

Results of the 2014 Survey of the Reintroduced  
Sea Otter Population in Washington State



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The 2014 Washington sea otter survey was conducted from 7-10 July 2014 and included the inshore waters of Washington from the South Jetty at the mouth of the Columbia River, northward along the outer Washington coast and into the Strait of Juan de Fuca to Freshwater Bay. Biologists and volunteers from the Washington Department of Fish and Wildlife, U.S. Fish and Wildlife Service, Quinault Indian Nation, The Seattle Aquarium, and the Point Defiance Zoo and Aquarium participated in this year's survey. Counting conditions were variable ranging from good to excellent for both the aerial and ground components. Fog prevented surveys north of Grays Harbor during the 7 July reconnaissance flight and delayed the flight on 8 July.

## **Methods**

All of the known sea otter range in Washington was surveyed from the air in a Cessna 206 aircraft and included coverage of coastal waters from the mouth of the Columbia River, north to Point Grenville and along the outer Olympic Peninsula coast to Cape Flattery then east into the Strait of Juan de Fuca past Pillar Point to Freshwater Bay (just west of Port Angeles). Additionally, ground observers conducted surveys and made counts using binoculars and spotting scopes from locations at Cedar Creek, Yellow Banks, Sand Point, and Duk Point (near Seafeld Creek). Ground observers were not stationed at Cape Alava or Anderson Point this year because needed permits could not be obtained for access onto Makah land. Typically, two south to north aerial surveys are scheduled each day over a period of 3 or 4 days, weather permitting. Thus, when conditions are favorable, six surveys of the entire range would be completed.

The survey total is the single high count which is calculated by summing the highest daily counts for the south segment (Columbia River to La Push) and north segment (La Push to Freshwater Bay) and represents the maximum count over the potential sea otter range in Washington and as a single count does not have an associated variance or confidence limits. This method of splitting the coast at La Push into south and north survey segments, assumes little or no movement between the two segments during the 3-4 day survey window. This single total count becomes the abundance estimate ( $N_{\min}$ ) used for calculating a Potential Biological Removal (PBR) for Washington sea otters.

Examination of survey data from years past, as well as documented movements of instrumented sea otters by USGS researchers in Washington supports this assumption. Large groups (>20) observed from the air were generally estimated and photographed with a digital camera. Digital images were later counted several times for consistency and the resulting numbers were used when 1) image quality of groups was good and ground counts were not available or 2) the aerial count from the digital image was deemed to be more accurate than the coinciding ground count of the same group of otters. Pups are identified visually and classified as dependent by their small size, woolly light brown pelage and close association (generally resting on the chest) with an adult.

## **Results and Discussion**

For aerial surveys, we conducted the initial reconnaissance flight on 7 July covering the area from the Columbia River to Grays Harbor with fog blanketing the northern Washington coast. On 8 July one aerial survey of the south and north segments was completed; on July 9 two aerial surveys of the north and south segment were completed; and on July 10 two aerial surveys of the south and north segments were completed. Ground surveys were conducted under fair to excellent conditions on all days although at times morning low clouds and fog reduced visibility.

The total count for the 2014 Washington sea otter survey was 1573 obtained on 10 July which included 1067 otters in the south segment and 506 otters in the north segment (Table 1). The count includes 73 pups, 29 and 44 respectively. This count (1573) is the abundance estimate ( $N_{\min}$ ) used for calculating a Potential Biological Removal (PBR) for Washington sea otters. For comparative purposes, the  $N_{\min}$  for 2011, 2012, and 2013 Washington sea otter survey counts were 1154, 1105, and 1272 otters respectively. This year, the southernmost sea otters were observed near Cape Elizabeth (1) and Willoughby Rock (9 independents and 1 pup) and the northernmost were observed at Tatoosh Island (7 independents). Two sea otters were recorded east of Cape Flattery: one off Koitlah Point and one near Waadah Island on the 10 July aerial survey. None were sighted east of Neah Bay to Freshwater Bay.

During the 2014 survey, pups were observed at Willoughby Rock, Destruction Island, Diamond Rock, North Rock, Giant's Graveyard, Cape Johnson, Sandy Island, north of Cedar Creek, Yellow Banks, Sand Point, Cape Alava, south of the Ozette River and off Duk Point (near Seafeld Creek). In some cases pups do not appear in the summary because they were not observed during the day of the highest counts. The pup to independent ratio this year was 4.9:100 compared to 4.7:100 in 2013, 2.7:100 in 2012, and 3.9:100 in 2011..

