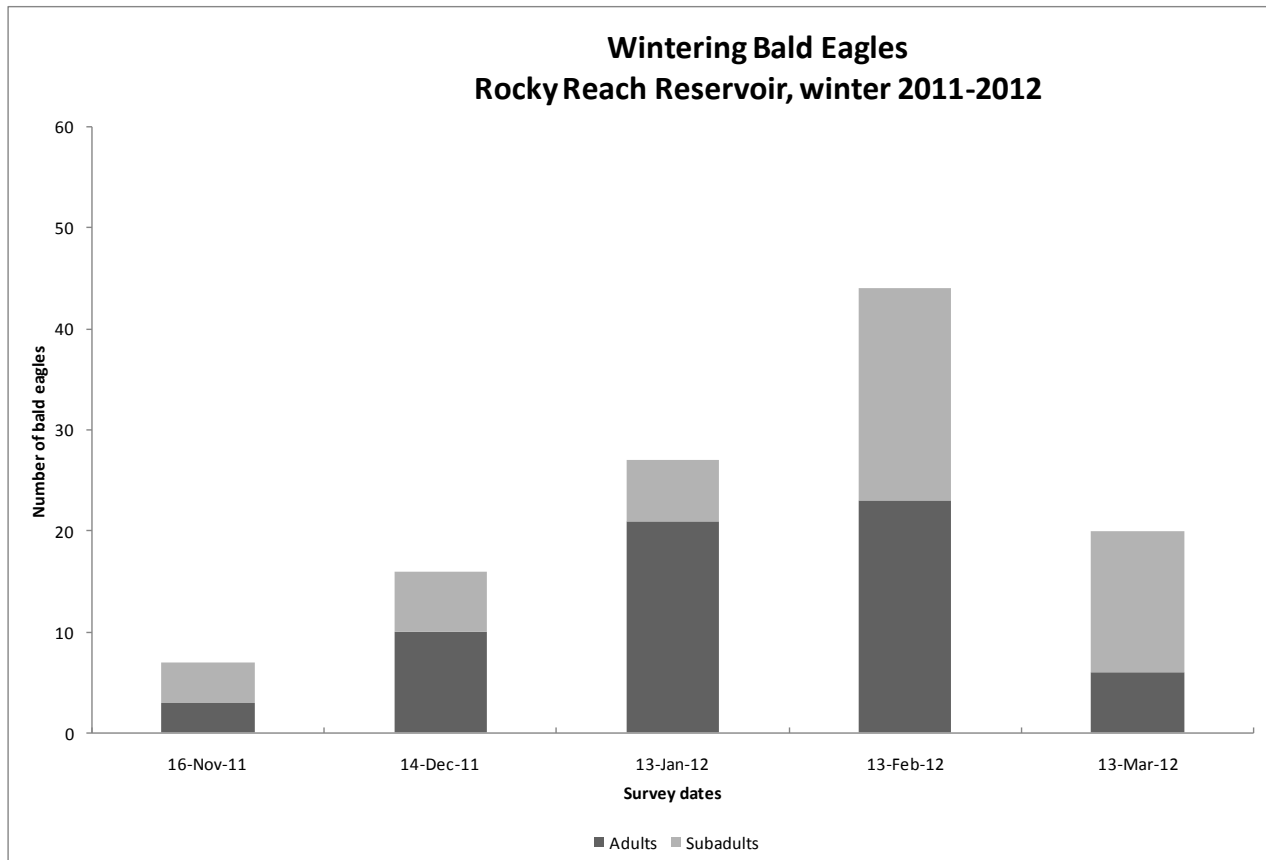




Figure 2. Average number of all eagle observations by river mile along Rocky Reach Reservoir.

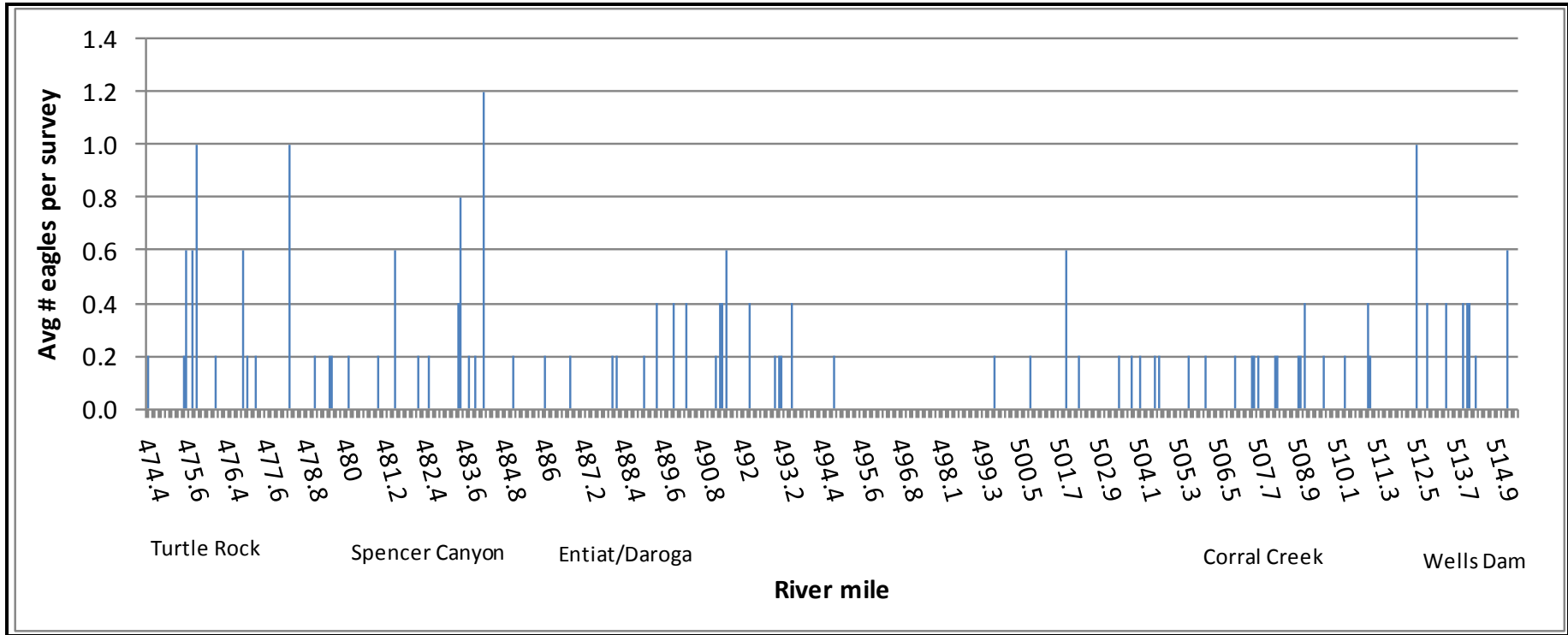


Figure 3. Cumulative observations of bald eagles per survey season. The long-term average is 151 eagles/winter.

