

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

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

This is the **twelfth** weekly status report of 2010 and summarizes all pinniped predation monitoring and deterrent activities at Bonneville Dam from January 1 through **May 5**, 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 **70** different California sea lions, at least **53** Steller sea lions, and one 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. To date, **10** have been removed this year.

CRITFC completed their early testing of the camera and recording systems and moved the set up to the south end of Powerhouse 2 last week. They will record and attempt to verify and ground truth sea lion presence and predation sightings with our observers. 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	2,152	546	2,698
Steelhead	203	31	234
Sturgeon	5	1095	1100
Lamprey	3	1	4
Shad	21	11	32
Other	4	4	8
Smolt	2	4	6
Pikeminnow	0	1	1
Unknown	65	238	303

Chinook passage was **11,742** on **April 21**. To date, **7,170** steelhead and **176,966** Chinook have passed Bonneville through **May 6**, and this is more than every year except 2002. Total salmonid catch to date (**4,088** expanded by interpolating for weekends) is higher at this point than any year monitored (Figure 8). Weekly salmonids taken increased some the past week (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 (2.2%) is the lowest since 2004 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 trapped and released three Steller sea lions on May 4 (O006-8, acoustic tags, satellite tags, and depth recording tags) and two California sea lions (C667 and C02, acoustic tag and satellite tag). An additional California sea lion (C00) was trapped, on the list for removal, and euthanized.

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 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

The California sea lion observed in the forebay last week continues to be sighted at upstream sites this past week, including one sighting at The Dalles Dam preying on a salmonid as reported by our avian predation observers.

Bryan Wright (ODFW) reported on April 30 that two tagged Steller sea lions (O-003 and O-005) were already headed down the Oregon coastline, which coincides with the large drop in Steller sea lion presence observed here at Bonneville the past week or two. O-001 was in Astoria, while O-002 and O-004 were still at Bonneville (-2 last seen April 30, -4 May 3). Matt Tennis, PSMFC (pers. Comm.) has reported 220 California sea lions in the boat basin at Astoria recently, up from about 150 previously, so it does appear that many of the California sea lions are starting to leave as are the Steller sea lions.

To date, Steller sea lions have stole fish from California sea lions at least **394** times. California sea lions to date have been observed to catch **2,355** salmonids, and Steller sea lions have been observed to catch **577** 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 **1,961** salmonids consumed by California sea lions and about **971** 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.

