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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This is the third weekly status report of 2010 and summarizes all pinniped predation monitoring and deterrent activities at Bonneville Dam from January 1 through March 3, 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 will add 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 31 Steller sea lions (*Eumetopias jubatus*) and 12 California sea lions (*Zalophus californianus*) at the dam on any given day (see Figures 1 and 2). There are about the same number of sea lions present per day on average so far this year as last year (Figure 3). The highest daily abundance estimate for all pinnipeds at Bonneville dam was 43 on March 1. We have seen at least 13 different California sea lions, 33 Steller sea lions, and one harbor seal (*Phoca vitulina*) since full-time monitoring began. At least ten of the California sea lions (C417, C653, C697, C805, C926, B194, B254, B258, B267, B295) have been seen in previous years and nine are on the list for removal.

Tons (literally) of Steller sea lions (Figure 11) and a few California sea lions have been observed hauling out on the four traps by the corner collector (traps installed February 12) over the past week.

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:

	California Sea Lions	Steller Sea Lions	Total
Chinook	0	0	0
Steelhead	102	12	114
Sturgeon	2	844	846
Lamprey	0	0	0
Shad	20	10	30
Other	4	2	6
Unknown	2	111	113

It is likely that most unknown fish caught by Steller sea lions are sturgeon, while those unknown fish caught by California sea lions were Steelhead (Figure 4). The Steller sea lions are catching much of the fish at the downstream range of our viewing area, making fish identification very difficult. Most sturgeon have been caught in powerhouse 2 tailrace, followed by the spillway then powerhouse 1 (Figure 5). Observed sturgeon catch has already exceeded last years total, with three more weeks of heavy sturgeon predation likely to still come (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). Few fish are passing the count stations (1544 steelhead, 8 Chinook, -11 coho through March 1) since January 1, but this is much more than what had passed by this point in the past three years. Total salmonid catch to date (169 expanded by interpolating for weekends) is slightly more than it was last year, being similar to 2008 and less than 2007 (Figure 8).

DETERRENTS/TRAPPING

ODFW and WDFW deployed four sea lion traps at the corner collector of Bonneville powerhouse two on February 12. The states trapped C653, who was on the removal list, at the dam on March 3 and euthanized the animal later that day. 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. At this time, there are no definite sites willing to take sea lions captured into captivity. 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 since C404 did it a few years back.

Hazing by the states from boats began in January has been conducted on 17 days up through February 24. Boat hazing continues to have some limited, local, short term impact in reducing predation in the tailrace, primarily by Stellers on sturgeon, during this time of year. USDA hazing will began this week and will continue for seven days a week until the end of May.

OTHER ITEMS OF INTEREST

While preparing data and charts for a presentation last week, I was making graphs that illustrated the point that the heaviest Chinook predation by sea lions at Bonneville is typically occurring about two weeks before the main Chinook passage period (Figure 9) and could be disproportionately adversely impacting early Chinook stocks. When I looked at the past four years, a very interesting trend was evident. Since 2006, the predominant period of predation on Chinook salmon has occurred earlier and earlier each year (Figure 10), while the passage period for Chinook passage, at least for those years, remained relatively similar to 2009. I am not sure of the cause of this, but thought the regional managers may be interested due to the potential impact to early spring Chinook stocks.

Figure 1. Daily minimum pinniped abundance (weekends interpolated) at Bonneville Dam, 2002-2010.

