

# STATUS REPORT – PINNIPED PREDATION AND DETERRENT ACTIVITIES AT BONNEVILLE DAM, 2016

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April 15, 2016

This is the third status report for the 2016 pinniped monitoring season and summarizes the observed predation and deterrent activities at Bonneville Dam from January 1 through April 15, 2016. Observations, which began on January 4, are conducted during daylight hours Monday through Friday and will continue to the end of May. This report can be found at:

<http://www.nwd-wc.usace.army.mil/tmt/documents/fish>

*PLEASE NOTE - All data presented here are preliminary as of the status report date. Predation figures are unexpanded (unless otherwise noted) and sea lion abundance estimates will likely change as the season progresses and data are proofed and analyzed. Final predation estimate data will be expanded to adjust for hours and days not observed as well as “unknown” prey species consumed for the final report. The final report summarizing the results of the 2016 Pinniped Monitoring Program will be available in the fall of this year.*

## **PINNIPED ABUNDANCE**

Steller sea lions (*Eumetopias jubatus*) have been present at Bonneville Dam throughout the 2016 observation period (figure 1). The daily average of Steller sea lions (SSL) through the months of January, February, and March has been 13, 5, and 14, respectively. The maximum number of SSL observed on a single day at the dam was 49 on April 15. We have documented approximately 39 unique individual SSL thus far. Of these, 36 were observed in previous years and three were newly identified.

Samplers observed the first California sea lion (*Zalophus californianus*) on February 26 this year. Only a small number of California sea lions (CSL) were present at Bonneville Dam through the month of March (Figure 1). However, over the past two weeks CSL abundance at the dam has increased from an average of five per day to an average of 15 per day. We have documented 61 uniquely branded individual CSL through April 15. Of these, 59 have been seen in multiple seasons and two were newly identified.

Point counts are taken at powerhouse 1, spillway, powerhouse 2, and Tower Island throughout the day to monitor the number of pinnipeds present at Bonneville Dam. Pinniped abundance

(CSL and SSL combined) for 2016 through April 15 in comparison with the 10 year average is shown in figure 2 below.

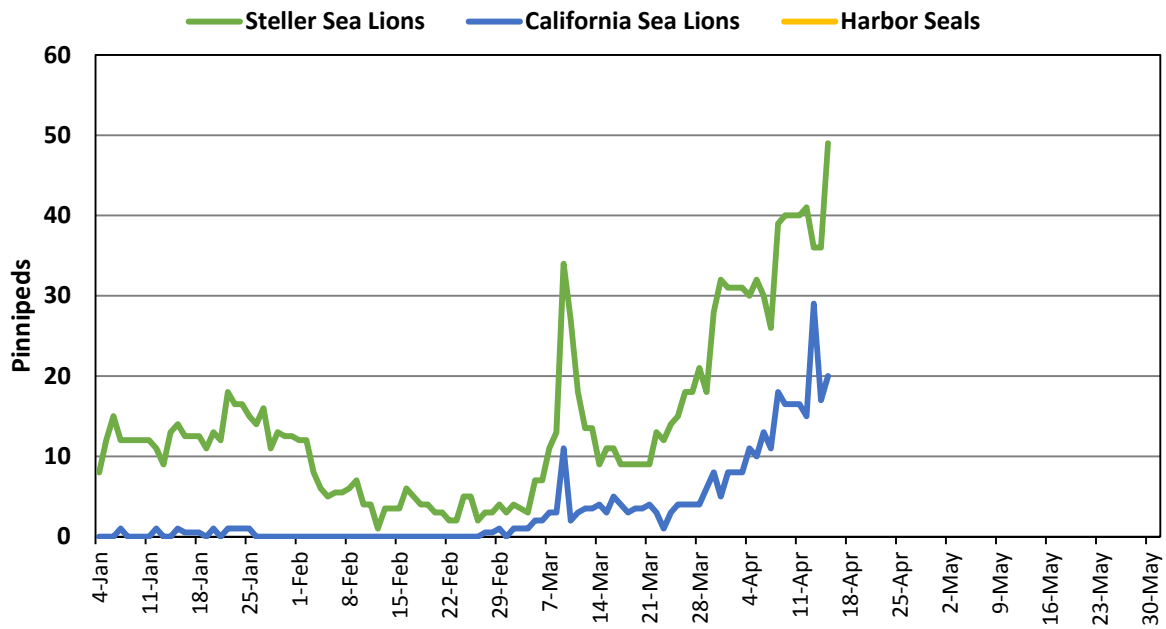


Figure 1. Daily abundance of pinnipeds, by species through April 15, 2016 at Bonneville Dam.

