

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 **thirteenth** weekly status report of 2010 and summarizes all pinniped predation monitoring and deterrent activities at Bonneville Dam from January 1 through **May 13**, 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

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 are now more sea lions present per day on average so far 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). However, during this past two weeks, the Steller sea lion numbers dropped, a few weeks earlier than we have seen in the past few years. Even California sea lion numbers have now begun to drop also. 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 **78** 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, **32** individuals seen this year are currently on the list for removal, while data to support adding six more California sea lions to the list for potential removal was passed to the states this week. To date, **10** 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	2,562	571	3,133
Steelhead	204	31	235
Sturgeon	5	1095	1100
Lamprey	4	1	5
Shad	21	11	32
Other	4	4	8
Smolt	2	4	6
Pikeminnow	0	1	1
Unknown	75	238	313

Chinook passage was **11,742** on **April 21**. To date, **8,121** steelhead and **217,712** Chinook have passed Bonneville through **May 13**, and this is more than every year except 2002. Total salmonid catch to date (**4,676** expanded by interpolating for weekends) is already higher than any year monitored (Figure 8) with two more weeks to go 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 salmoinds taken has dropped the past few weeks (Figure 11). 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 (2.0%) is the lowest since 2003 and will only get lower as the season progresses. 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

ODFW and WDFW deployed four sea lion traps at the corner collector of Bonneville powerhouse two on February 12. The states did not trap any sea lions this week. They will try again next week and likely end trapping efforts at Bonneville by the end of next week, unless something changes. One trap was moved up into the forebay to try and trap the California sea lion up there and brand and release him below Bonneville if they do catch him.

To date, **15** California sea lions have been trapped, **10** removed and **5** released, and **8** Steller sea lions have been branded, tagged, and released. These traps are 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

The California sea lion observed in the forebay last week continues to be sighted at upstream sites this past week, including another sighting at The Dalles Dam by tribal fisherman and two days later at the ranger boat dock in the forebay of Bonneville Dam.

The number of California sea lions seen in the boat basin at Astoria is dropping as most animals appear to be leaving a bit earlier than usual, even though several remain at Bonneville.

To date, Steller sea lions have stole fish from California sea lions at least **431** times. California sea lions to date have been observed to catch **2,766** salmonids, and Steller sea lions have been observed to catch **602** 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 **2,335** salmonids consumed by California sea lions and about **1,033** 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.

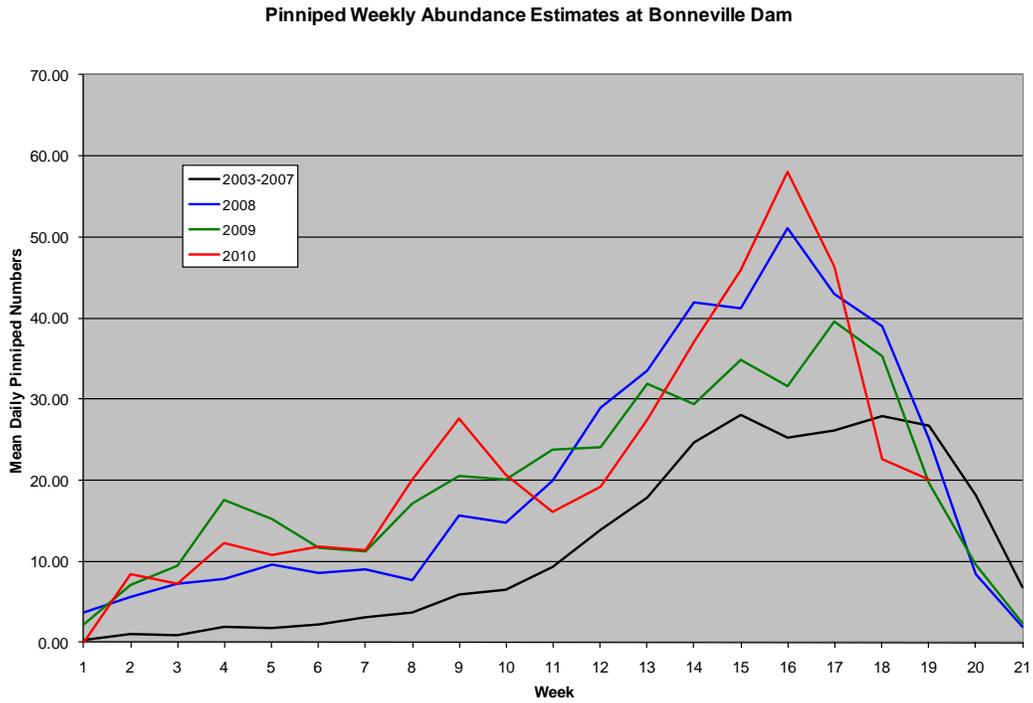


Figure 2. Daily pinniped abundance, by species, at Bonneville Dam, 2010.

