

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

Robert Stansell and Karrie Gibbons - (541) 374-8801

Fisheries Field Unit
U.S. Army Corps of Engineers
Bonneville Lock and Dam
Cascade Locks, OR 97014

May 28, 2010

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

This is the **fifteenth** and **final** weekly status report of 2010 and summarizes all pinniped predation monitoring and deterrent activities at Bonneville Dam from January 1 through **May 27**, 2010. Regular daylight observations began on January 8 and will conclude May 28, however if sea lions continue to be present, some limited observations may occur in June to document presence and predation.. 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 CRITFC in March, but all boat based hazing has now ended for the season. The Corps 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, and this hazing will end next week also.

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

We have seen as many as **53** Steller sea lions (*Eumetopias jubatus*) and **25** California sea lions (*Zalophus californianus*) at the dam on any given day (see Figures 1 and 2). There were more sea lions present per day on average this year compared to previous years (Figure 3). This is because far higher numbers of Steller sea lions were present (Figure 10) while numbers of California sea lions are down (Figure 9). Double digit numbers of California sea lions are still present, as are 2-3 Steller sea lions. This is a bit late for that many pinnipeds to still be here, but

we did see a similar occurrence in 2005, and the numbers rapidly dropped the following week. The highest daily abundance estimate for all pinnipeds at Bonneville dam was **71** on **April 15**, which was the most we have ever documented. We have seen about **82** different California sea lions, at least **53** Steller sea lions, and two harbor seal (*Phoca vitulina*) since monitoring began. Even though this is more California sea lions than last year, the average number seen per day is still less than the previous two years (Figure 3). At least **29** of the California sea lions (C287, C417, C653, C697, C706, C779, C797, C805, C926, C934, C935, U19, U26, U31, B22, B63, B81, B108, B194, B251, B254, B258, B267, B295 B297, B299, B301, B302, B303) have been seen in previous years. Typically, we see 2/3rds repeat animals, and 1/3rd new, but this year we see are seeing the reverse. So far, **38** individuals seen this year are currently on the list for removal but several more now qualify and will be added later this year. To date, **12** have been removed this year.

CRITFC will analyze their camera and recording system results at powerhouse two and verify and ground truth sea lion presence and predation sightings with our observers later this summer. 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	3,027	602	3,639
Steelhead	204	31	235
Sturgeon	6	1095	1101
Lamprey	34	2	36
Shad	40	12	52
Other	4	4	8
Smolt	2	4	6
Pikeminnow	0	1	1
Unknown	84	239	323

Chinook passage was **11,742** on **April 21**. To date, **9,507** steelhead and **246,571** Chinook have passed Bonneville through **May 20**, and this is more than every year except 2002. Total salmonid catch to date (**5,392** expanded by interpolating for weekends) is already higher than any year monitored (Figure 8) with several more days to be added and some additional expansion for missed hours of observation. However, roughly 1/3 of those catches can be attributed to Steller sea lions, through direct predation or cleptoparasitism. Weekly salmonids taken has dropped the past few weeks (Figure 11) but is still high for this time of year. Chinook are the predominant prey species taken by both species of pinnipeds now (Figure 12). Even though the predation figures are high, the percentage of the run taken to date (2.1%) is the lowest since 2004 and should drop slightly by the end of May. Powerhouse two remains the highest predation area (Figure 5).

It is likely that most unknown fish caught by Steller sea lions were sturgeon before April, while those unknown fish caught by California sea lions were Chinook or steelhead (Figure 4). No

sturgeon were observed caught this past week (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).

DETERRENTS/TRAPPING

The states trapped 7 California sea lions this week, as the animals behavior changed to where many began hauling out again. C841 and C667 were on the list for removal and euthanized. The remaining animals were given brands C04 through C08. This will conclude the trapping efforts by the states at Bonneville this spring season.

For this spring season at Bonneville, **23** California sea lions were trapped, **12** removed and **11** released, and **8** Steller sea lions were branded, tagged, and released. Data on acoustic, satellite, and depth tags will be examined and reported on after the end of the season by the states and CRITFC.

