

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

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This is the fourth status report for the 2016 pinniped monitoring season and summarizes the observed predation and deterrent activities at Bonneville Dam from January 1 through April 29, 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 the number of daylight 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). The daily average of CSL has increased from 4 in the month of March to 22 in the month of April. The maximum number of CSL observed on a single day at the dam was 39 on April 22. The maximum number of pinnipeds (CSL and SSL combined) on a single day was 82 also on April 22. We have documented 79 uniquely branded individual CSL through April 29. Of these, 77 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 29 in comparison with the 10 year average is shown in figure 2 below.

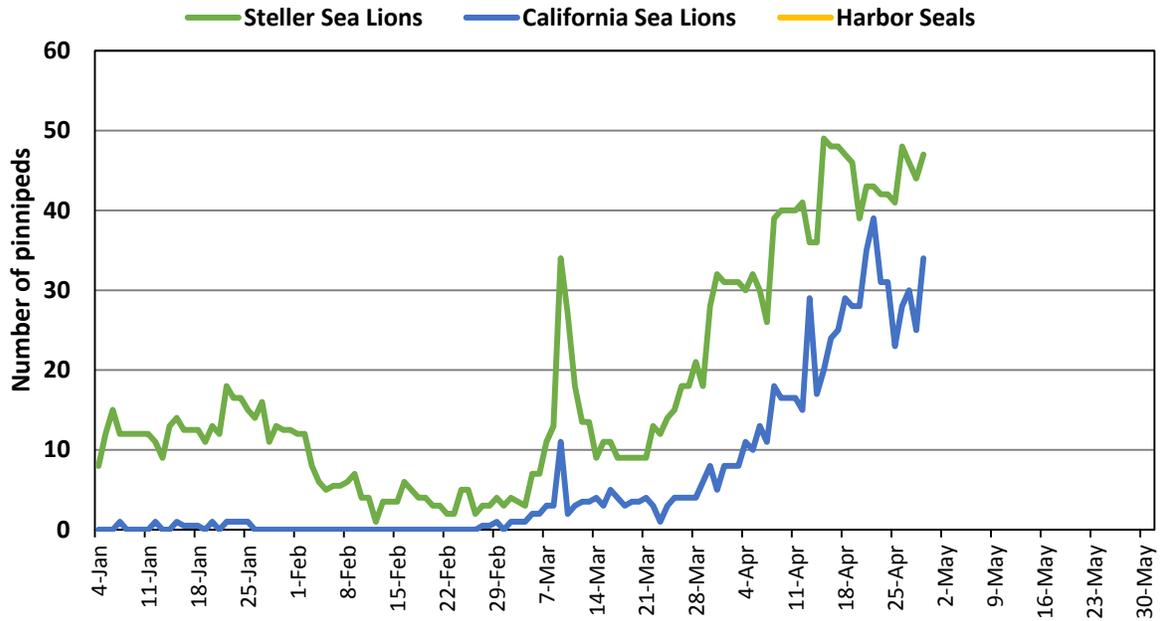


Figure 1. Maximum daily count of pinnipeds by species (interpolated for weekends) through April 29, 2016 at Bonneville Dam.