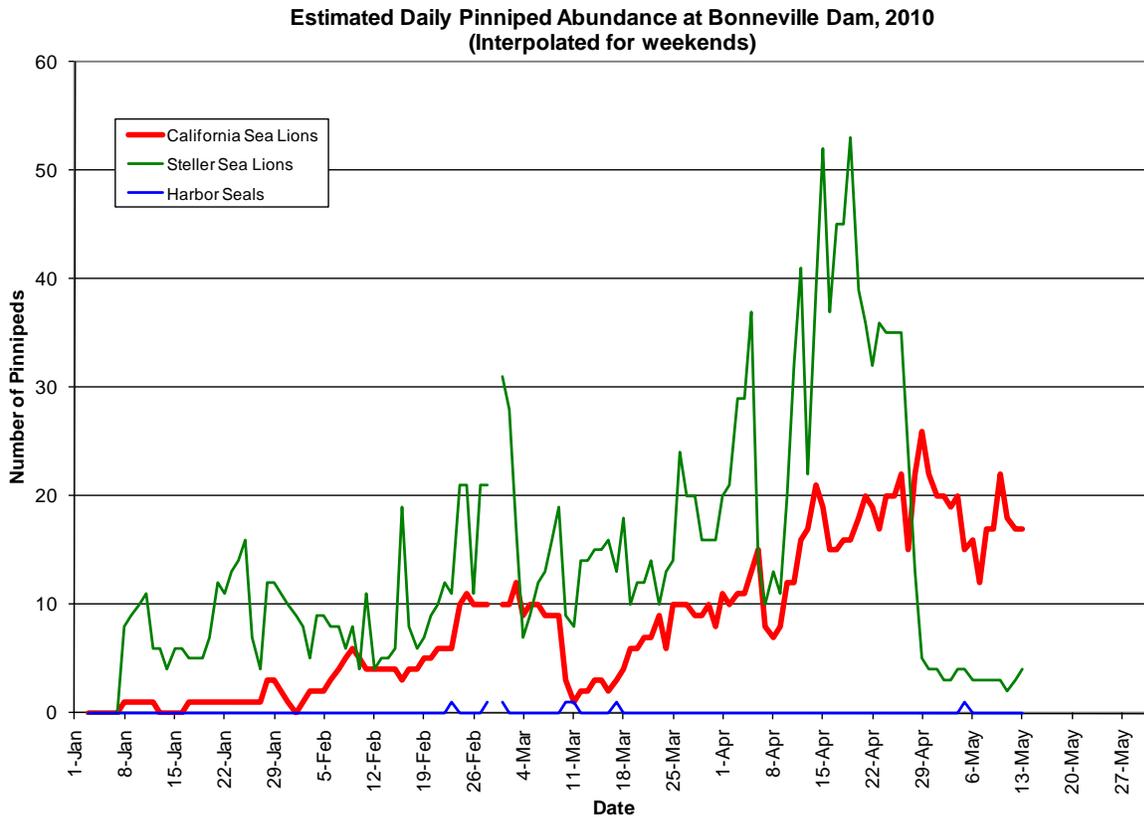


Figure 3. Average daily presence of pinnipeds, by species, to date (**May 13**) for each year at Bonneville Dam.