SLEDs have been installed at all fishway entrances and no pinnipeds have breached these barriers. SLED's will be removed in June. Hazing by the states from boats began in January. Boat hazing continued 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 conclude May 31.

OTHER ITEMS OF INTEREST

To date, Steller sea lions have stole fish from California sea lions at least **483** times. California sea lions to date have been observed to catch **3,231** salmonids, and Steller sea lions have been observed to catch **633** 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 closer to **2,748** salmonids consumed by California sea lions and about **1,116** salmonids consumed by Steller sea lions (these are all unexpanded figures). This demonstrates that Steller sea lions are consuming a fair amount of Chinook so far this year as they took an observed 300 salmonids by the end of the season in 2009.

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

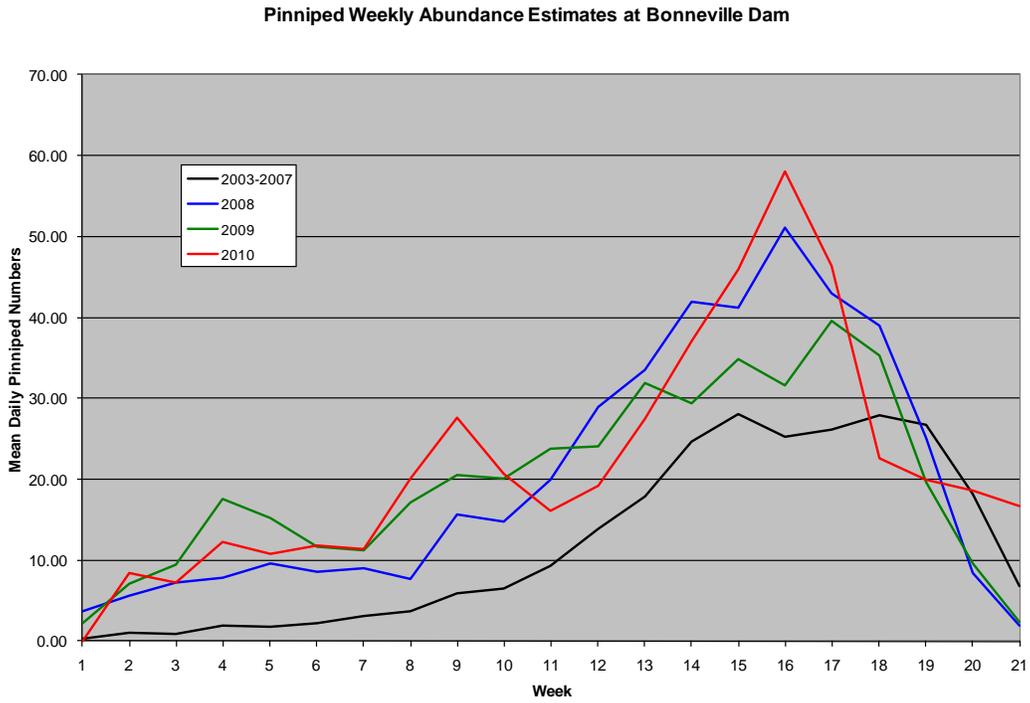


Figure 2. Daily pinniped abundance, by species, at Bonneville Dam, 2010.

