

STATUS REPORT - PINNIPED PREDATION AND DETERRENT ACTIVITIES AT BONNEVILLE DAM, 2010

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http://www.nwd-wc.usace.army.mil/tmt/documents/fish/2010/sea_lion_hazing2010.html

This is the eighth weekly status report of 2010 and summarizes all pinniped predation monitoring and deterrent activities at Bonneville Dam from January 1 through March 31, 2010. Regular daylight observations began on January 8 and will continue to the end of May, five days per week. Weekends will not be regularly monitored this year, the same as for 2009. Final predation estimates will be expanded for hours and days not observed at the end of the observation season and these updated figures will be presented in our annual report.

Boat-based crews from Oregon Department of Fish and Wildlife (ODFW) and Washington Department of Fish and Wildlife (WDFW) began hazing sea lions within the Bonneville dam boat restricted zone (BRZ) and in downriver areas in January, and plan to continue through the end of May. The Columbia River Intertribal Fish Commission added hazing efforts in early March. The Corps has contracted U.S. Department of Agriculture (USDA) Wildlife Services to haze sea lions from March 1 through May 31, 2010 from dam structures and adjacent lands seven days per week, eight hours per day, during daylight hours.

PRELIMINARY RESULTS

All data presented here are preliminary as of the status report date. Predation figures are unexpanded and sea lion abundance estimates will likely change as the season progresses and data are proofed and analyzed, so please use these estimates with appropriate caution. A final report summarizing the results of the 2007 through 2010 evaluation years will be available later this year.

PINNIPED ABUNDANCE

In the past, we have reported numbers of Steller sea lions and California sea lions differently. California sea lion abundance has been based on individuals seen during the observation day at Bonneville, while the Steller sea lion abundance has been simply the maximum number present at any one time during the observation day. This is because Steller sea lions presence had been small, they tended to stay farther away from our observation areas, and we had more difficulty identifying most of them to individuals. However, over the past few year, we have been attempting to identify individual Steller sea lions as well, because the Steller sea lions are much

more numerous now and more bold (coming in closer to the dam and hauling out frequently). We will try to include those abundance estimates when we can in the future.

We have seen as many as 37 Steller sea lions (*Eumetopias jubatus*) and 15 California sea lions (*Zalophus californianus*) at the dam on any given day (see Figures 1 and 2). There are slightly fewer sea lions present per day on average so far this year compared to last year (Figure 3), however higher numbers of Steller sea lions are present (Figure 10) and numbers of California sea lions are down substantially (Figure 9). The highest daily abundance estimate for all pinnipeds at Bonneville dam was 50 on April 5. We have seen at least 29 different California sea lions, approximately 50 Steller sea lions, and one harbor seal (*Phoca vitulina*) since monitoring began. At least 21 of the California sea lions (C287, C417, C653, C697, C706, C779, C797, C805, C926, C934, U31, B63, B81, B194, B254, B258, B267, B295, B299, B301, B303) have been seen in previous years. Nineteen individuals seen this year are currently on the list for removal. To date, 9 of those have been removed. Several new individuals have shown up the past few weeks.

Stellers and California sea lions have begun to haul out or partially haul out on the rocks below the PIT tag building to the corner collector in the powerhouse two tailrace this week in large numbers in the early morning hours.

CRITFC set up cameras and recording systems March 2nd near the traps under funding from BPA in an attempt to enumerate pinniped numbers and take by video cameras. If successful, this technology could be used at other sites farther down the river where there are no observers.

PREDATION DATA

Unexpanded numbers for fish observed taken in the Bonneville Dam tailrace for 2010 are:

	<u>California Sea Lions</u>	<u>Steller Sea Lions</u>	<u>Total</u>
Chinook	475	111	586
Steelhead	192	26	218
Sturgeon	4	1090	1094
Lamprey	0	0	0
Shad	21	11	32
Other	4	3	7
Unknown	29	202	231

It is likely that most unknown fish caught by Steller sea lions were sturgeon before two weeks ago, while those unknown fish caught by California sea lions were Chinook or steelhead (Figure 4). Most sturgeon have been caught in powerhouse 2 tailrace, followed by the spillway then powerhouse 1 (Figure 5). Observed sturgeon catch has exceeded 1,000 already (1,672 expanded by interpolating for weekends), however Stellers have begun to switch to salmonid prey as they Chinook become more abundant (Figure 6). A record high of 66 sturgeon were observed caught on March 1, most being in the 2 to 4 foot range (Figure 7). Chinook passage shot up on April 8 to 690 that day, and is beginning to pick up now (4,609 steelhead, 2,556 Chinook, -11 coho through April 8), but this is much more than what had passed by this point in the past six years. Total salmonid catch to date (1,140 expanded by interpolating for weekends) is now more than in

any past year except for 2008 at this point (Figure 8). Salmoids taken over the past week was less than the past two years at this point in the season (Figure 11). Chinook have now become the predominant prey species taken by both species of pinnipeds (Figure 12).

