

# Data reporting, Bird and human use field study of the Elwha delta 2020-2022.

Coastal Watershed Institute (CWI), November 2022 Port Angeles, WA  
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NOTE: Data are provisional and analysis may be subject to change.

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## Introduction and overview

The goal of this study is to document bird and recreational use along of Elwha east and west delta shoreline following large scale ecosystem restoration of the east Elwha delta shoreline.

The Elwha east delta (Beach Lake Conservation area, here after called 'Beach Lake) was the site of a large scale ecosystem nearshore restoration project in 2016 and 2017. Once the project was completed we initiated a bird monitoring project to document bird response to shoreline restoration. High recreation use along the Elwha delta also became of increasing interest during the first few months of monitoring, and so a basic recreation use study was added. To better understand bird use across the entire Elwha delta (and so at an ecosystem scale) we added a study site on the east side of the Elwha delta in 2021. This is the data report of these study efforts.



Figure 1. Google Earth Map of bird and recreation surveys from parking area to end of beach transect for east and west Elwha delta. 2020-2022. Red lines indicate transects. Pin marks indicate established public parking area that was survey start.

## Methods

This study takes place at two beach locations, named Place Rd (west Elwha delta) and Beach Lake Conservation area (east Elwha delta; Figure 1). Both sites were assessed for birds and human and dog abundance for a number of months from 2020-2022.

Both site survey areas included three main areas: 1. the parking area; 2. access trail to beach, and, 3. the shoreline ((Figure 1, Table 1).

Table 1. General areas and distances of transect regions for Beach Lake and Place sites, Elwha delta.

Site	Region		
	Parking area (square feet)	Access Trail (linear feet)	Shoreline (linear feet)
Beach Lake	400	1400	700
Place	400	1000	900

Surveys at each location are conducted assessed regularly, often at least once per month, ideally at lower tides.

During each survey date, site location, time, tide (falling/rising), temperature (F), cloud cover percentage, and precipitation percentage were recorded. Surveys began in the respective site parking area, then to the access trail and then the shoreline. Surveys took approximately 1 hour from start to finish.

Bird surveys began in January 2020 at the Beach Lake site. These were conducted using standard bird survey methods initially described by Tom Butler, Olympic Peninsula Audubon Society (OPAS). Public access surveys at this site began at Beach Lake in May 2021 prior to the site reopening in August 2021. Surveys of both birds and recreation use began at the Place site in January 2021. Surveys at both sites continued until February 2022.

During bird surveys every bird species observed along the transect was recorded on a datasheet, along with habitat type for each bird recorded. Along the shoreline, bird species and numbers were recorded before moving on to the beach. The beach transect area only included the riparian zone overhanging/in the water, as well as birds, along and just off shore. For recreation use component of the survey, the number of vehicles, humans, and dogs along the existing public access, beach, and parking area of each site were recorded. Extra care was taken not to double count.

## Results

Bird survey and recreation use observations are provided in Table 2 & 3, respectively. Overall the sites had similar numbers of birds. Gulls were the most abundant group of birds at both sites, followed by diving birds. The Place site had all shorebirds observed in this study, which were observed during spring and late summer. Diving bird numbers were similar between the two sites, but appeared to be more seasonal at Beach Lake than at Place site.

Recreation use between the two sites was quite a bit different, with over double the number of people and dogs observed at the Place site across all months. This is likely in part due to the closure of Beach Lake from approximately August 2020-2021 due to COVID. Use numbers remained higher at Place site after Beach Lake site was re-opened, indicating the site has higher general use. Dog numbers were also consistently quite a bit higher at the Place site. Beach Lake is a formal conservation area with a very strong well published no dog policy that is (hopefully) contributing to the lower dog numbers at this site. Dog use at the Place site is published as on leash only.