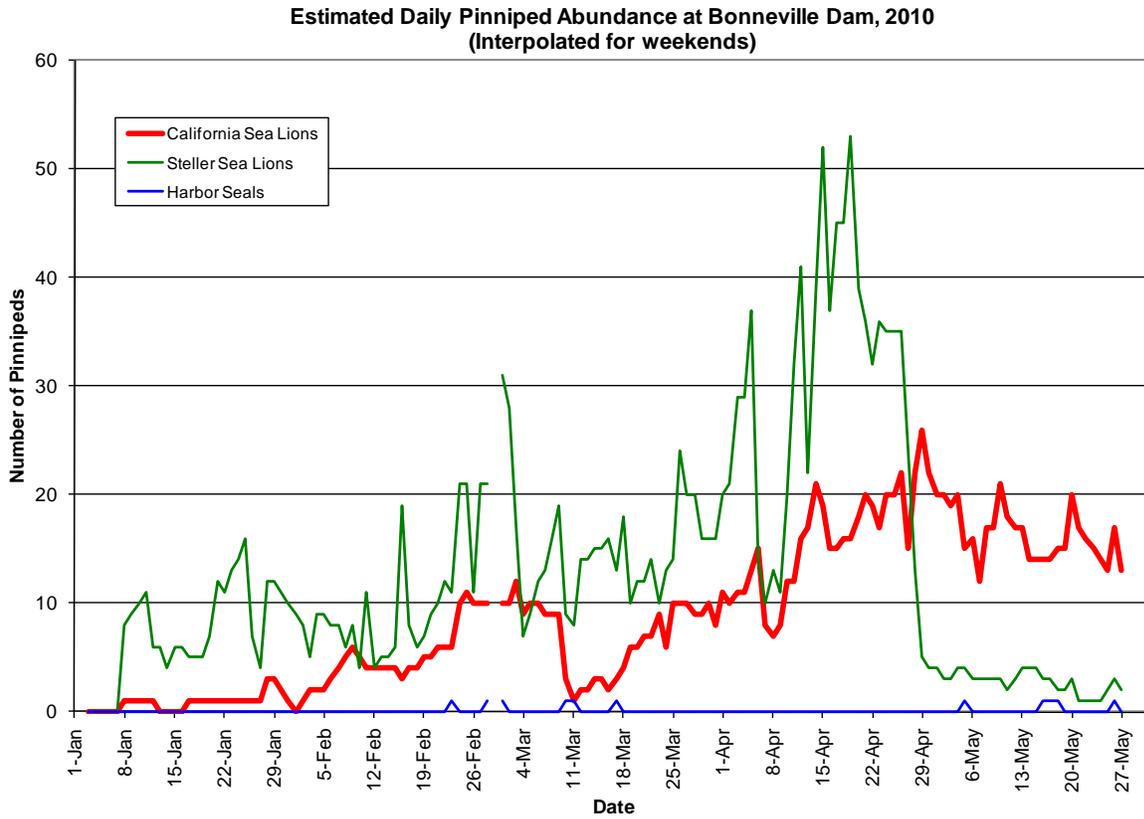


Figure 3. Average daily presence of pinnipeds, by species, to date (**May 20**) for each year at Bonneville Dam.