DETERRENTS/TRAPPING

ODFW and WDFW deployed four sea lion traps at the corner collector of Bonneville powerhouse two on February 12. One animal was trapped this week, C697 who was on the list for removal and euthanized.

To date, 11 California sea lions have been trapped, 9 removed and 2 released, and 4 Steller sea lions have been branded, tagged, and released. These traps will be used to mark California sea lions and Steller sea lions not previously captured and to remove animals that meet removal criteria, per removal authority granted to the states of Oregon, Washington, and Idaho by NOAA Fisheries under Section 120 of the Marine Mammal Protection Act. Acoustic tags may be fastened to some animals not on the list to help gain more information on movements and hunting behaviors from several acoustic sensor arrays that CRITFC will deploy and monitor between Bonneville Dam and the estuary.

SLEDs have been installed at all fishway entrances and no pinnipeds have breached these barriers.

Hazing by the states from boats began in January. Boat hazing continues to have some limited, local, short term impact in reducing predation in the tailrace, primarily from Steller sea lions. USDA hazing began the first week of March and will continue for seven days a week until the end of May.

OTHER ITEMS OF INTEREST

Prior to March 22 this year, we observed 10 events of cleptoparasitism (predators stealing prey from another predator). Two weeks ago, we observed 48 events, primarily Steller sea lions stealing Chinook from California sea lions. This past week we observed 71 events. Over the past week, Steller sea lions were observed to take only 11 sturgeon, while they took 41 salmoids (plus 23 unknown) and parasitized another 70 (plus 2 unknown). This is causing the California sea lions to catch more fish per individual. To date, Steller sea lions have stole fish from California sea lions 115 times, from other Stellers 5 times, and California sea lions have stolen prey from other California sea lions 9 times. California sea lions to date have been observed to catch 667 salmonids, and Steller sea lions have caught 237 salmonids. But if the figures for cleptoparasitism are taken into account (even though they usually get in a few bites before the fish is stolen), then the figures would be 552 salmonids for California sea lions and 352 salmonids for Steller sea lions.

Figure 1. Weekly (average daily) pinniped abundance at Bonneville Dam, 2002-2010.