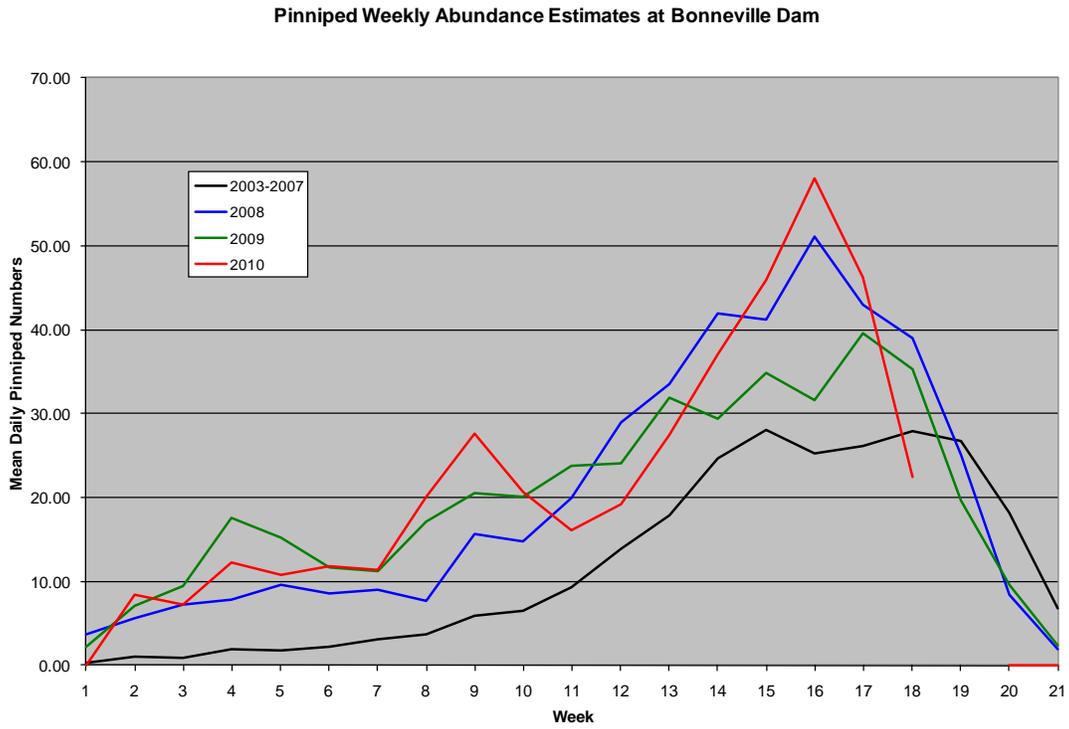


Figure 2. Daily pinniped abundance, by species, at Bonneville Dam, 2010.

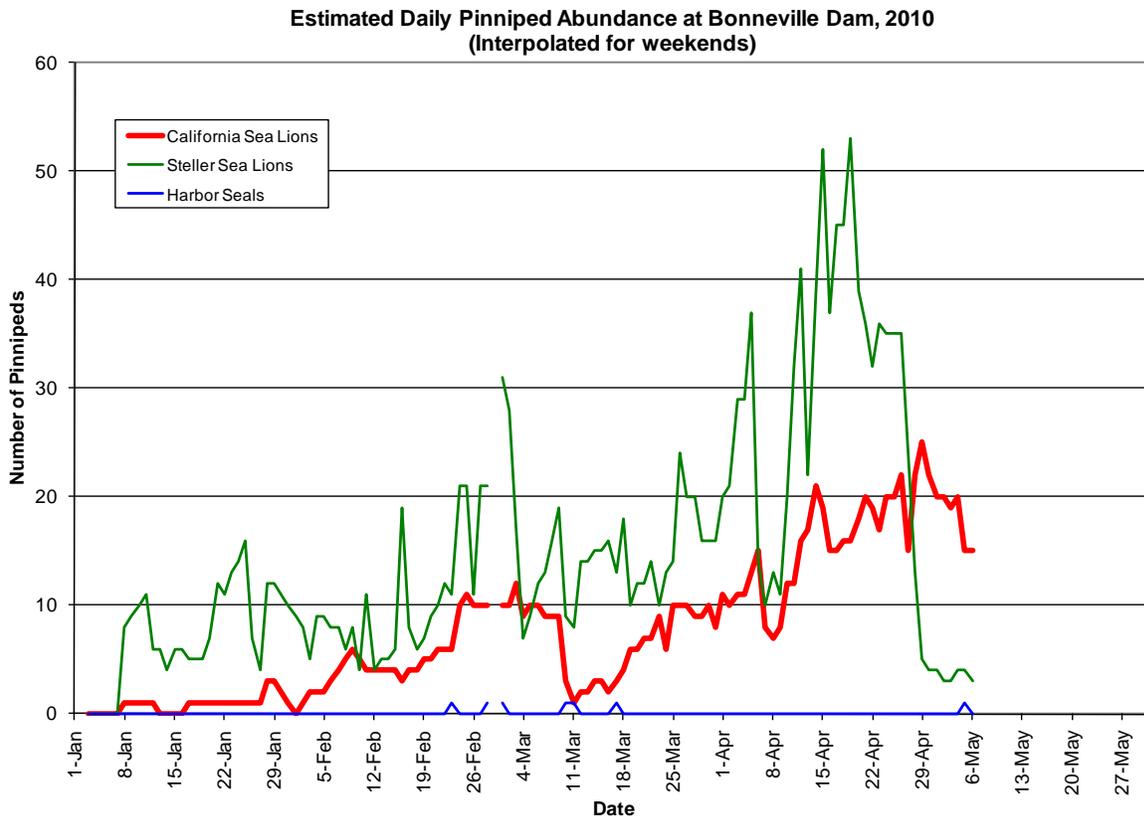


Figure 3. Average daily presence of pinnipeds, by species, to date (**April 29**) for each year at Bonneville Dam.