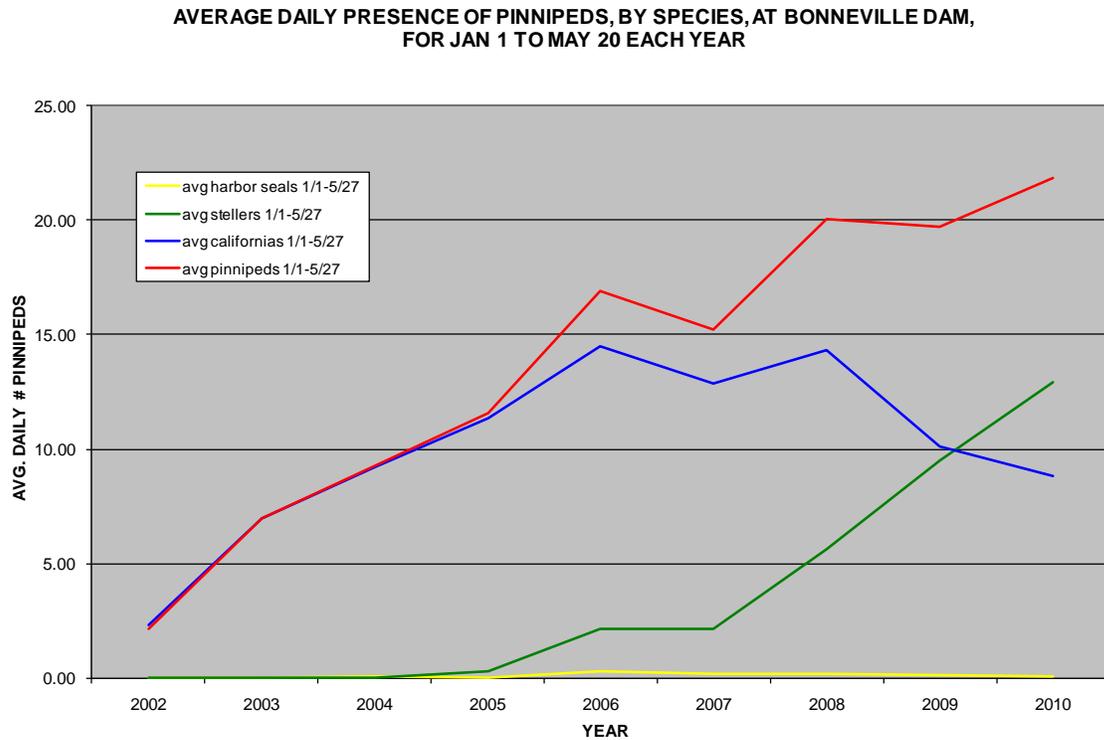


Figure 4. Major prey species taken by Pinniped species at Bonneville Dam, 2010.

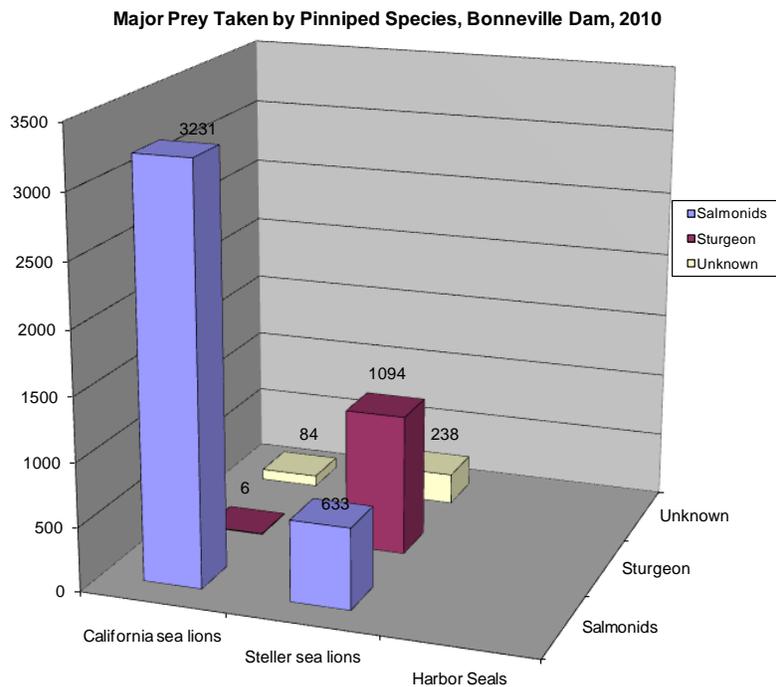


Figure 5. Major prey species taken by Pinnipeds by location, 2010.