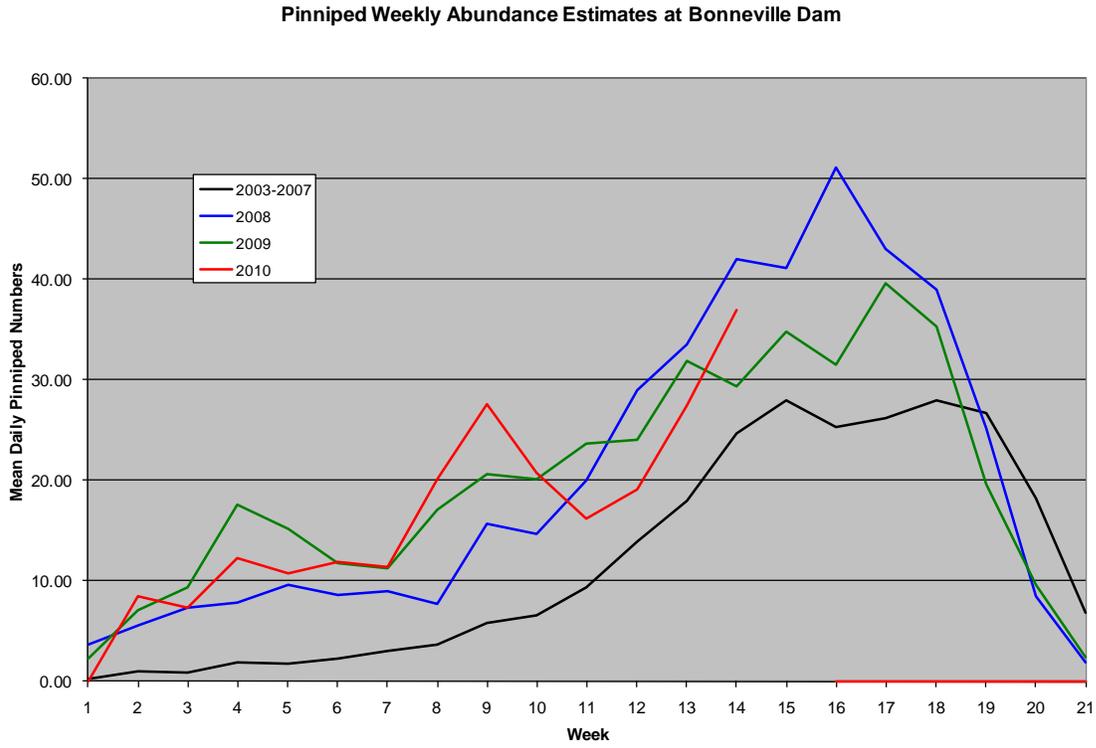


Figure 2. Daily pinniped abundance, by species, at Bonneville Dam, 2010.

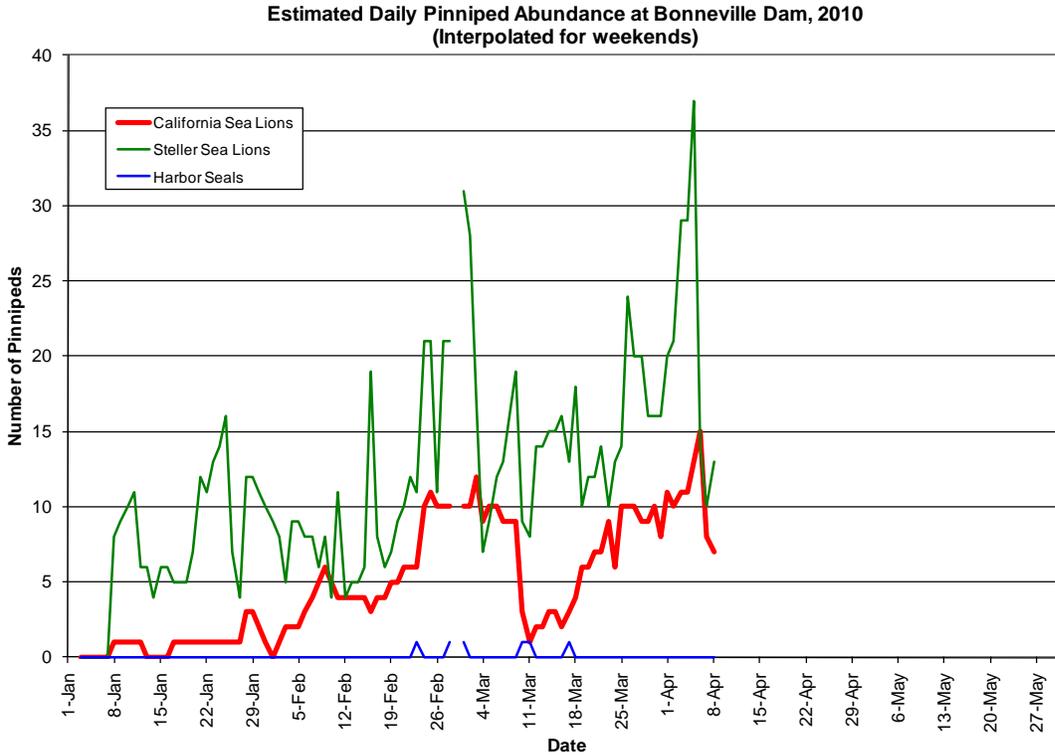


Figure 3. Average daily presence of pinnipeds, by species, to date (April 8) for each year at Bonneville Dam.