Survey results for 2014 indicate growth of the Washington sea otter population continues to remain positive (Figure 1). Overall, the finite rate of increase for the Washington population since 1989 is 7.6% ( $R^2 = 0.96$ ).

Results from the north segment (La Push to Freshwater Bay) indicate that this segment may be approaching equilibrium density. However, the sea otter population in this area continues to grow slowly (finite rate 3.7%,  $R^2 = 0.76$ ), and there still appears to be some quality unoccupied habitat available north from Point of Arches. As with the

2013 survey, a small group of otters was seen consistently at Tatoosh Island. Individual sea otters were observed east of Cape Flattery near Koitlah Point and Waadah Island during the 10 July surveys.

Since 2000, growth in the sea otter population in the south segment (Columbia River to La Push) has slowed from the 20% per year increase observed in the 1990s. However, the population continues to increase, but more slowly at about 12% per year ( $R^2 = 0.87$ ). In 2014, the majority of the Washington sea otter population was again located in the south segment (Figure 2). A single pup was recorded in a group of 10 sea otters near Willoughby Island on 10 July. This is the southernmost pup observed in the population to date.

The distribution pattern of Washington's sea otter population has continued to shift over the last five years with the larger proportion of the total Washington sea otter population occurring in the segment south of La Push (Figure 2). In 2002, the segment south of La Push accounted for about the same percentage of the total population as the northern segment, 49% and 51% respectively. However, by 2008, 60% of the population was distributed south of La Push. In 2014 the distribution was 68% in the south segment and 32% in the north segment. These results illustrate the importance of continuing annual surveys to monitor population trends and changes in distribution for sea otters in Washington.

The single largest concentration of sea otters continues to be located at Destruction Island with 691 otters counted during the 10 July survey. Consistent with recent surveys, a large male group continues to use the northeast reef and eastern kelp bed areas for resting, while increasing numbers of otters including females with pups are using the west end of the island. Counts made at other locations in the southern portion of the range indicate that otters, including females with pups may be regularly moving between rafting areas located near Destruction Island, Diamond Rock (off the mouth of the Hoh River), North Rock and Giant's Graveyard. Similar movements have also been noted in the north survey segment with sea otters rafting inshore of Father and Son Rocks interchanging with rafting areas near Duk Point as well.

As in past surveys, we did not include any coverage of inland waters east of Tongue Point, although we are aware of credible sightings of scattered individual sea otters in the San Juan Islands and Puget Sound in recent years. Most of these sightings have been of one or two animals, with the most recent report being a 2014 sighting of a lone individual in south Puget Sound. No groups of multiple animals have been noted from any confirmed inland water sea otter sighting reports to date and we believe the small number of sea otters frequenting the inland waters would not add significantly to the population total. As with recent surveys, no large groups were recorded in the Strait of Juan de Fuca with only a small number of otters remaining in the area between Cape Flattery and Pillar Point.