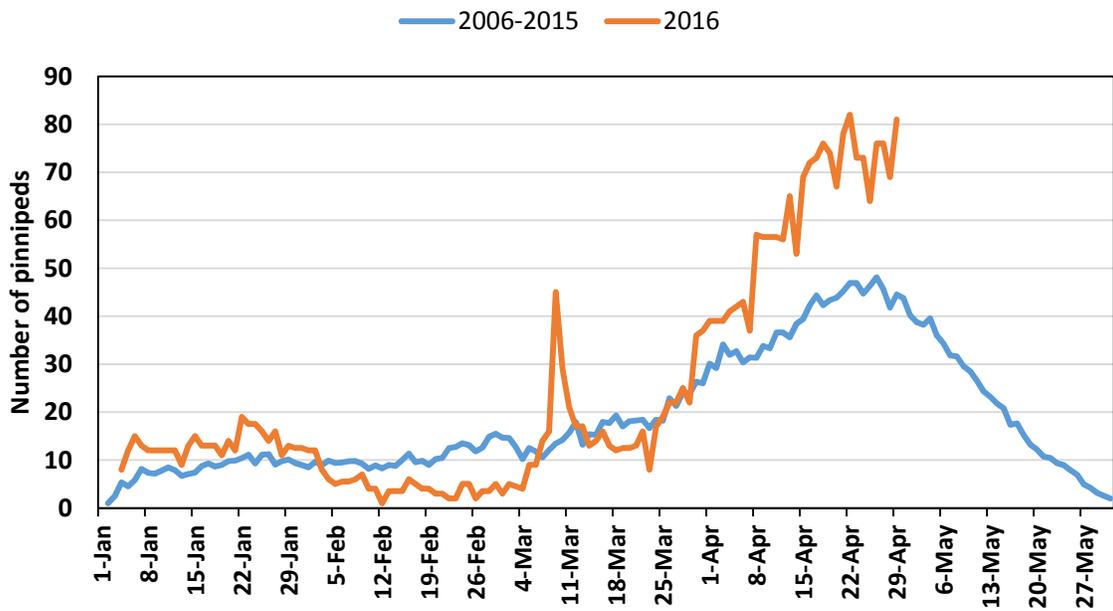


Figure 2. California and Steller sea lion combined maximum daily count (interpolated for weekends) at Bonneville Dam through April 29 of 2016 versus the ten year average.

PREDATION DATA

Along with the increase in pinniped abundance, catch of Chinook salmon (*Oncorhynchus tshawytscha*) by CSL and SSL has increased as well. Chinook salmon are arriving at Bonneville Dam in growing numbers. As of April 29, 28,029 spring Chinook salmon and 3,659 steelhead (*Oncorhynchus mykiss*) have been counted passing the dam. Concomitantly, observed catches of Chinook by CSL and SSL have more than doubled this past two weeks (Table 1).

The number of observed sturgeon catches has remained low this season (Table 1). Similar to 2015, there have been few observed sturgeon catches thus far. Of the 28 sturgeon catches observed the majority have been at powerhouse 2 followed by the Spillway and then 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 29, 2016.

Prey	Steller Sea Lion	California Sea Lion	Total
Chinook	739	1,442	2,181
Steelhead	37	46	83
Sturgeon	25	3	28
Unknown	88	90	178
Smolt	5	7	12
Shad	0	1	1
Other	18	6	24
Lamprey	4	19	23
Pikeminnow	1	1	2
Total	917	1,615	2,533

Note: these are raw numbers

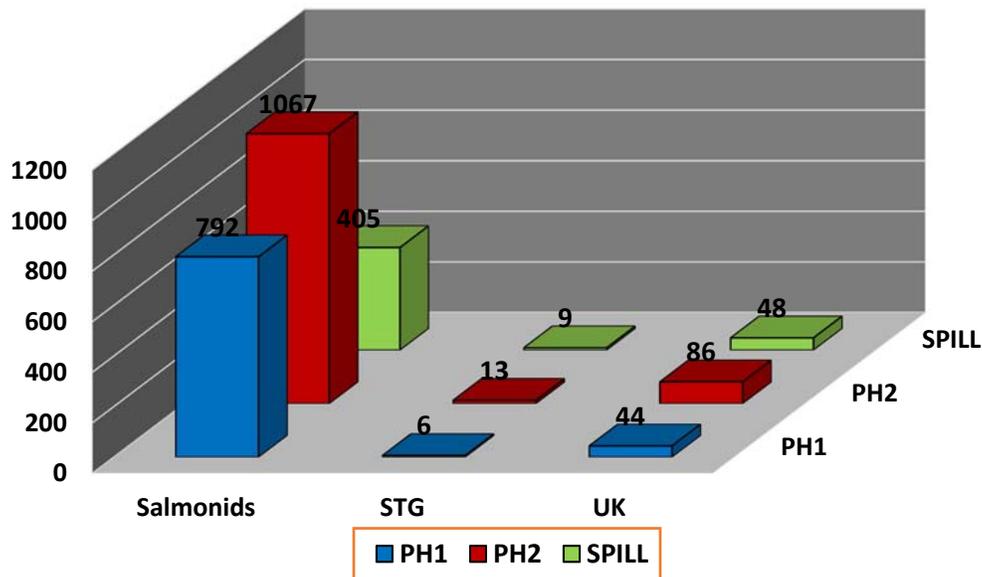


Figure 3. Observed pinniped catches of salmon and sturgeon by location at Bonneville Dam, 2016.

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 29, expanded for daylight hours not sampled, is 4,970. This exceeds last seasons estimated consumption of 4,420 for this time period. Catches of Sturgeon have 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 29, expanded for daylight hours not sampled, is 85.