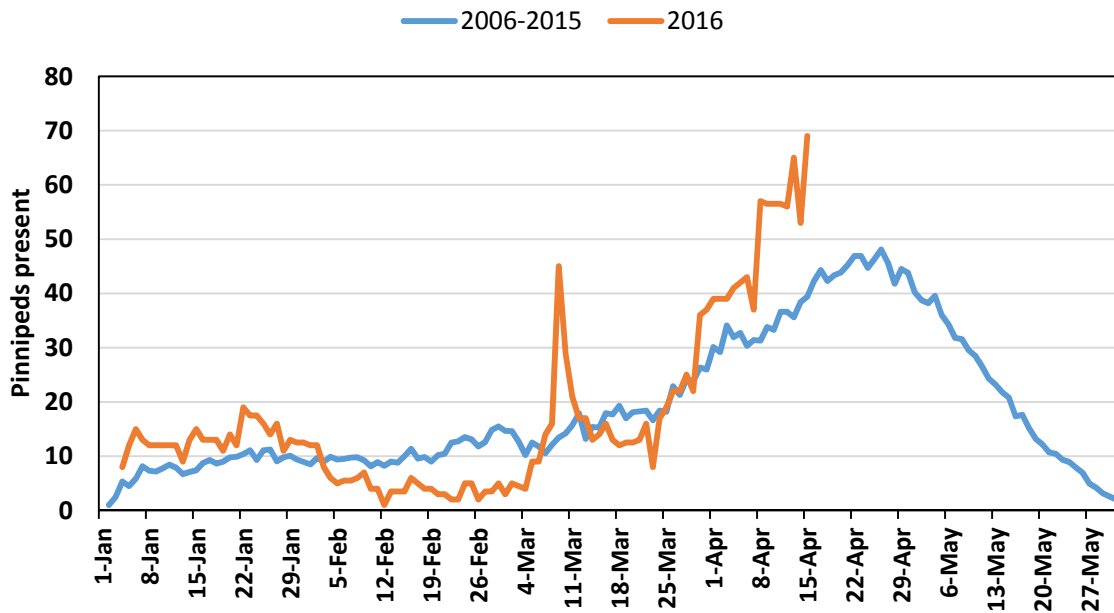


Figure 2. California and Steller sea lion combined daily abundance (interpolated for weekends) at Bonneville Dam through April 15 of 2016 versus the ten year average.

## **PREDATION DATA**

Along with the increase in pinniped abundance, catch of Chinook salmon (*Oncorhynchus tshawytscha*) by CSL and SSL has increased as well. 3,932 spring Chinook salmon and 3,350 steelhead (*Oncorhynchus mykiss*) have been counted passing the dam through April 15, 2016. The spring run has been slow to arrive at the dam compared to last year when the count was 13,640 Chinook and 3,365 steelhead passing the dam by this date. For those spring Chinook arriving early the predation has been relatively high as they remain the main prey item for both CSL and SSL (Table 1).

Observed sturgeon catches have remained low this season (Table 1). Similar to 2015, there have been few observed sturgeon catches thus far. Of the twenty-four sturgeon catches observed there is almost an equal distribution between catch at powerhouse 2 and catch at the Spillway followed by powerhouse 1 (figure 3). The majority of Sturgeon caught ranged in size from less than 2 feet up to 4 feet. The largest of the sturgeon caught was by an SSL and estimated to have been over 7 foot.

Table 1. Observed fish catches by pinnipeds at Bonneville Dam through April 15, 2016.