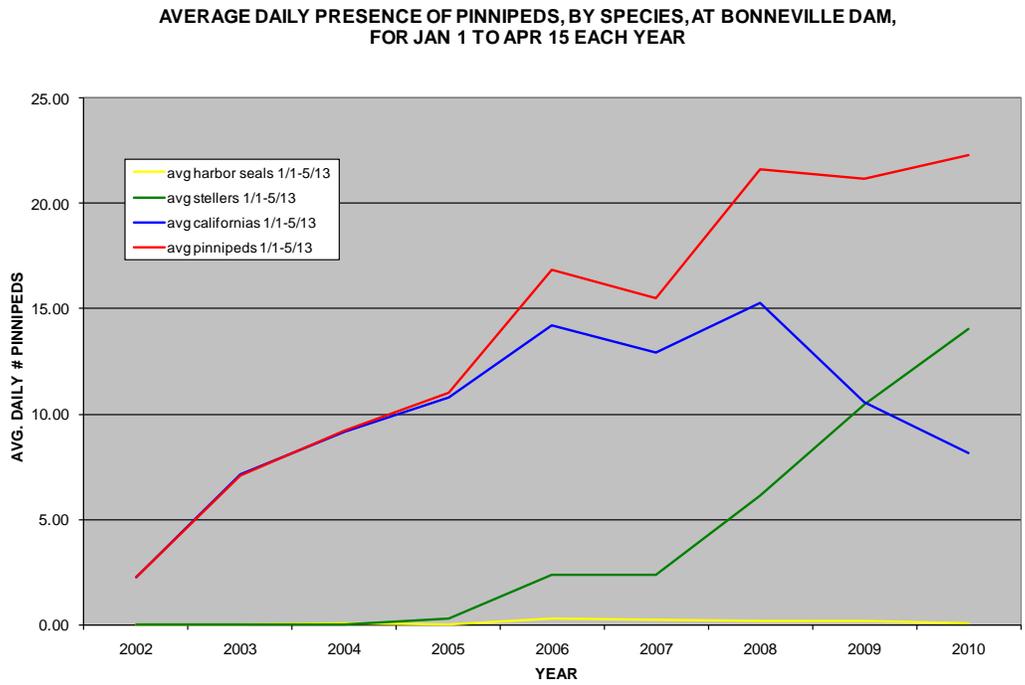


Figure 4. Major prey species taken by Pinniped species at Bonneville Dam, 2010.

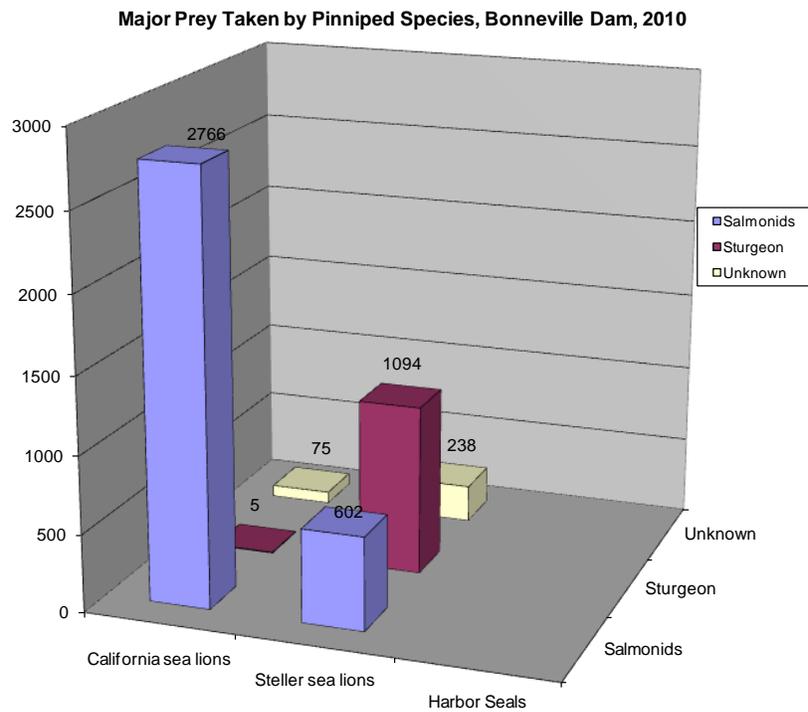


Figure 5. Major prey species taken by Pinnipeds by location, 2010.