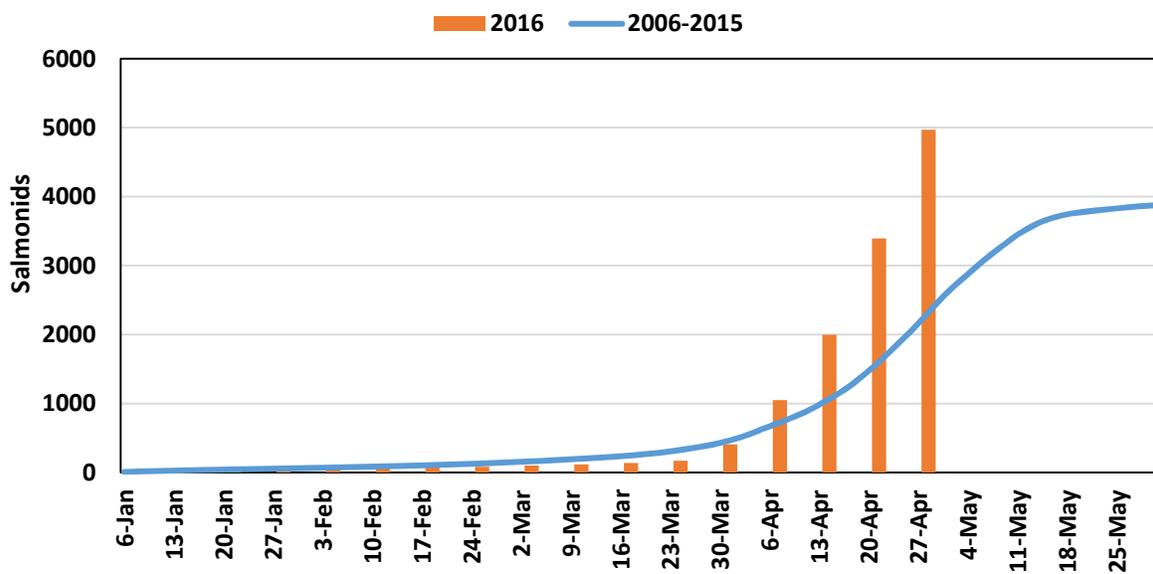


Figure 4. Salmonid cumulative consumption estimate versus the ten year average of adult salmonids consumption at Bonneville Dam.

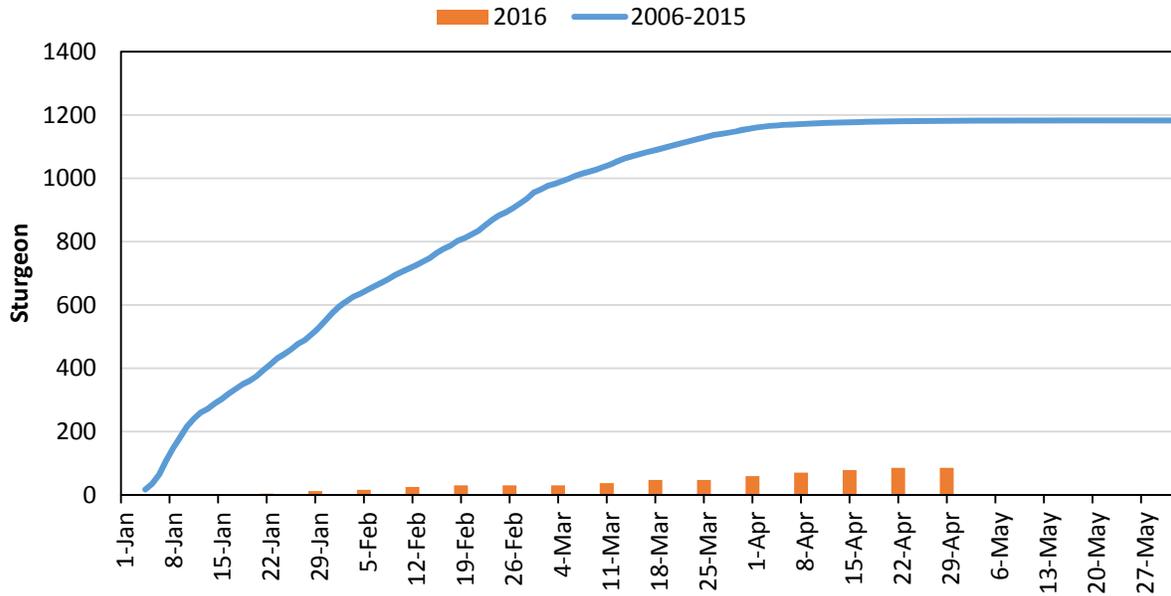


Figure 5. White Sturgeon cumulative consumption estimate versus the ten year average of white sturgeon consumption at Bonneville Dam.

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>