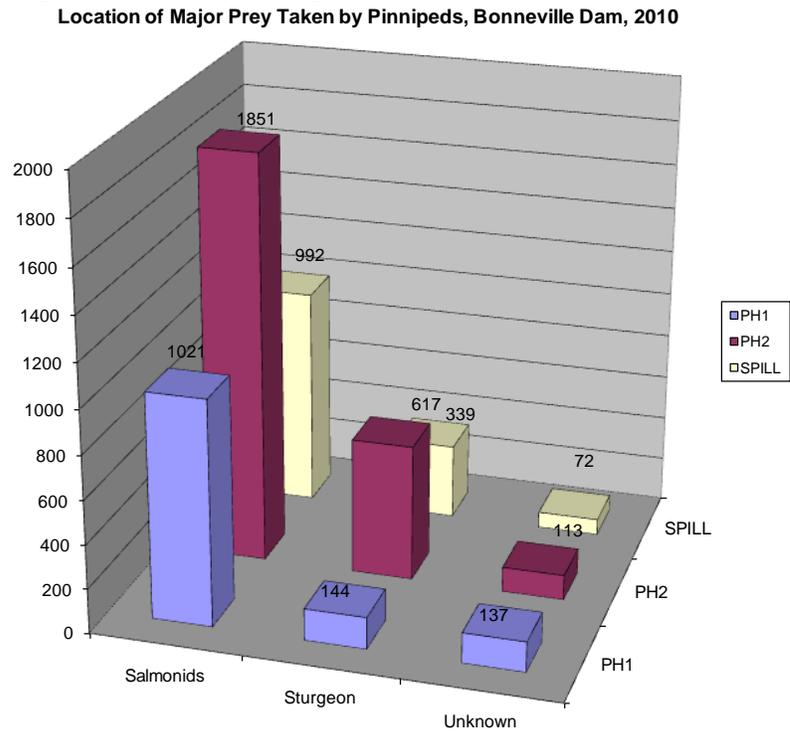


Figure 6. Daily cumulative observed sturgeon catch at Bonneville Dam, 2006-2010.

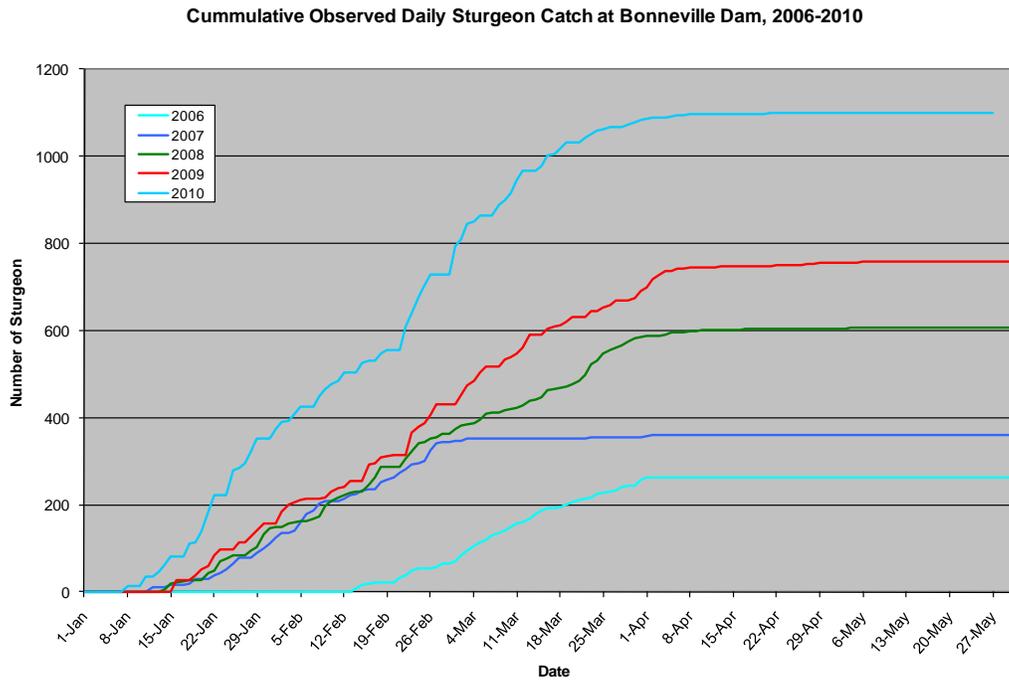


Figure 7. Size of sturgeon caught by pinnipeds at Bonneville Dam, 2006-2010.