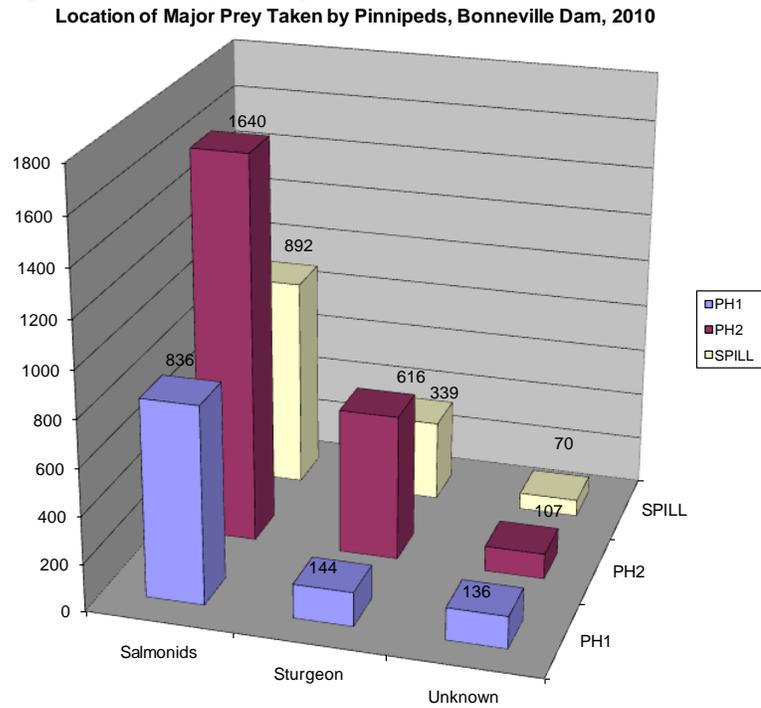


Figure 6. Daily cumulative observed sturgeon catch at Bonneville Dam, 2006-2010.

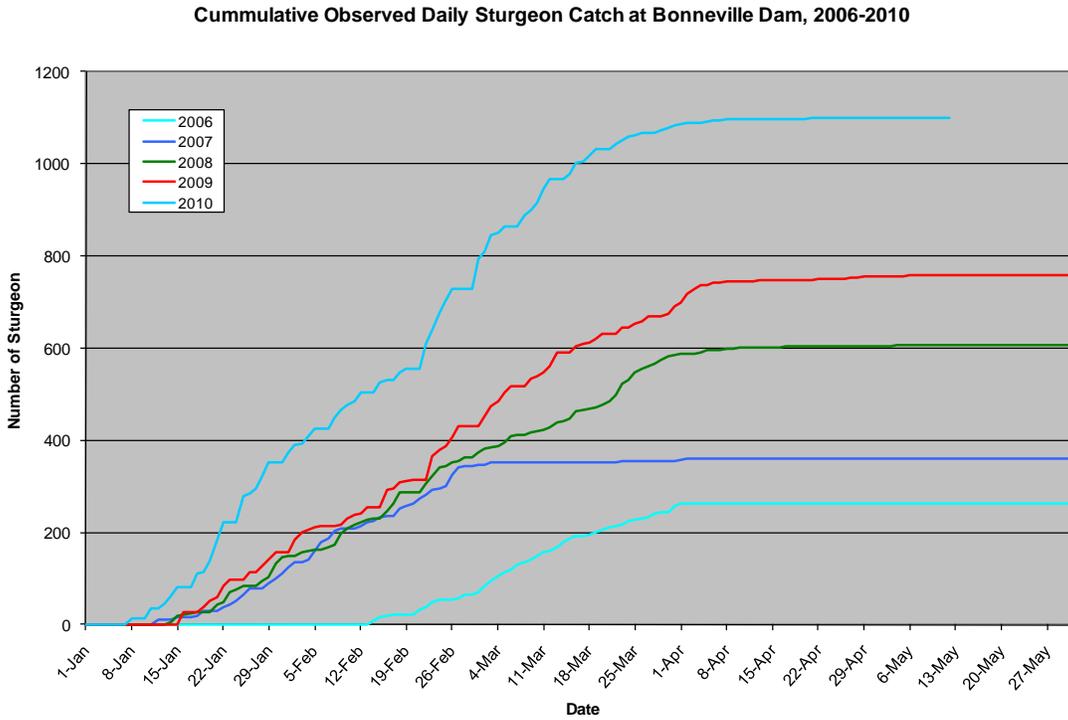


Figure 7. Size of sturgeon caught by pinnipeds at Bonneville Dam, 2006-2010.