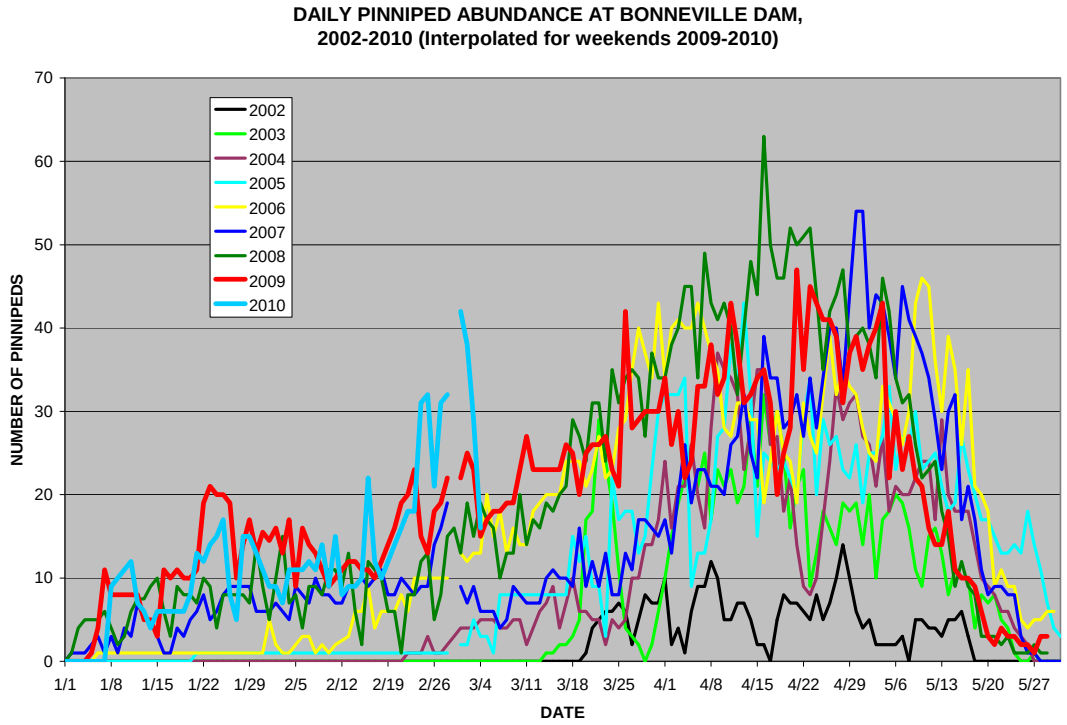

Figure 2. Daily pinniped abundance, by species, at Bonneville Dam, 2010.

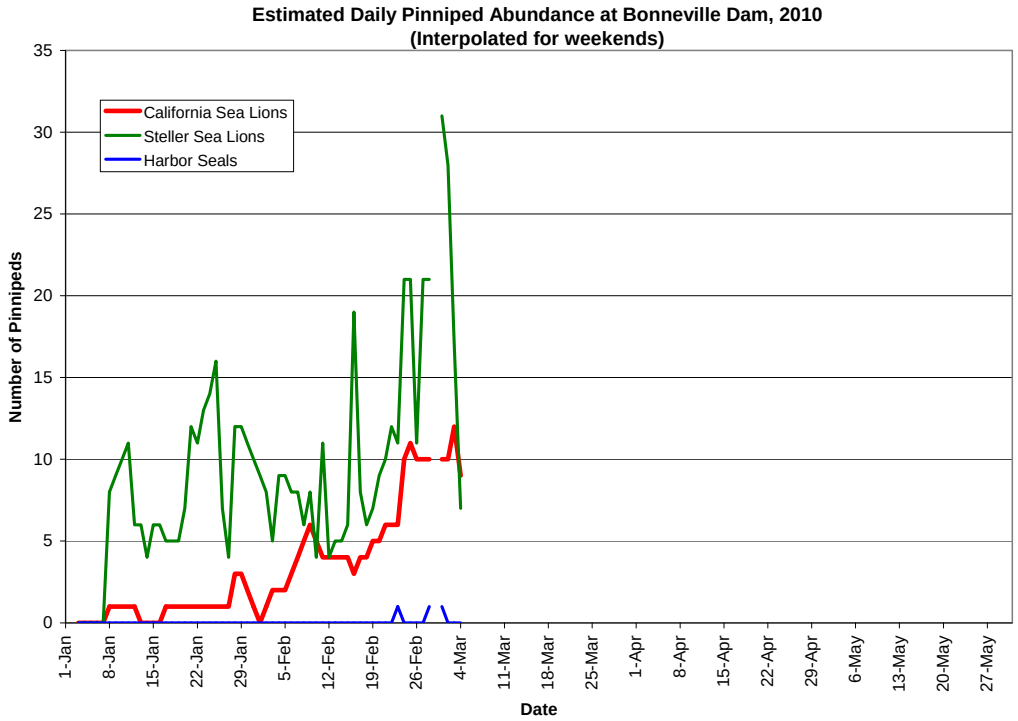

Figure 3. Average daily presence of pinnipeds, by species, to date (February 17) for each year at Bonneville Dam.