Sturgeon Prey Size Distribution, Bonneville Dam, 2002-2010

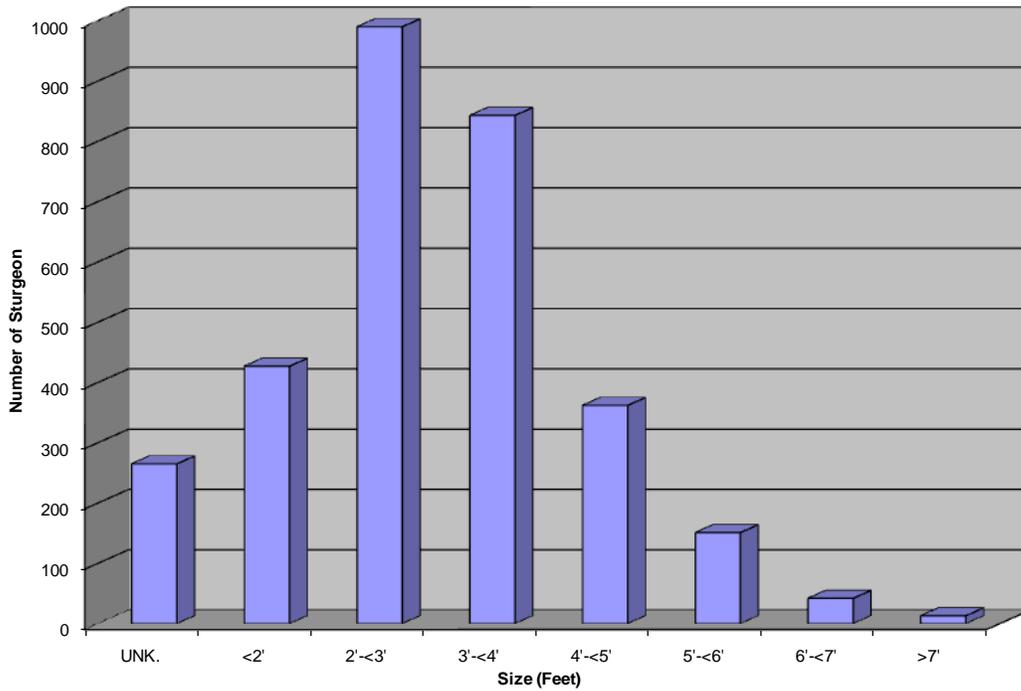


Figure 8. Daily cumulative salmonid catch (interpolated for weekends) at Bonneville Dam, 2002-2010.