## **Acknowledgements**

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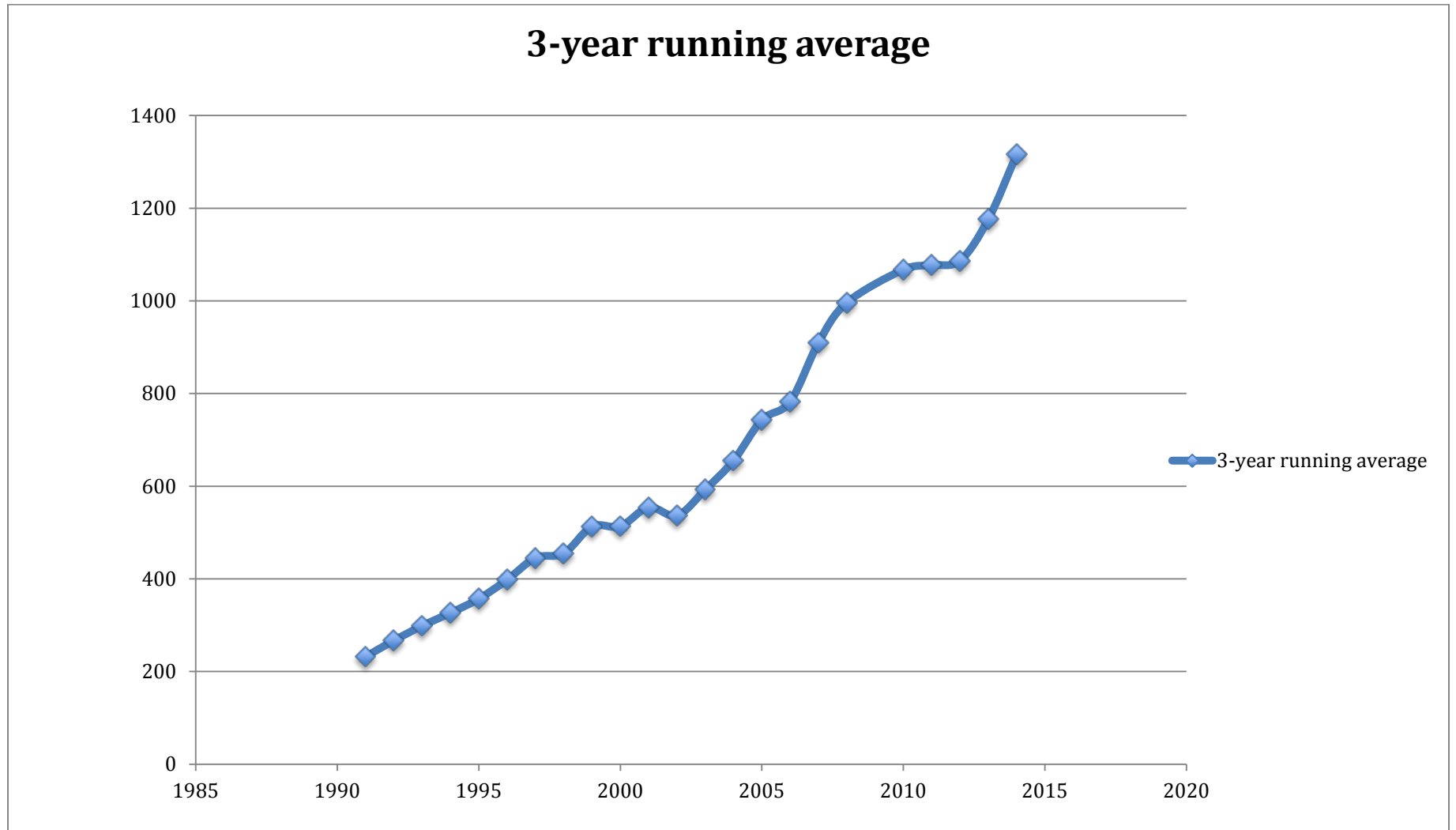
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Cover photograph of sea otters hauled out on reef at Destruction Island taken by Joe Evenson, Washington Department of Fish and Wildlife.

**Table 1. Results of the 10 July 2014 survey of the Washington sea otter population.**

<i>Location</i>	<i>Independent</i>	<i>Dependent</i>	<i>Total</i>
CAPE ELIZABETH	1	0	1
WILLOUGHBY ROCK	9	1	10
DESTRUCTION ISLAND WEST END	91	15	106
DESTRUCTION I. EAST END	585	0	585
NORTH ROCK	165	2	167
ROCK 443 COMPLEX	2	0	2
GIANT'S GRAVEYARD	185	11	196
JAMES ISLAND	1	0	1
S. OF CHILEAN MEMORIAL	20	2	22
CAPE JOHNSON/BLUFF POINT AREA	215	12	227
SANDY ISLET/JAGGED ISLAND AREA	2	0	2
CEDAR CREEK/NORWEGIAN MEMORIAL*	25	2	27
N. OF NORWEGIAN MEMORIAL/MIDWAY	2	0	2
YELLOWBANKS AREA	51	4	55
SAND POINT/INSHORE WHITE ROCK*	37	9	46
WEDDING ROCKS	3	1	4
SE OZETTE ISLAND	11	2	13
OZETTE/CAPE ALAVA/BODELTEH	68	10	78
S. OF OZETTE RIVER	11	2	13
DUK POINT*	3	0	3
INSHORE OF FATHER AND SON	1	0	1
POINT OF ARCHES AREA	3	0	3
TATOOSH ISLAND	7	0	7
KOITLAH POINT	1	0	1
WAADAH ISLAND	1	0	1
Total	1500	73	1573

**Figure 1. Growth of Washington sea otter population showing 3-year running average, 1989-2014.**



**Figure 2. Comparative distribution of sea otters in Washington State between the north and south survey segments, 1989-2014.**