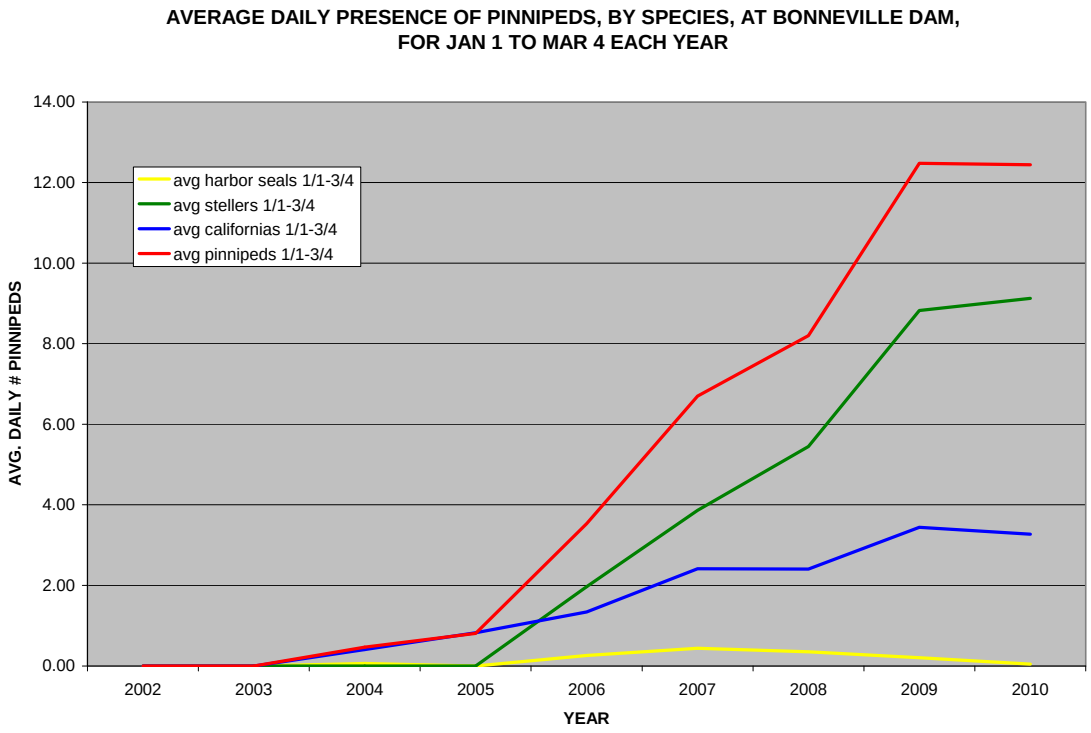

Figure 4. Major prey species taken by Pinniped species at Bonneville Dam, 2010.

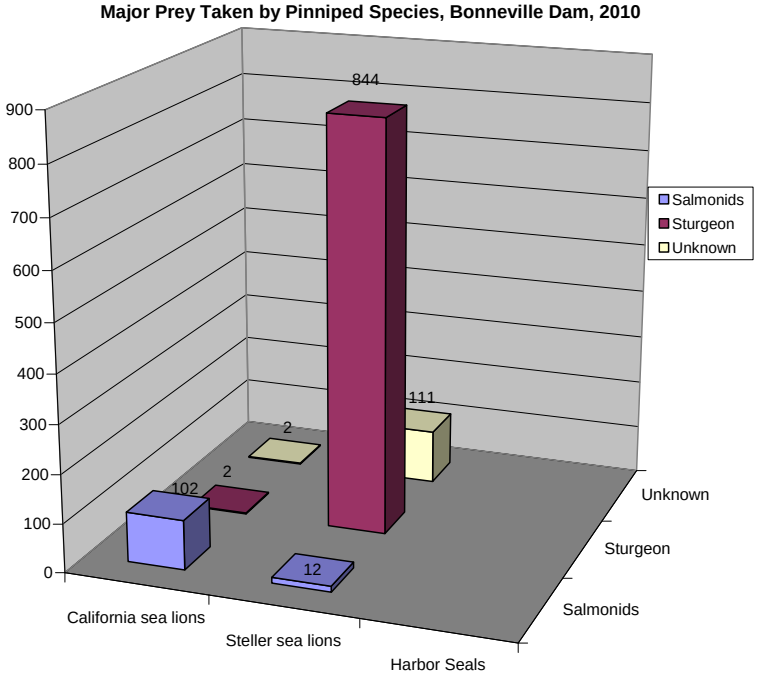

Figure 5. Major prey species taken by Pinnipeds by location, 2010.