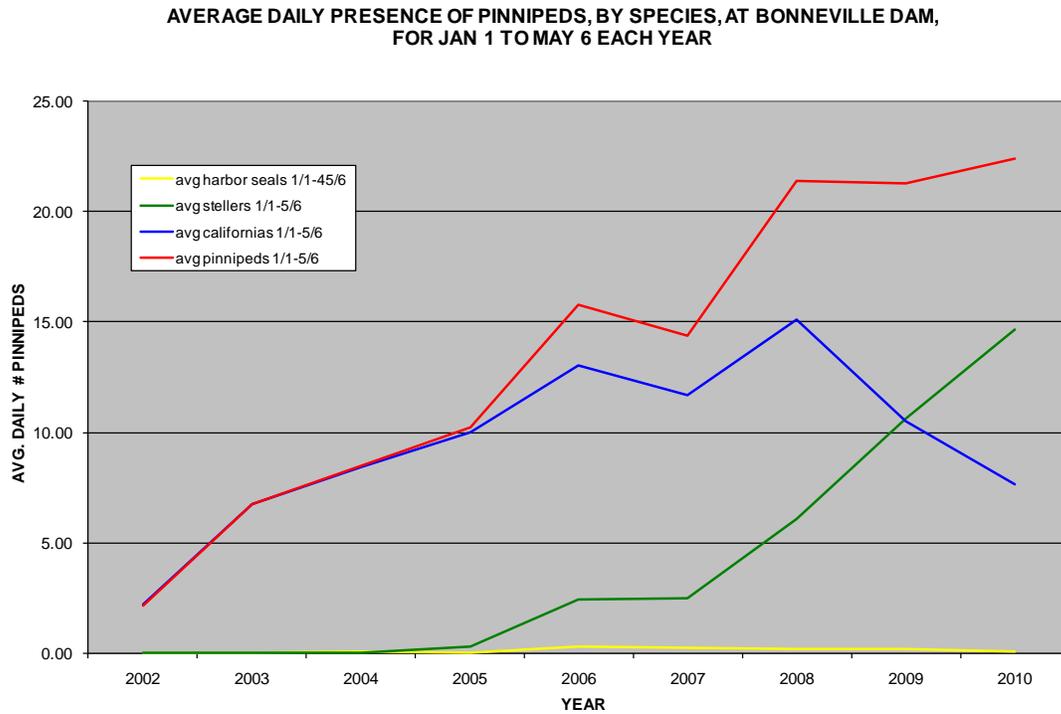


Figure 4. Major prey species taken by Pinniped species at Bonneville Dam, 2010.

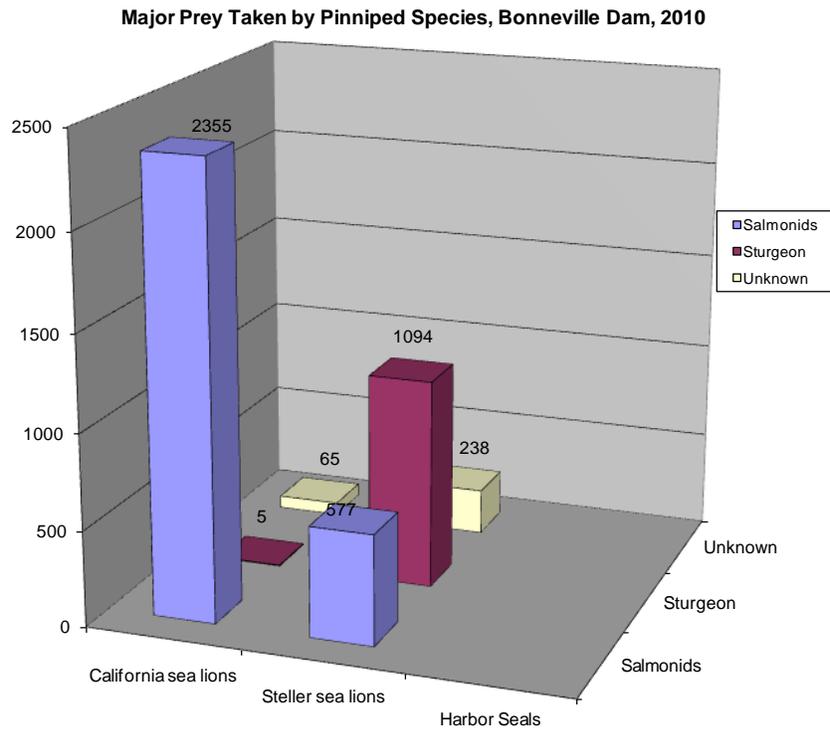


Figure 5. Major prey species taken by Pinnipeds by location, 2010.