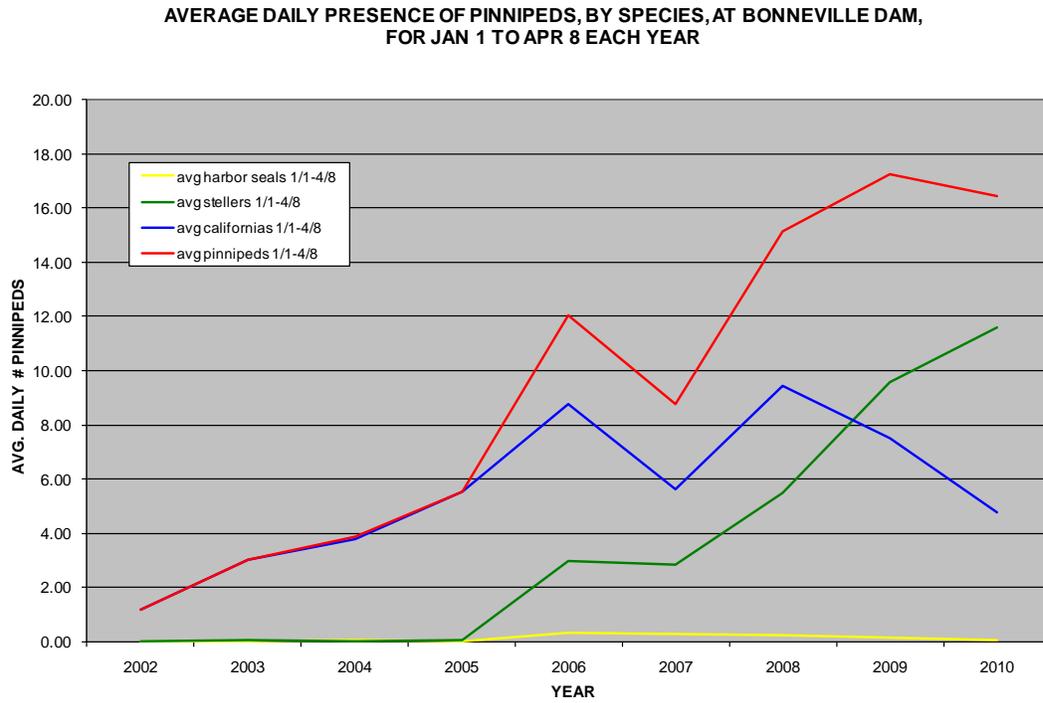


Figure 4. Major prey species taken by Pinniped species at Bonneville Dam, 2010.

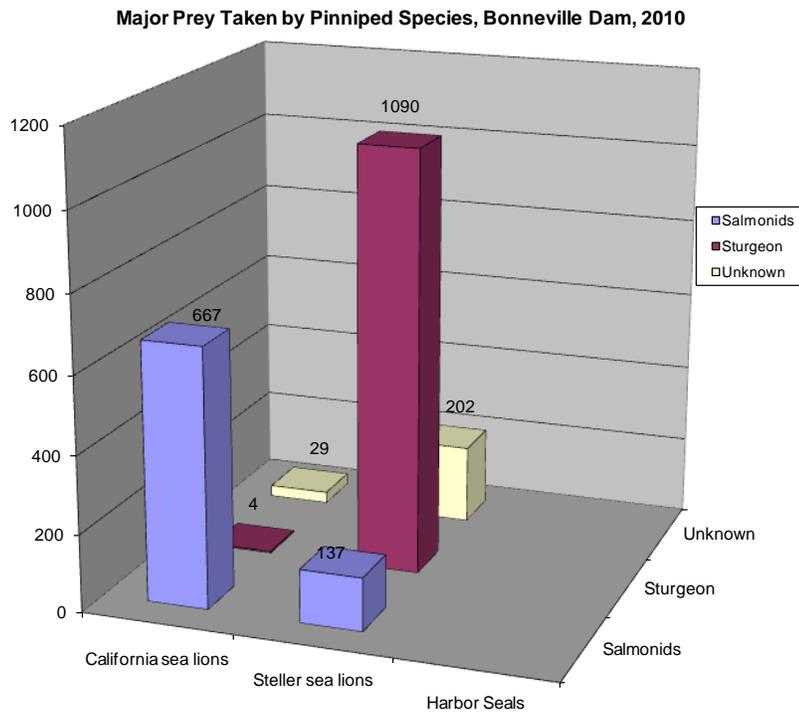


Figure 5. Major prey species taken by Pinnipeds by location, 2010.
 Location of Major Prey Taken by Pinnipeds, Bonneville Dam, 2010