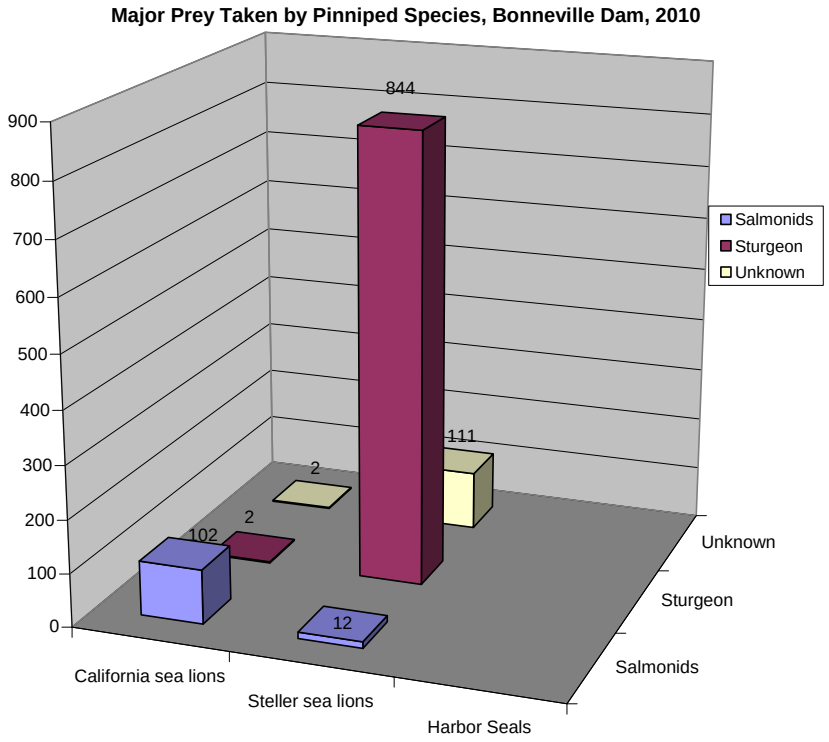

Figure 6. Daily cumulative sturgeon catch (interpolated for weekends) at Bonneville Dam, 2006-2010.

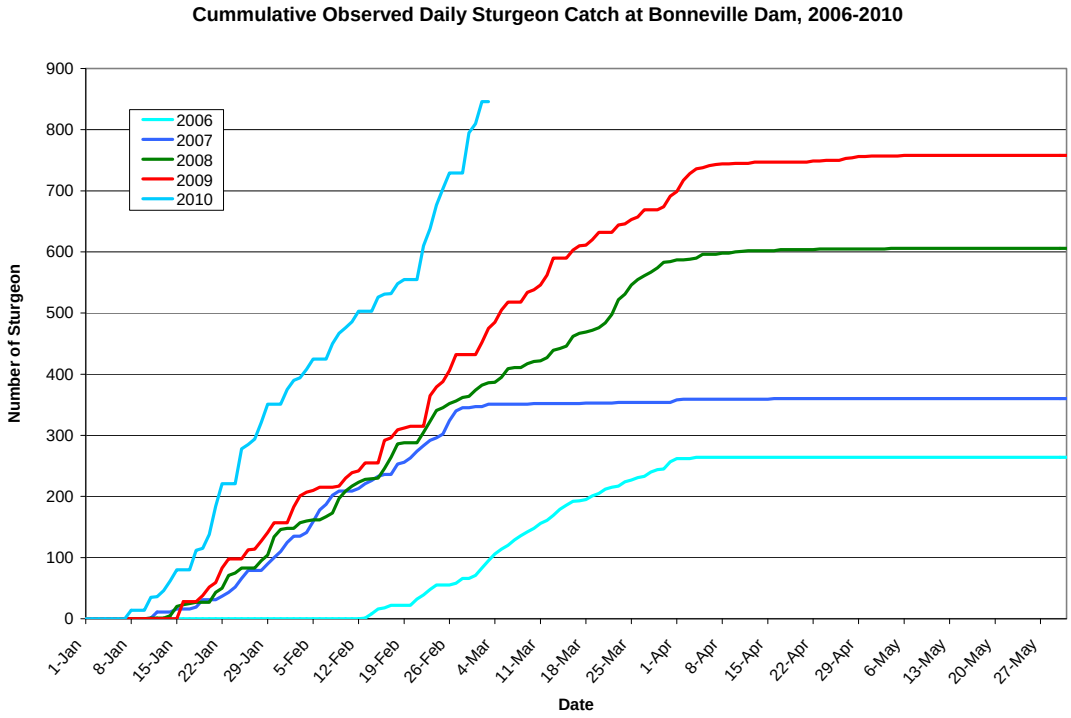

Figure 7. Size of sturgeon caught by pinnipeds at Bonneville Dam, 2006-2010.