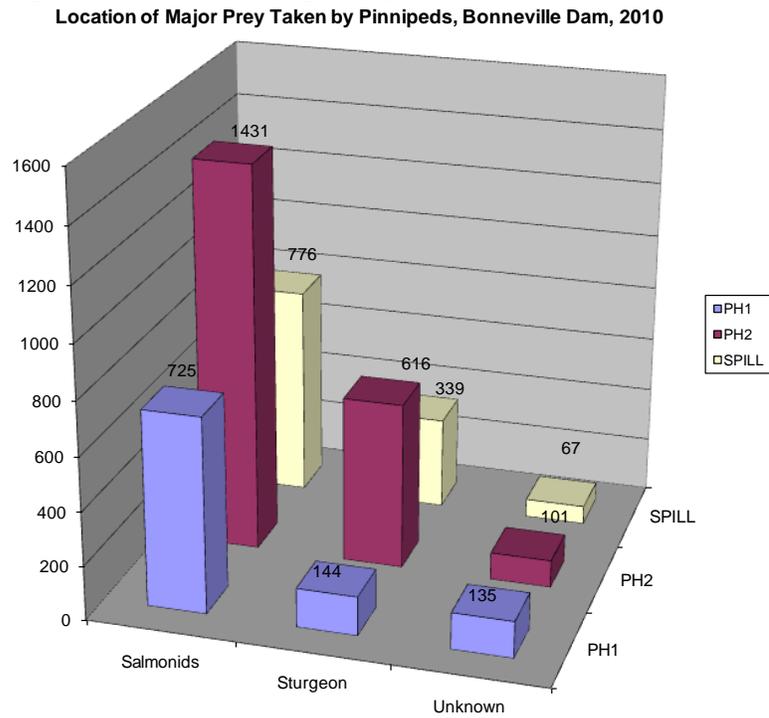


Figure 6. Daily cumulative observed sturgeon catch at Bonneville Dam, 2006-2010.

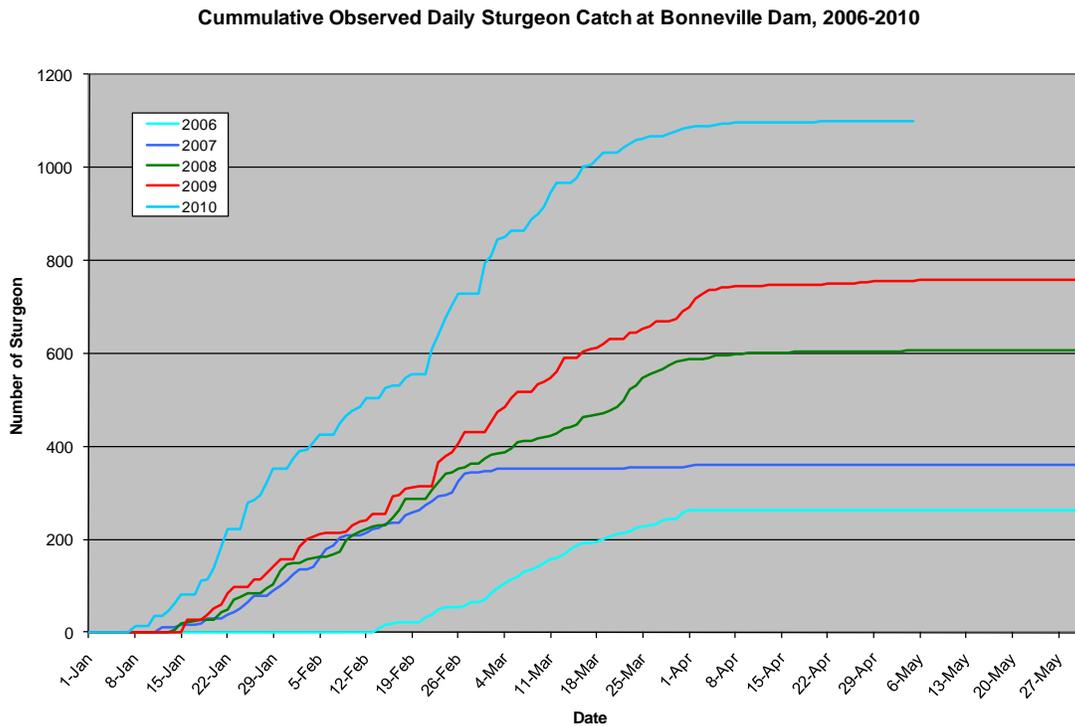


Figure 7. Size of sturgeon caught by pinnipeds at Bonneville Dam, 2006-2010.