Cummulative Salmonid Catch at Bonneville Dam, 2002-2010

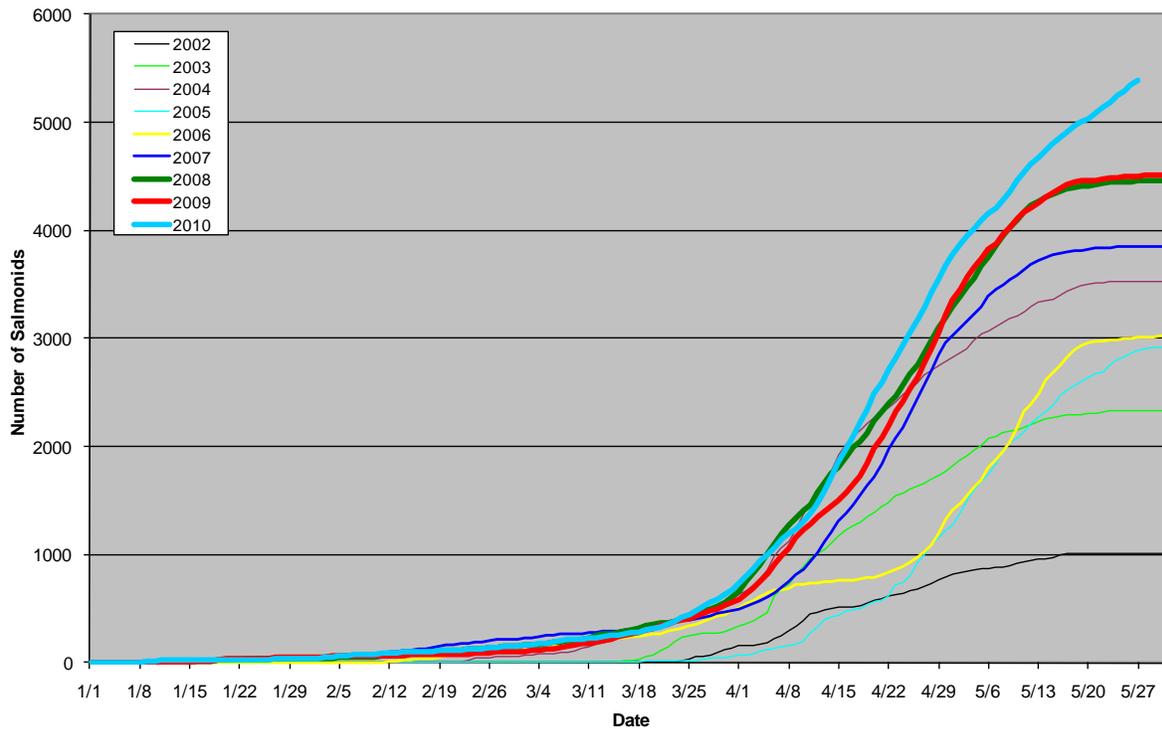


Figure 9. Weekly (average daily) California sea lion abundance at Bonneville Dam, 2002-2010.

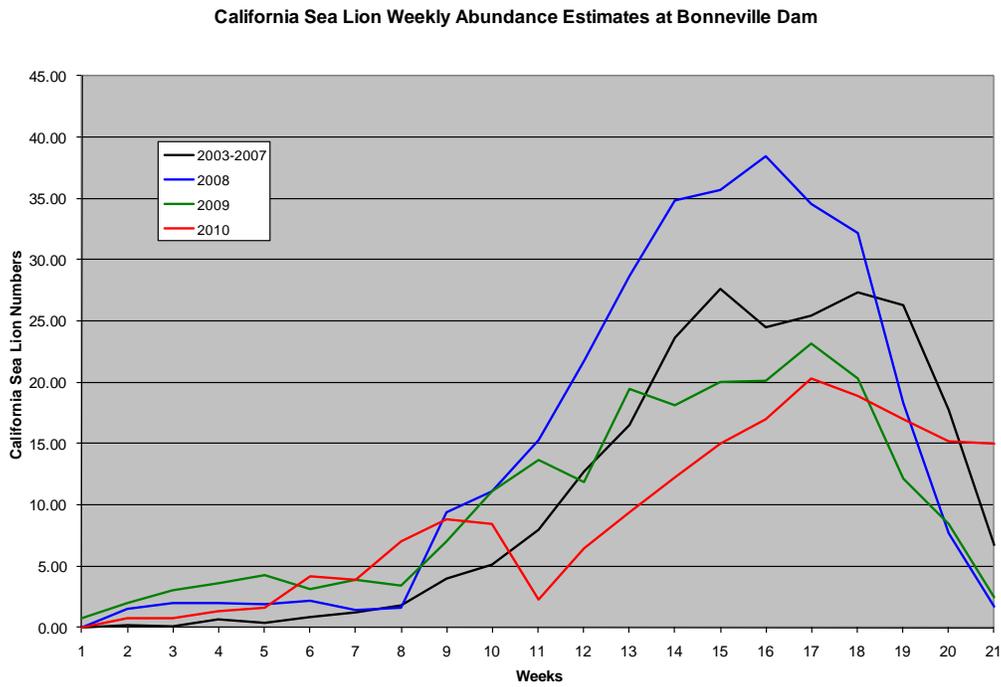


Figure 10. Weekly (average daily) Steller sea lion abundance at Bonneville Dam, 2002-2010.