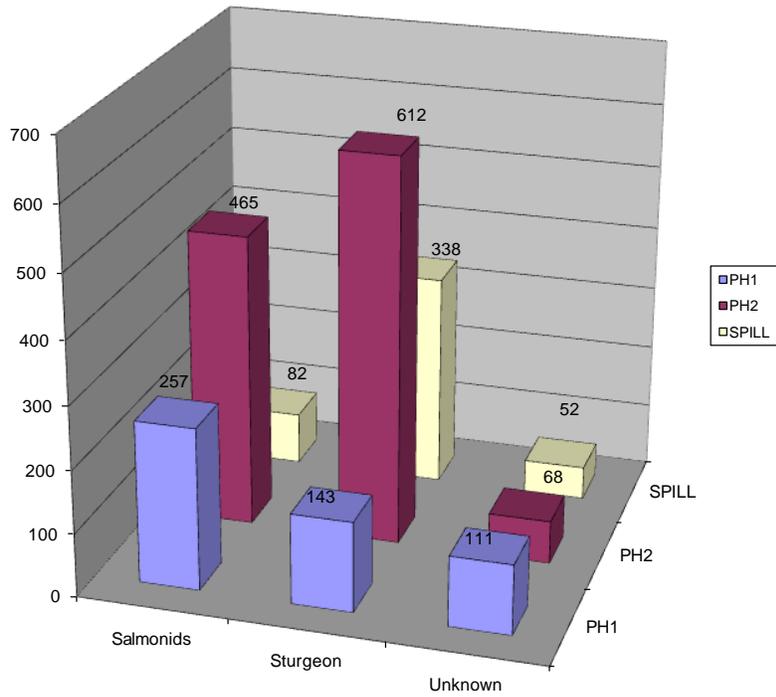


Figure 6. Daily cumulative observed sturgeon catch at Bonneville Dam, 2006-2010.

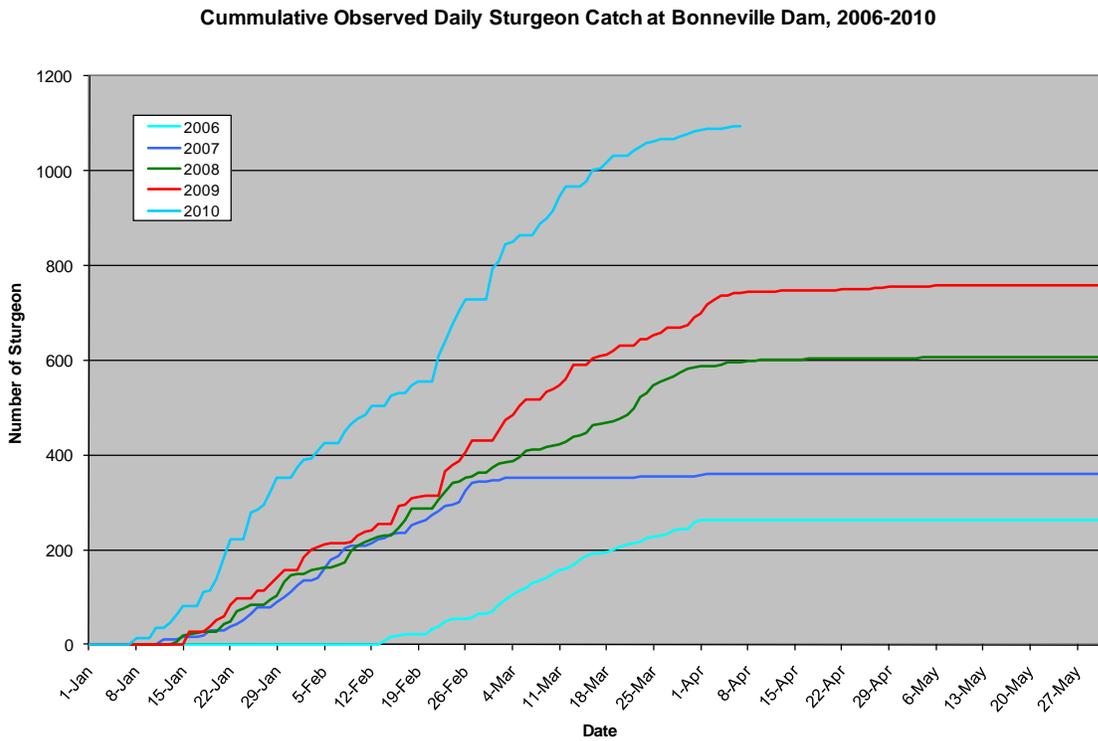


Figure 7. Size of sturgeon caught by pinnipeds at Bonneville Dam, 2006-2010.