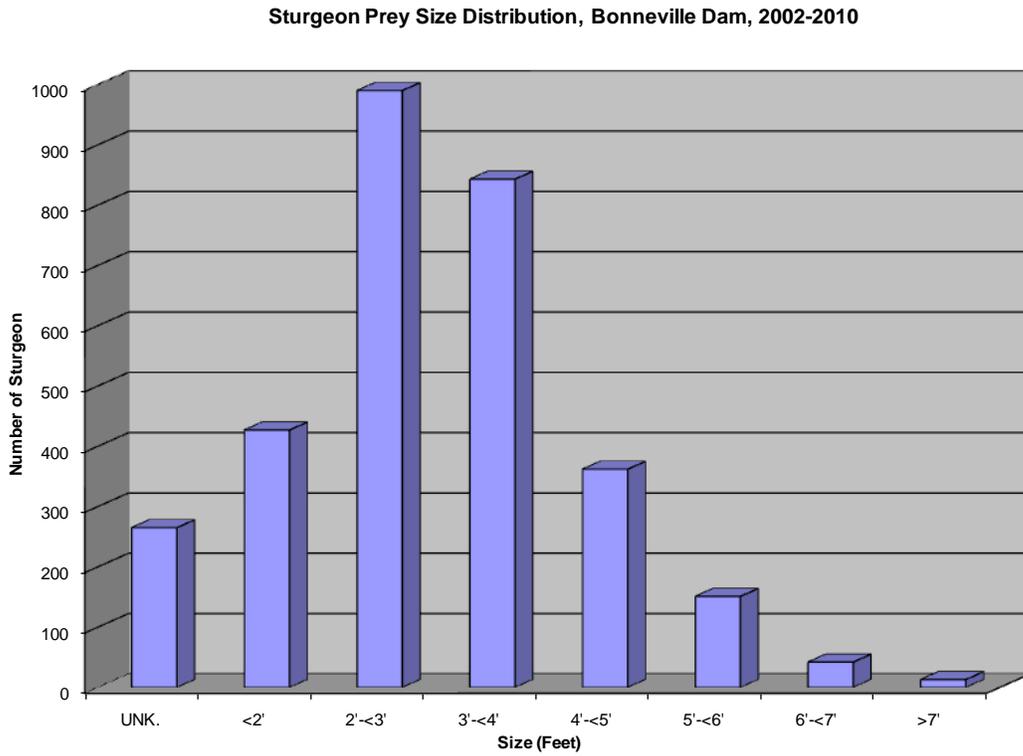


Figure 8. Daily cumulative salmonid catch (interpolated for weekends) at Bonneville Dam, 2002-2010.