Sturgeon Prey Size Distribution, Bonneville Dam, 2002-2010

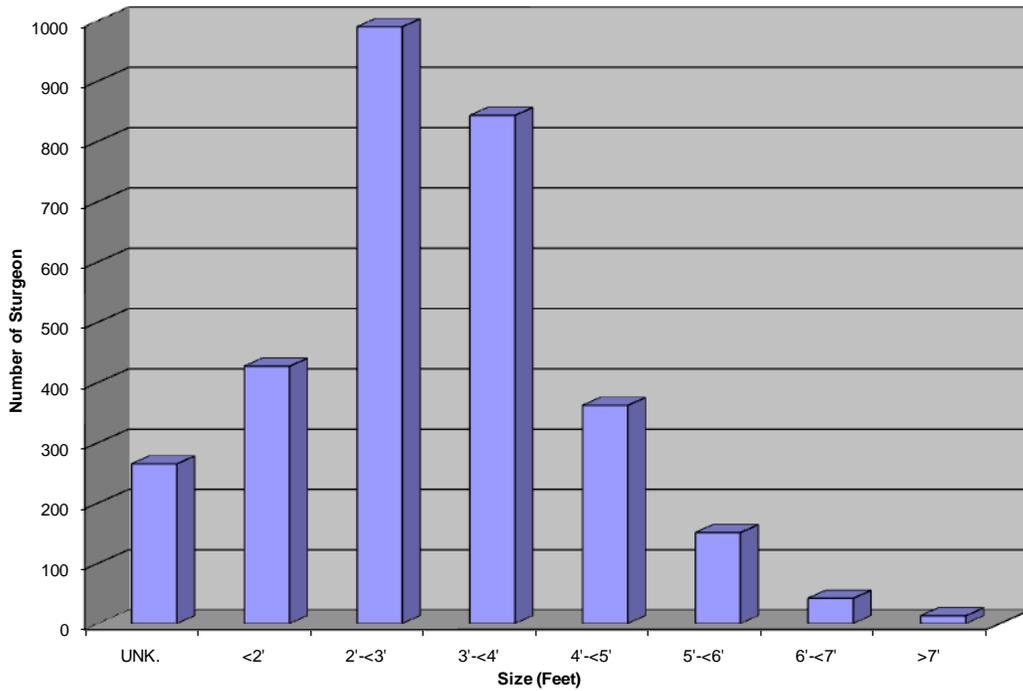


Figure 8. Daily cumulative salmonid catch (interpolated for weekends) at Bonneville Dam, 2002-2010.