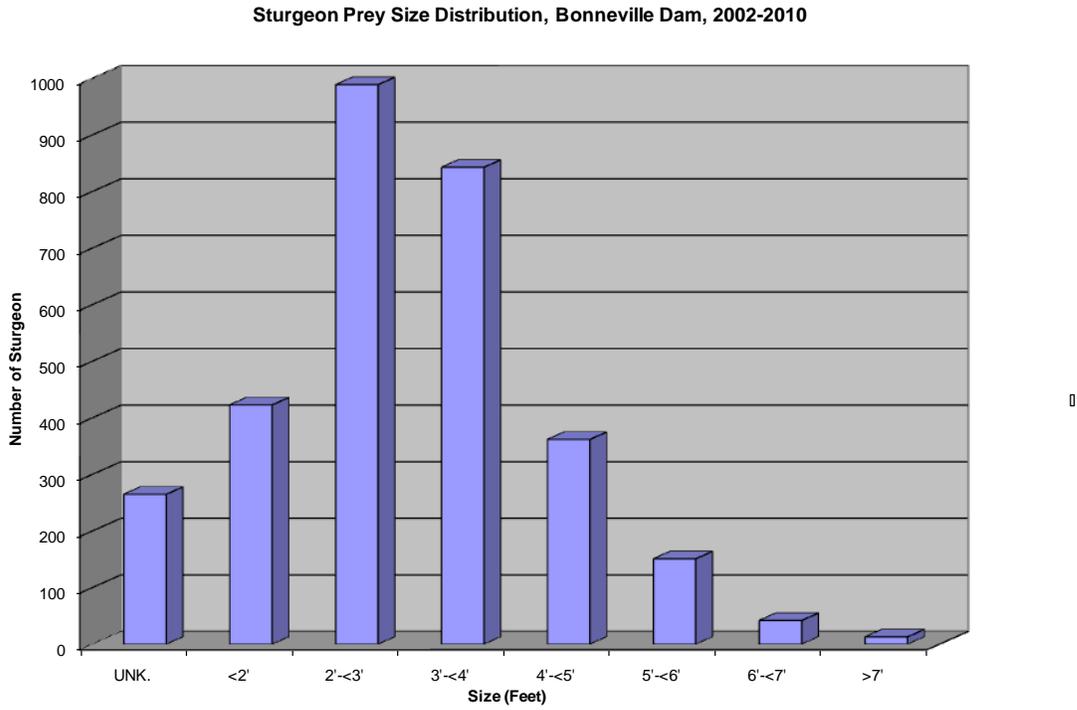


Figure 8. Daily cumulative salmonid catch (interpolated for weekends) at Bonneville Dam, 2002-2010.