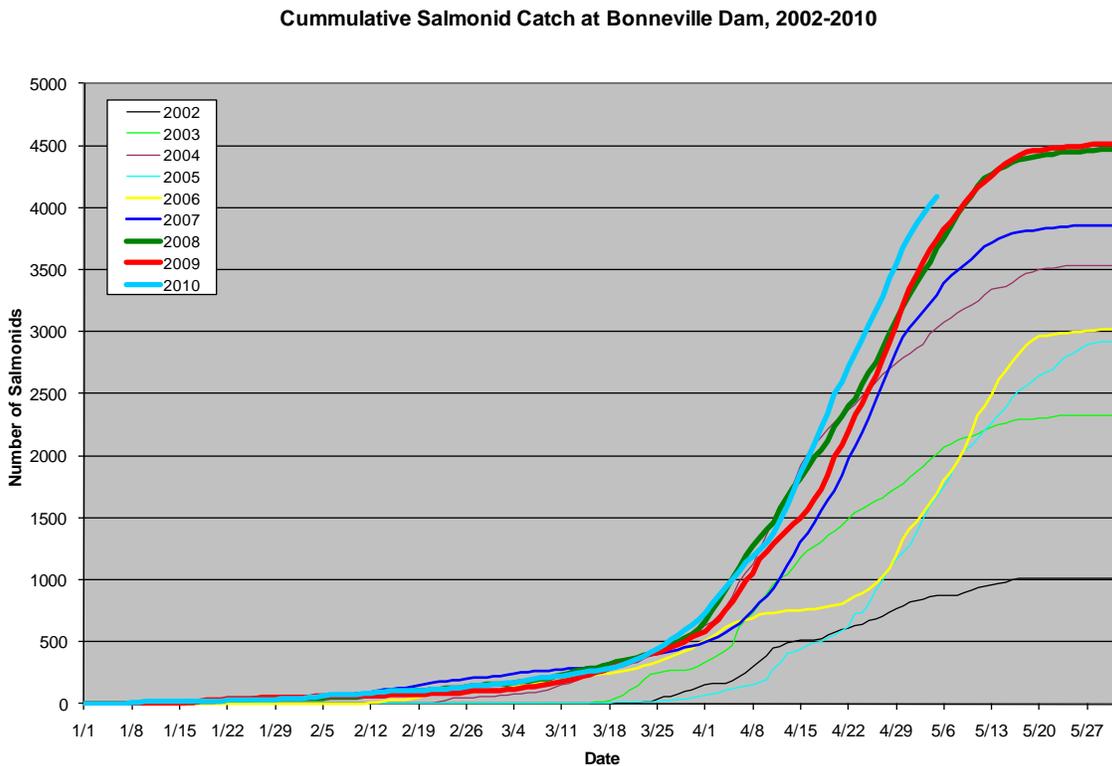


Figure 9. Weekly (average daily) California sea lion abundance at Bonneville Dam, 2002-2010.

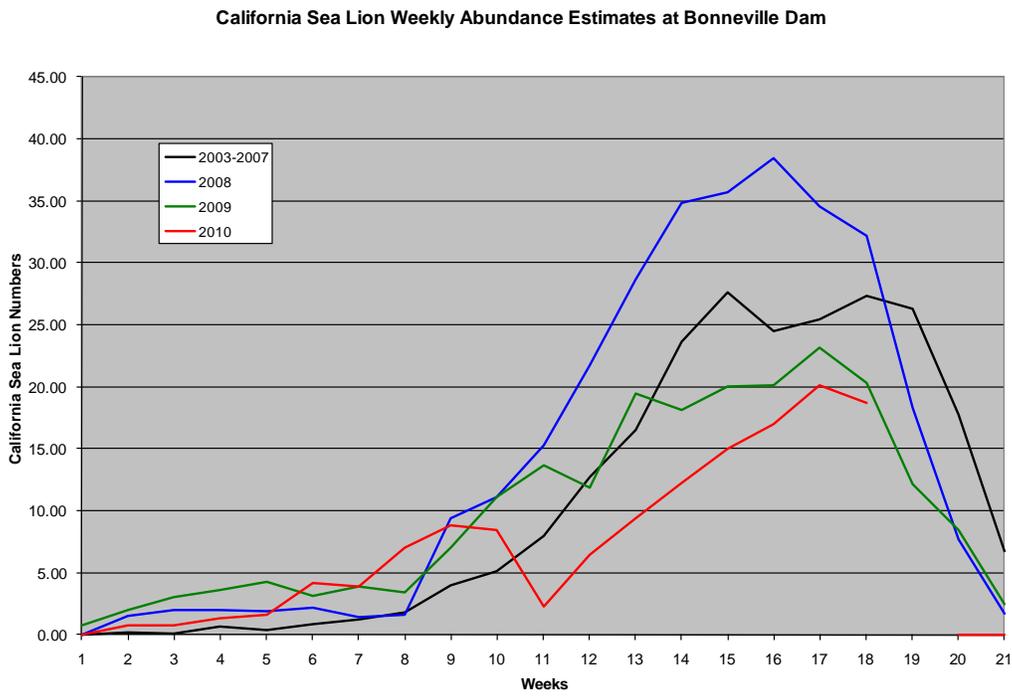


Figure 10. Weekly (average daily) Steller sea lion abundance at Bonneville Dam, 2002-2010.