Table 2. Bird count (total), by month, Beach Lake and Place Access sites, Elwha delta, for study period 2020-2022. NA=no survey

YEAR AND MONTH	<u>BEACH LAKE</u>				<u>PLACE</u>				<u>COMBINED</u>			
	ALL BIRDS	SHOREBIRDS	GULLS	DIVING BIRDS	ALL BIRDS	SHOREBIRDS	GULLS	DIVING BIRDS	ALL BIRDS	SHOREBIRDS	GULLS	DIVING BIRDS
<b>2020</b>	<b>72</b>		<b>11</b>	<b>7</b>	NA				<b>72</b>		<b>11</b>	<b>7</b>
10	10		2	7	NA				10		2	7
11	42		5		NA				42		5	
12	20		4		NA				20		4	
<b>2021</b>	<b>309</b>		<b>89</b>	<b>9</b>	<b>265</b>	<b>24</b>	<b>138</b>	<b>20</b>	<b>574</b>	<b>24</b>	<b>227</b>	<b>29</b>
1	8			1	NA				8			1
2	9		7		7		2	4	16		9	4
3	40		28		30		22	1	70		50	1
4	21			4	13	1		2	34	1		6
5	29		4	3	70	18	27	5	99	18	31	8
6	14				18		10	1	32		10	1
7	144		21		6		5	1	150		26	1
8	28		24		13	5	4	2	41	5	28	2
9	NA				12		4		12		4	
10	11		2		20				31		2	
11	5		3	1	76		64	4	81		67	5
<b>2022</b>	<b>13</b>		<b>1</b>	<b>6</b>	<b>35</b>		<b>3</b>	<b>4</b>	<b>48</b>		<b>4</b>	<b>10</b>
1	11			6	27		3	4	38		3	10
2	2		1		8				10		1	
<b>Grand Total</b>	<b>394</b>	<b>0</b>	<b>101</b>	<b>22</b>	<b>300</b>	<b>24</b>	<b>141</b>	<b>24</b>	<b>694</b>	<b>24</b>	<b>242</b>	<b>46</b>

Table 3. Human and dog observed at Beach Lake and Place sites, Elwha delta.\* Beach Lake site was for public access closed from August 2020-August 2021. NA=no survey

YEAR AND MONTH	BEACH LAKE		PLACE		COMBINED	
	DOGS	HUMANS	DOGS	HUMANS	DOGS	HUMANS
<b>2021*</b>	<b>1</b>	<b>45</b>	<b>53</b>	<b>330</b>	<b>54</b>	<b>375</b>
1	NA	NA	9	45	9	45
2	NA	NA	14	61	14	61
3	NA	NA	3	24	3	24
4	NA	NA	2	18	2	18
5	0	5	3	16	3	21
6	1	1	5	41	6	42
7	0	0	4	38	4	38
8	0	3	2	14	2	17
9	0	15	9	46	9	61
10	0	19	0	16	0	35
11	0	2	2	11	2	13
<b>2022</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>29</b>	<b>3</b>	<b>29</b>
1	0	0	3	21	3	21
2	0	0	0	8	0	8
<b>Grand Total</b>	<b>1</b>	<b>45</b>	<b>56</b>	<b>359</b>	<b>57</b>	<b>404</b>

## Discussion

This study provides an informative first glimpse into the seasonal and inter annual bird and recreation use of the Elwha nearshore after both dam removal and large scale shoreline restoration. As the surveys include both similar and different regions, bird use of the two sides of the delta appears to differ for some species. For example, the Place access survey region runs across an impounded a lower river side channel that is used extensively by ducks, while the Beach lake access survey region extends along a former agricultural field.. Additional surveys at the impounded areas of both sites will help further define the habitat functions at both sites. The sites then are better used combined to illustrate bird use of the Elwha delta instead of compared for bird use.

The recreation numbers at the west Elwha (Place) were variable and often high given the limited area and shore time period of an hour or so of the individual surveys. The Beach Lake site was formally closed to recreation use for most of the study period which is reflected in the lower recreation numbers. The Beach Lake site re-opened to the public in August 2022 with an immediate jump in recreation use, but no consistent decrease in public numbers at the Place site, indicating the two have independent recreation use.

Greatly transformed from dam removal, the Elwha delta has become a recreation destination, that in turn is challenging the ecological restoration and conservation that resulted in the delta transformation (CWI 2021 and CWI 2022). The main human recreation disruptions reported along the Elwha delta (both sides of the delta) include negative wildlife interactions (primarily involving domestic off leash dogs), LWD movement/shelter building/burning, and disruptive trespass/human traffic. Cultural and property trespass have also been reported. Such human activities have been documented in the literature to disrupt nearshore ecosystem and recovery.