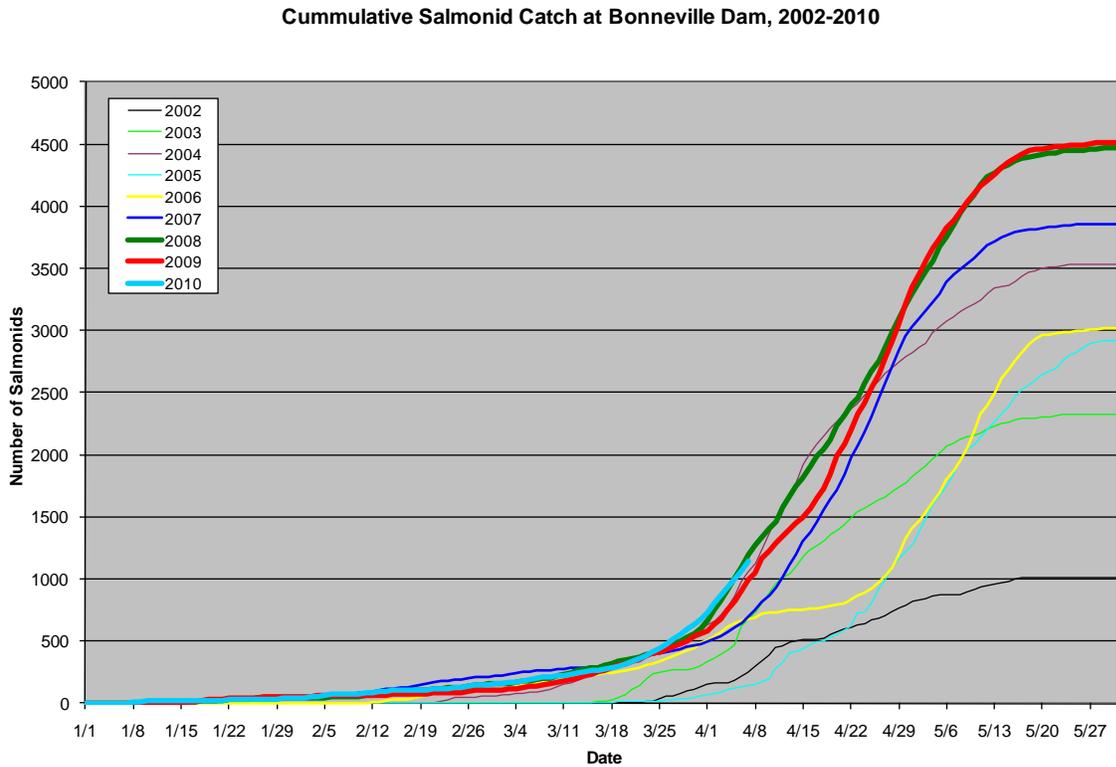


Figure 9. Weekly (average daily) California sea lion abundance at Bonneville Dam, 2002-2010.

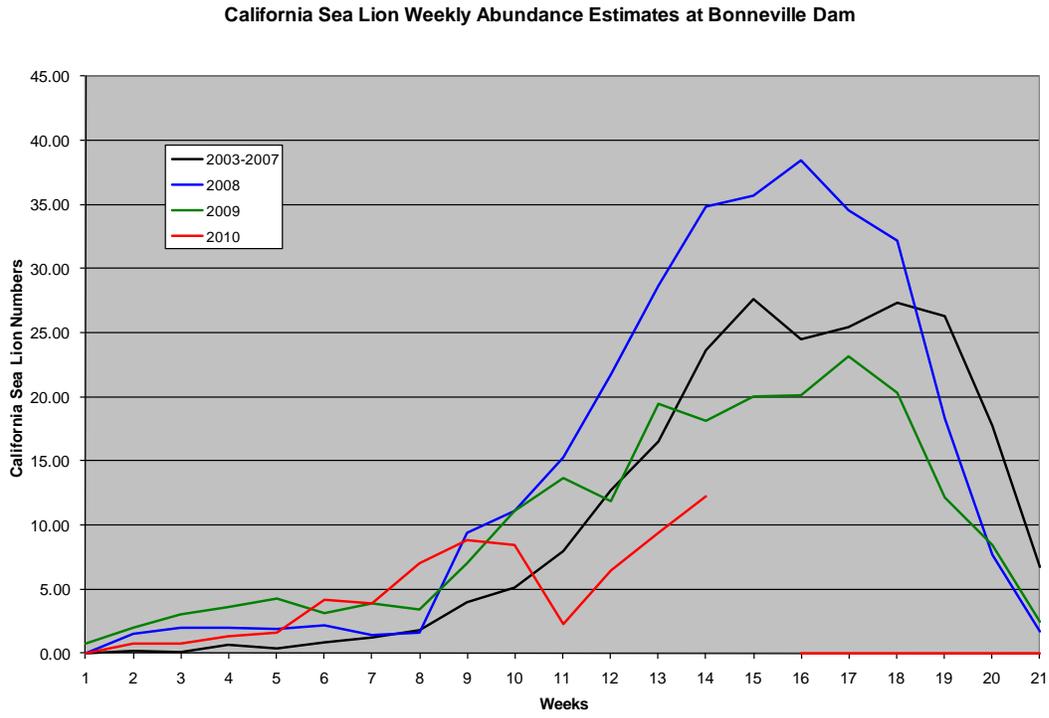


Figure 10. Weekly (average daily) Steller sea lion abundance at Bonneville Dam, 2002-2010.