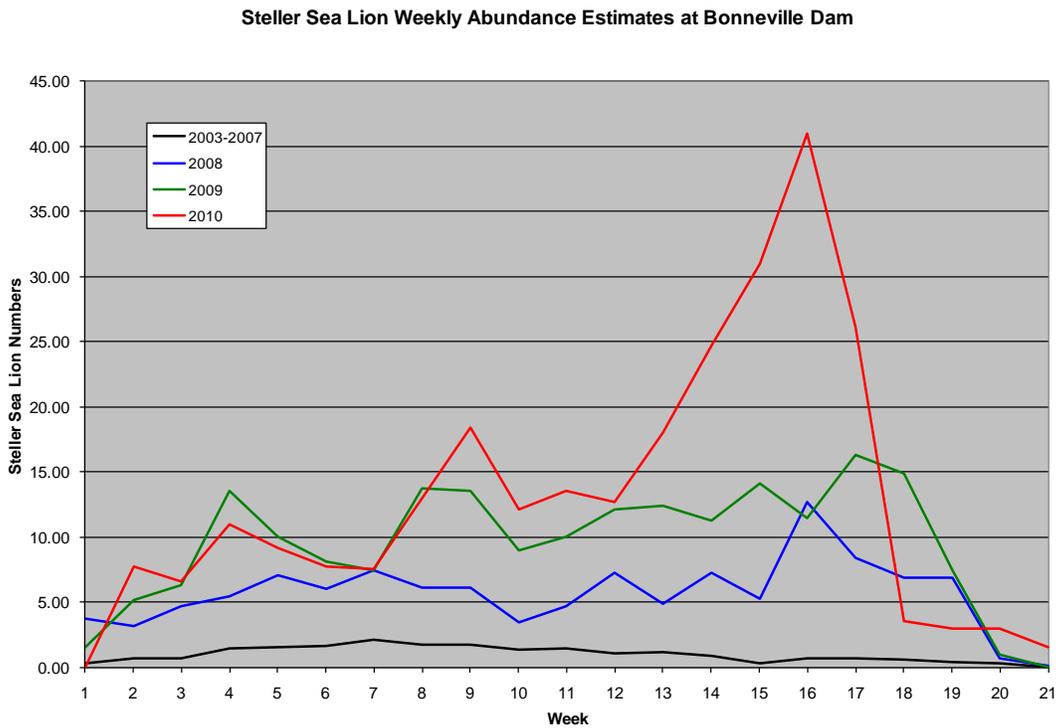


Figure 11. Weekly (average daily) salmonid consumption estimates by all pinnipeds at Bonneville Dam, 2002-2010.

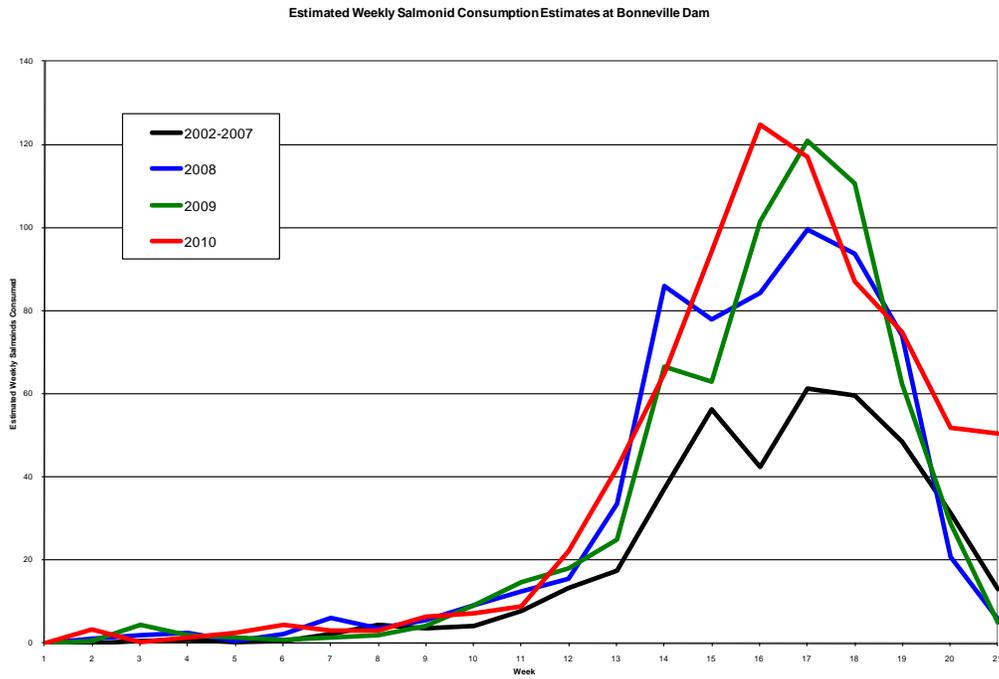


Figure 12. Unexpanded salmonid, sturgeon, and unknown prey caught by pinnipeds at Bonneville Dam in 2010.