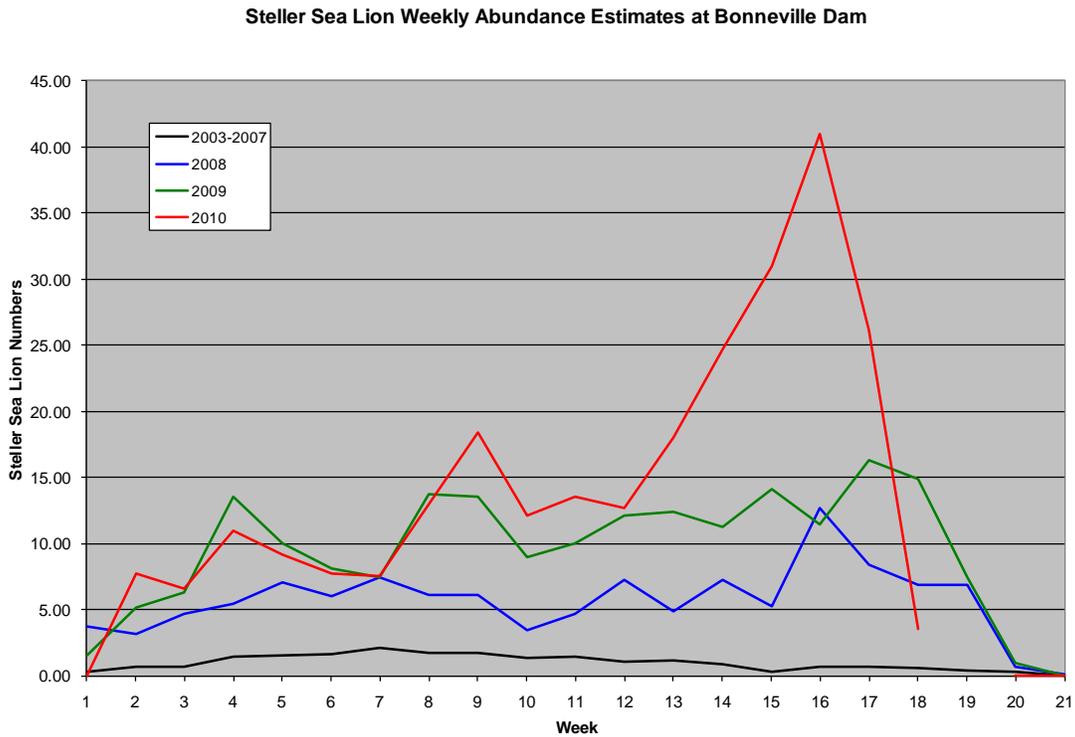


Figure 11. Weekly (average daily) salmonid consumption estimates by all pinnipeds at Bonneville Dam, 2002-2010.

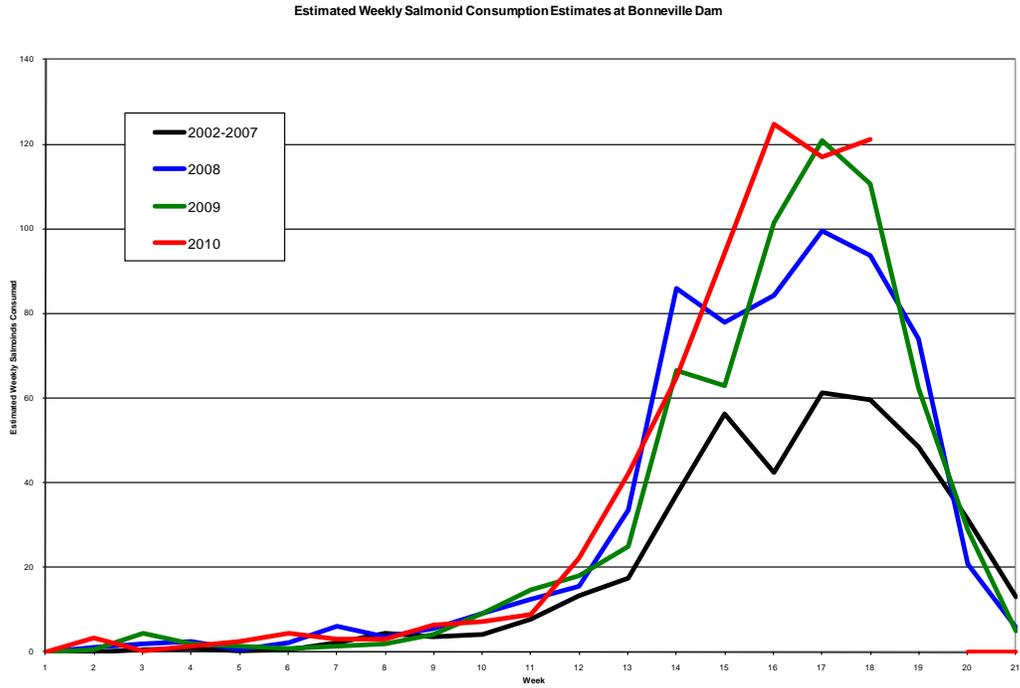


Figure 12. Unexpanded salmonid, sturgeon, and unknown prey caught by pinnipeds at Bonneville Dam in 2010.