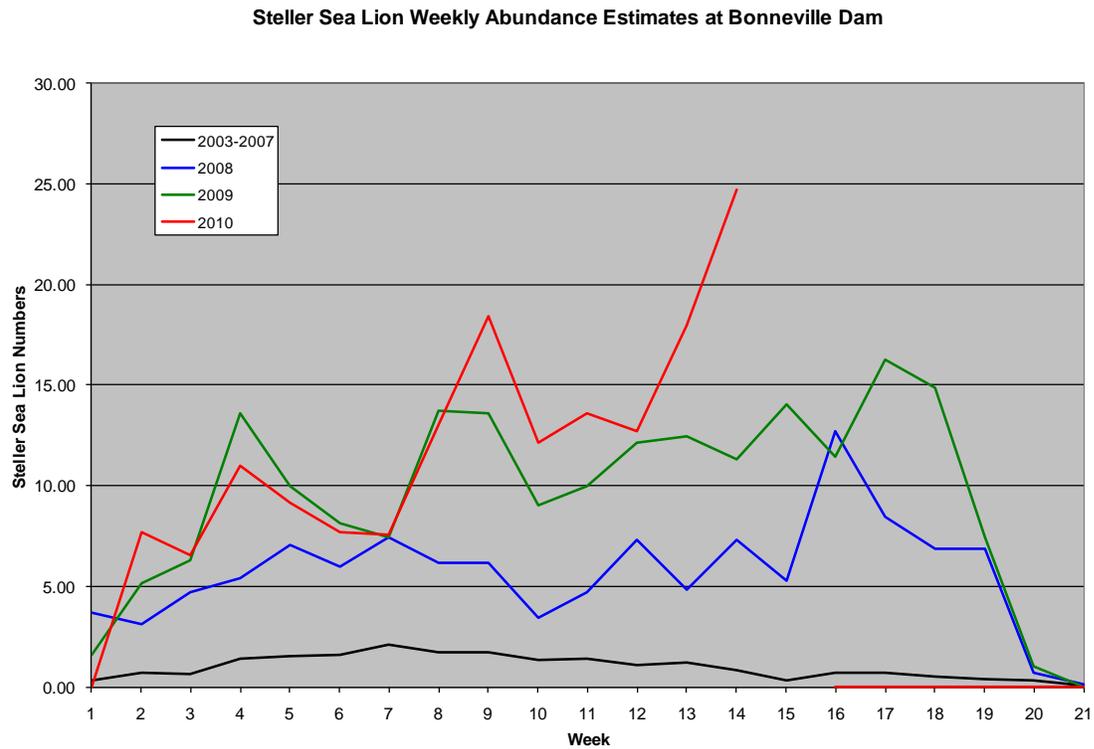


Figure 11. Weekly (average daily) salmonid consumption estimates by all pinnipeds at Bonneville Dam, 2002-2010.

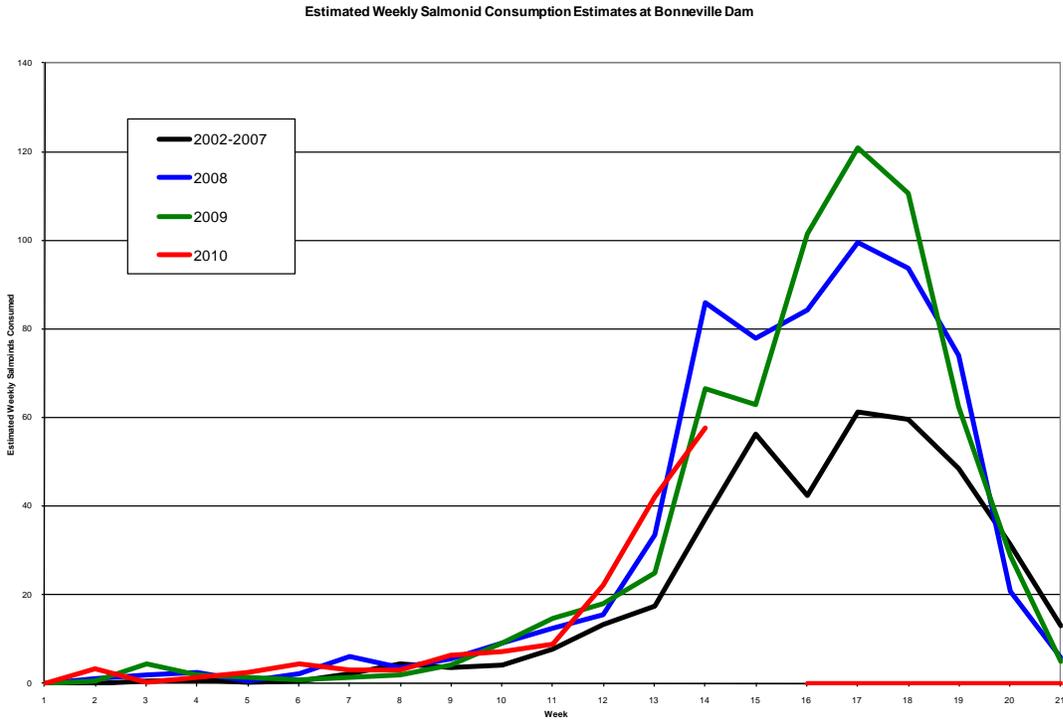


Figure 12. Unexpanded salmonid, sturgeon, and unknown prey caught by pinnipeds at Bonneville Dam in 2010.