Cummulative Salmonid Catch at Bonneville Dam, 2002-2010

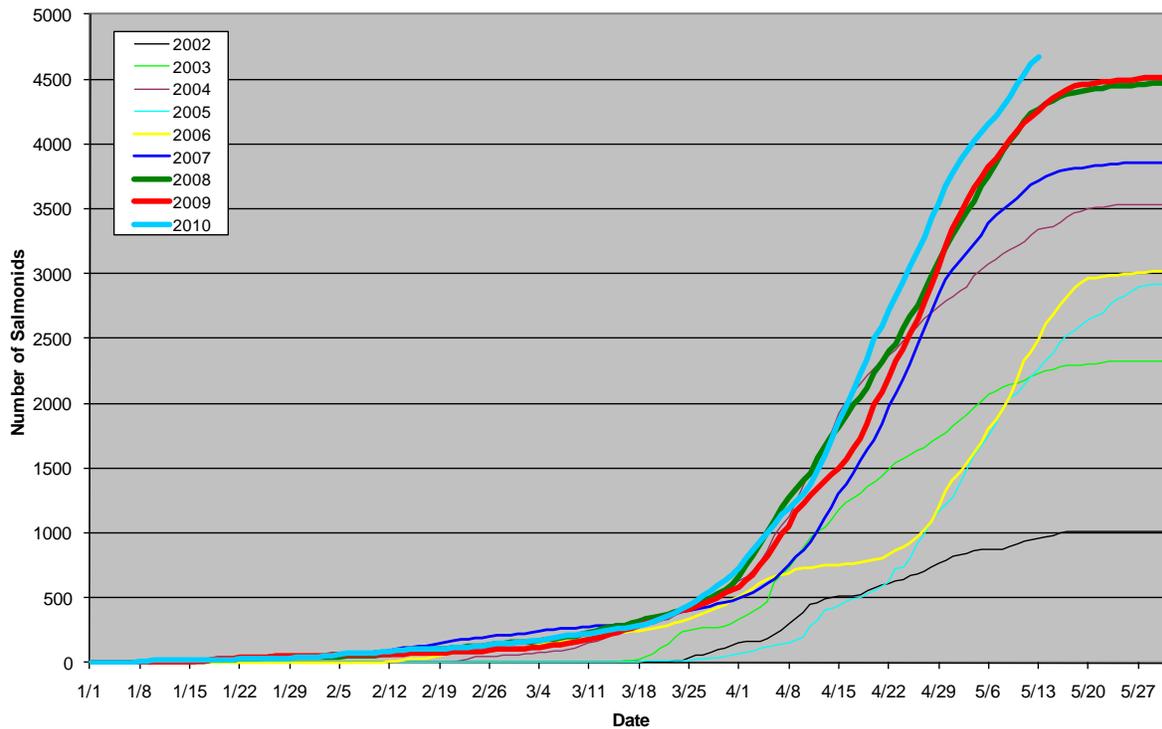


Figure 9. Weekly (average daily) California sea lion abundance at Bonneville Dam, 2002-2010.

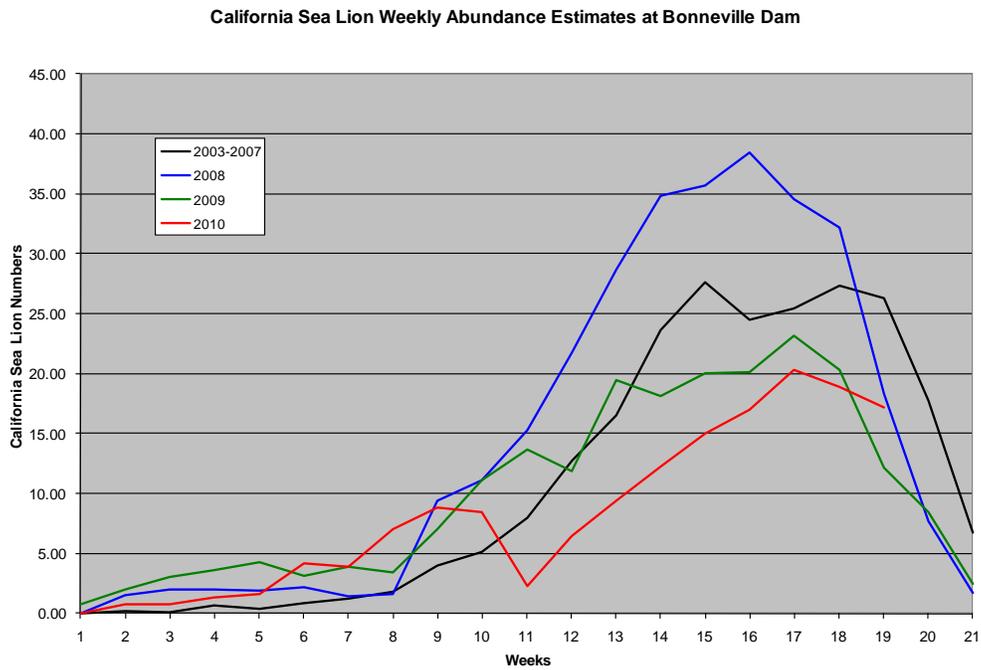


Figure 10. Weekly (average daily) Steller sea lion abundance at Bonneville Dam, 2002-2010.