<b>Prey</b>	<b>Steller Sea Lion</b>	<b>California Sea Lion</b>	<b>Total</b>
<b>Chinook</b>	288	452	740
<b>Steelhead</b>	31	29	60
<b>Sturgeon</b>	21	3	24
<b>Unknown</b>	55	42	97
<b>Smolt</b>	1	5	6
<b>Shad</b>	0	1	1
<b>Other</b>	12	1	13
<b>Lamprey</b>	1	2	3
<b>Total</b>	409	535	944

**Note:** these are raw numbers

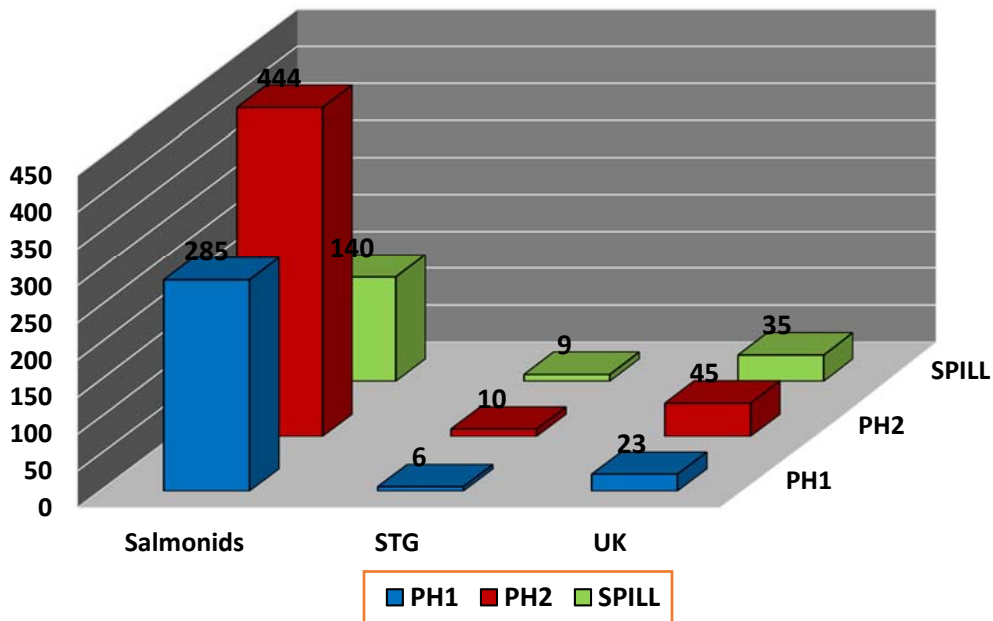


Figure 3. Observed pinniped catches of salmon and sturgeon by location at Bonneville Dam, 2016.

Adult salmonid consumption (Chinook salmon and Steelhead combined) by CSL and SSL is exceeding that of the 10-year average (Figure 4). Estimated consumption of salmonids through April 15, expanded for hours not sampled, is 1,997. Catches of Sturgeon has dropped greatly from the ten year average consumption as seen in figure 5 but is similar to the past two years. Estimated consumption of sturgeon through April 15, expanded for hours not sampled, is 78.