While shoreline restoration is well documented to be one of the best tools for coastal ecosystem recovery (Bilby et al 2022, Des Roches et al 2022, Dethier et al 2016), public recreation often associated with/subsequent to shoreline restoration can have negative consequences for sensitive and vulnerable wildlife, including migrating gulls and shorebirds use of sandy beaches (see Costa et al 2017, Halpern et al 2009, Kelly 2014, Schlacher and Thompson, 2012, Schlacher et al 2016, Steven et al 2011). In their policy on ocean access, the Surfrider Foundation states:

*‘When beach access may impede upon sensitive ecological coastal resources, beach access may be managed or restricted if necessary to protect the sensitive ecological coastal resource. Not all beach and coastal areas are appropriate for heavy recreational use or significant human presence. Sensitive ecological areas warrant restrictions and buffers to reduce negative impacts to beach ecosystems.’* (Surfrider Foundation).

Further, ‘Defeo et al 2009 concluded that extended length of exposure to be an important and potential confounding factor in human recreational use ecological impact to sandy beaches. Limiting human traffic numbers is the primary tool for avoiding human recreation impacts to coastal ecosystems’ (Machado et al 2017).

Given the clear ecosystem restoration mandates that resulted in the Elwha dam removals and associated Elwha delta transformation, the Elwha delta should foremost be managed with an ecosystem conservation priority to fully achieve the goals of ecosystem restoration (CWI 2022).

The high and growing recreation use of the Place site, and the quickly growing recreation use of the Beach Lake site after opening, combined with the sensitive bird use documented across the delta, the reported problems of recreation use across the delta in 2019-2020, and the extensive literature on the impact recreation can have on these (and other) wildlife, it is clear that recreation should be a top management planning consideration for the Elwha nearshore. The Elwha coastal ecosystem based management plan should include continued public education to impart public wise stewardship, including following the well established and published rules of no fires, no camping, no motorized vehicles, no hunting or fishing, and no dogs along the Elwha delta, is imperative.

And finally, continued bird and human use surveys should continue and be expanded to better capture local interactions and inform the public on the successes of effective recreation and ecosystem management.

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## Appendix

A 1 and 2.. Raw public access and bird use data 2022-2022.





MONTH	YEAR	SITE	DATE	SITE NAME	TIME	CAR	GROUPS	HUMAN	DOG
1	2021	1	1/3/2021	PLACE	1430	28	8	45	9
2	2021	1	2/7/2021	PLACE	1230	15	19	16	4
2	2021	1	2/23/2021	PLACE	1615	5	10	4	1
2	2021	1	2/27/2021	PLACE	1600	29	3	41	9
3	2021	1	3/21/2021	PLACE	1639	14	19	24	3
4	2021	1	4/27/2021	PLACE	1130	13	11	18	2
5	2021	1	5/13/2021	PLACE	900	8	4	11	2
5	2021	1	5/18/2021	PLACE	1730	7	3	5	1
6	2021	1	6/27/2021	PLACE	900	20	8	41	5
7	2021	1	7/27/2021	PLACE	1630	18	5	38	4
8	2021	1	8/22/2021	PLACE	1700	7	3	14	2
9	2021	1	9/5/2021	PLACE	1042	24	10	46	9
10	2021	1	10/13/2021	PLACE	1315	10	6	16	0
11	2021	1	11/22/2021	PLACE	1215	6	3	11	2
1	2022	1	1/28/2022	PLACE	1500	9	11	21	3
2	2022	1	2/25/2022	PLACE	1420	9	6	8	0
5	2021	2	5/13/2021	BEACH LAKE	800	0	0	0	0
5	2021	2	5/18/2021	BEACH LAKE	1830	2	3	5	0
6	2021	2	6/20/2021	BEACH LAKE	2010	1	1	1	1
7	2021	2	7/25/2021	BEACH LAKE	1105	0	0	0	0
8	2021	2	8/22/2021	BEACH LAKE	1610	2	1	3	0
9	2021	2	9/5/2021	BEACH LAKE	1125	16	1	15	0
10	2021	2	10/13/2021	BEACH LAKE	1225	13	2	19	0
11	2021	2	11/22/2021	BEACH LAKE	1300	1	1	2	0
1	2022	2	1/28/2022	BEACH LAKE	1555	0	0	0	0
2	2022	2	2/25/2022	BEACH LAKE	1510	0	0	0	0