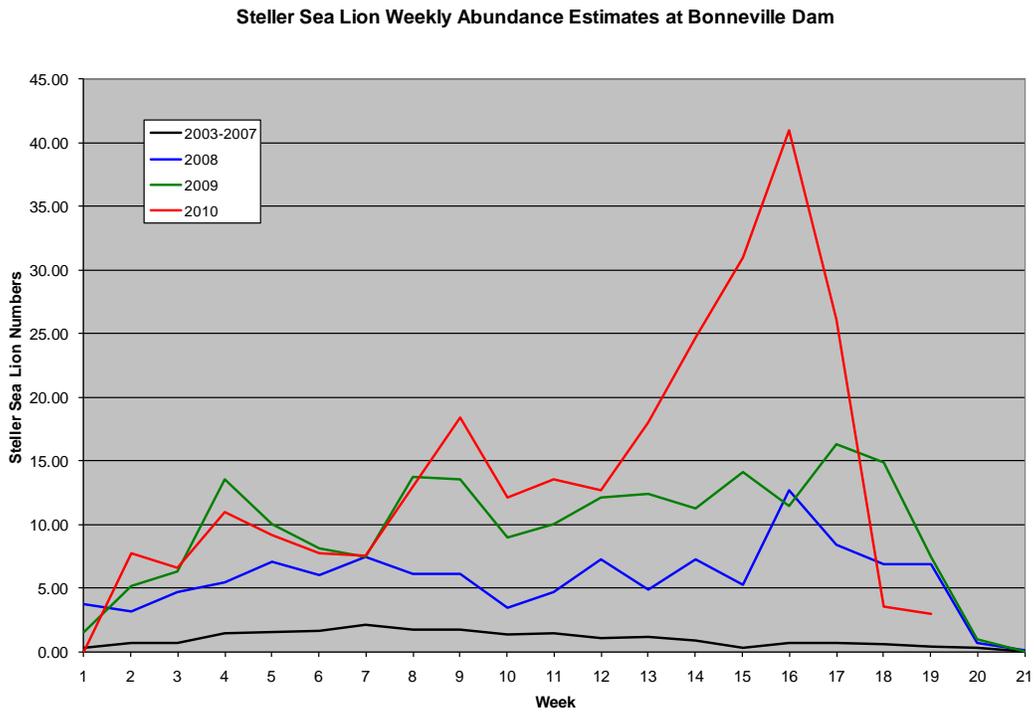


Figure 11. Weekly (average daily) salmonid consumption estimates by all pinnipeds at Bonneville Dam, 2002-2010.

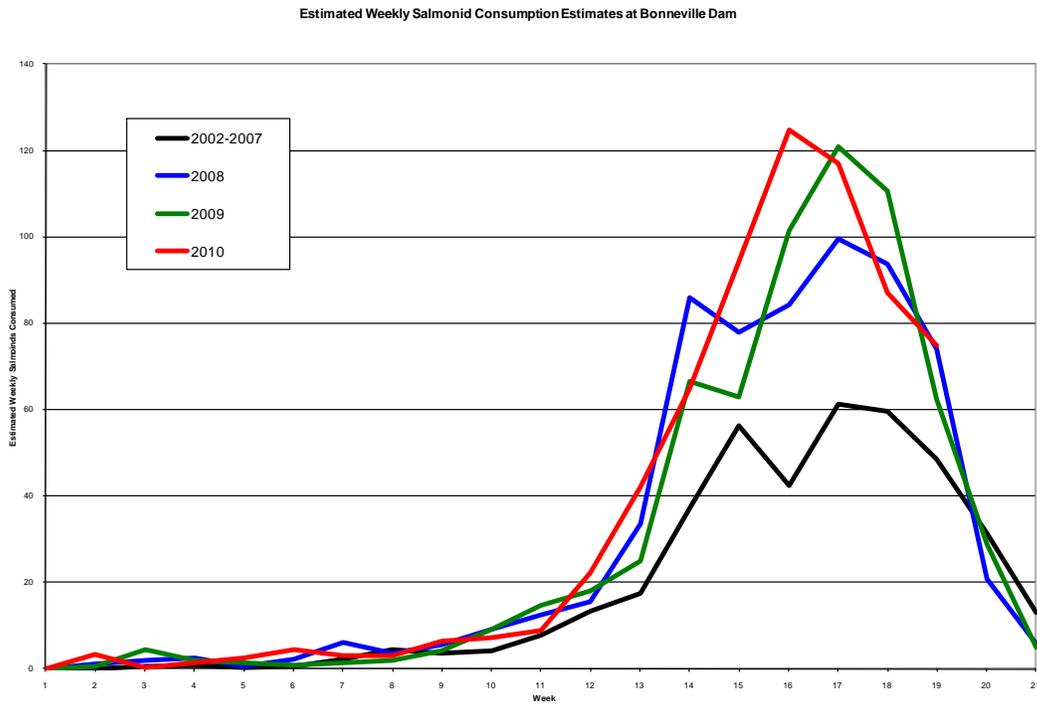


Figure 12. Unexpanded salmonid, sturgeon, and unknown prey caught by pinnipeds at Bonneville Dam in 2010.