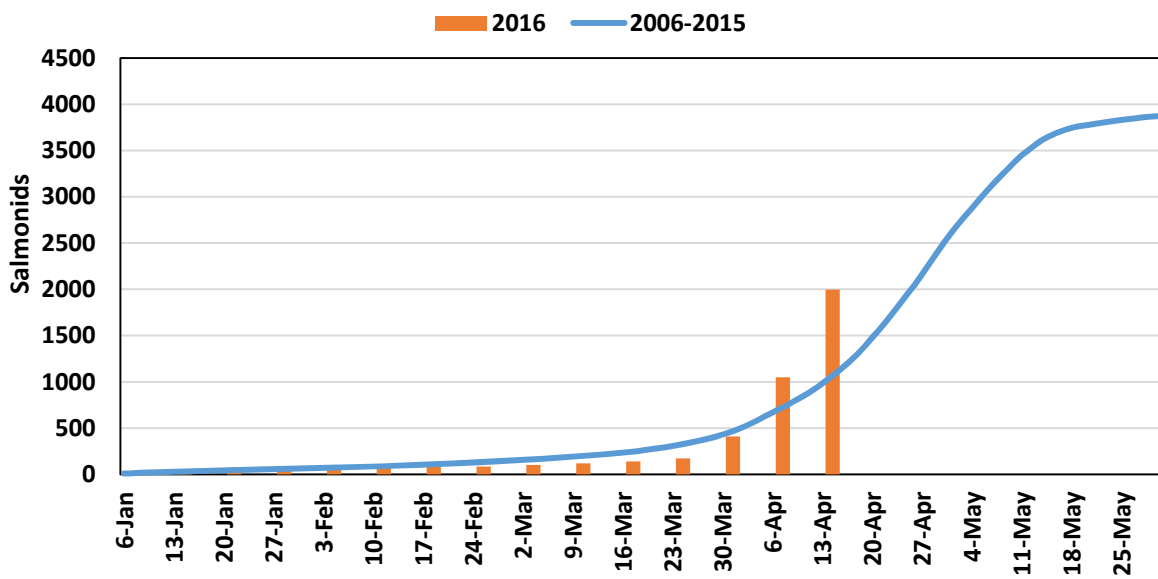


Figure 4. Salmonid weekly consumption estimate versus the ten year average of adult salmonids consumption at Bonneville Dam.

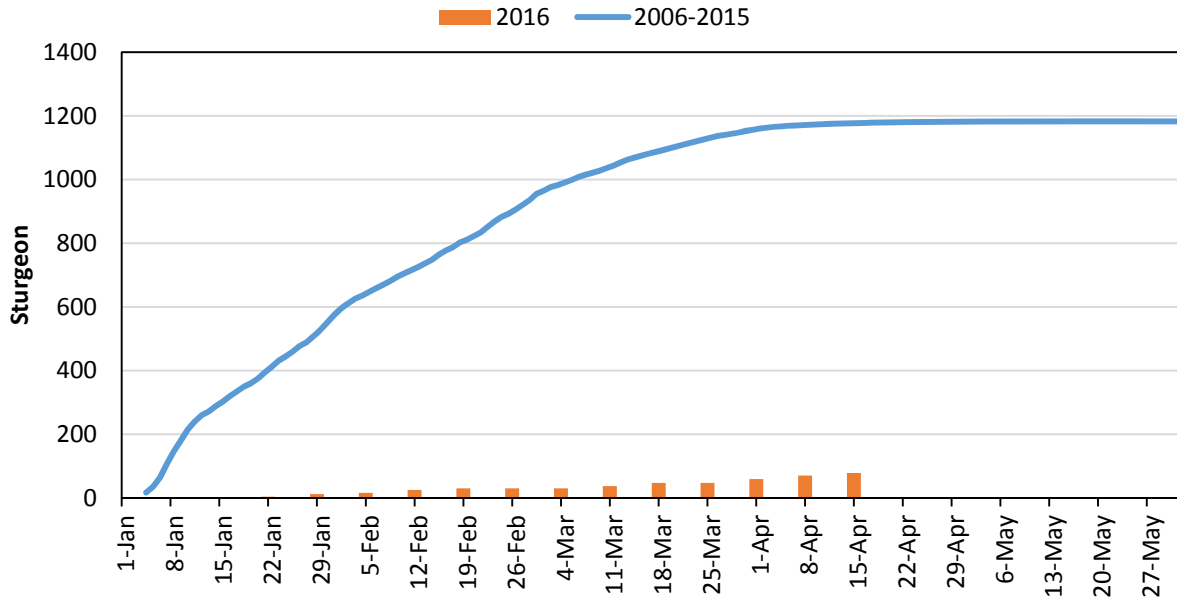


Figure 5. White Sturgeon weekly consumption estimate versus the ten year average of white sturgeon consumption at Bonneville Dam.

### **DETERRENTS/TRAPPING**

Sea lion exclusion devices (SLEDs) were deployed at powerhouse 2 on October 26, 2015 and at powerhouse 1 on March 1, 2016.

After several SSL were observed climbing over the floating orifice gates (FOGs) at powerhouse 2 and entering the fishway, wood panels were placed on top of the FOGs to prevent this behavior from recurring. To date there have been no additional reports of sea lions accessing the fishway channel via the FOGs.

Boat-based hazing by Columbia River Inter-Tribal Fish Commission (CRITFC) began on March 7. CRITFC plans to haze Mondays, Thursdays, and Fridays.

Dam-based hazing by USDA began on March 8. USDA will be hazing seven days a week for 8 hour shifts. We have observed that hazing has a short term effectiveness as pinnipeds are quickly returning after each hazing event.

Pinniped management activities by the states of Oregon and Washington are currently underway at Bonneville Dam. Information about these activities can be found at Oregon Department of Fish & Wildlife's California sea lion management website at:

<http://www.dfw.state.or.us/fish/SeaLion>