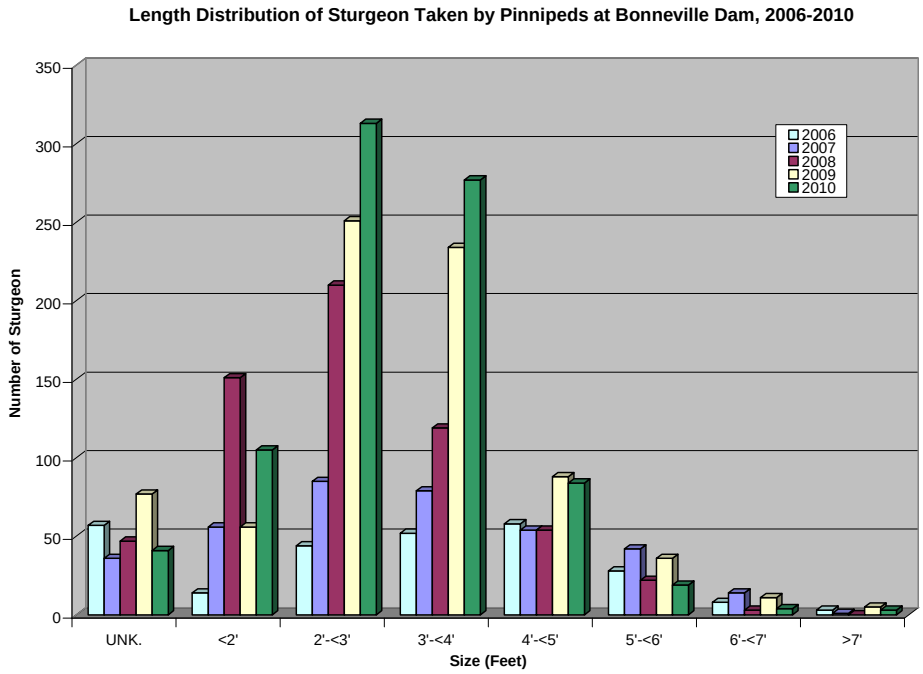

Figure 8. Daily cummulative salmonid catch (interpolated for weekends) at Bonneville Dam, 2002-2010.

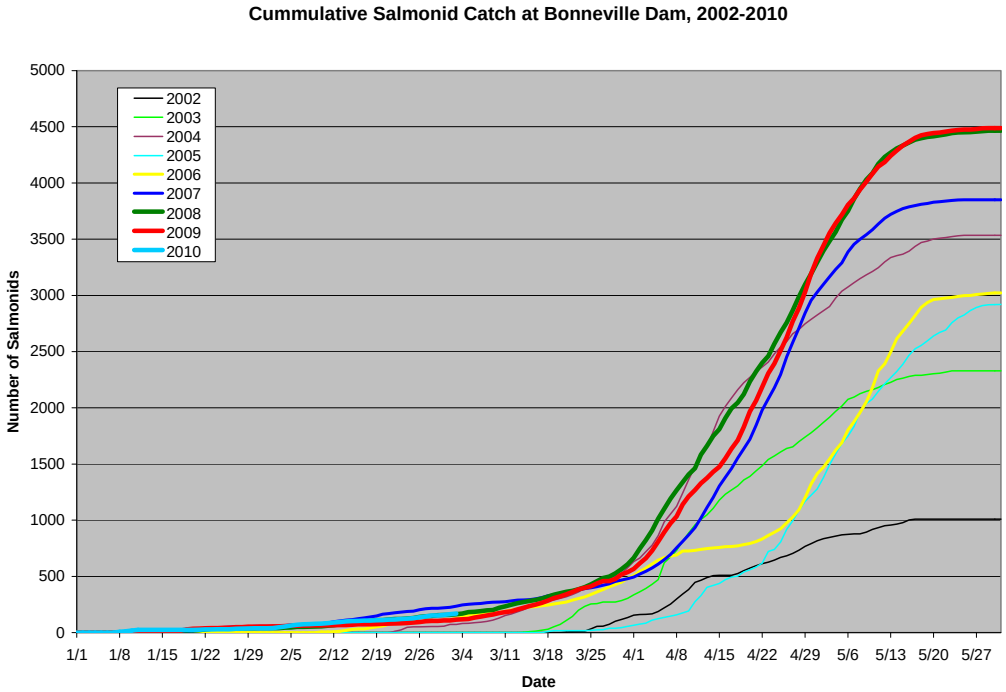

Figure 9. Daily salmonid passage and pinniped predation counts at Bonneville Dam, 2002-2009.

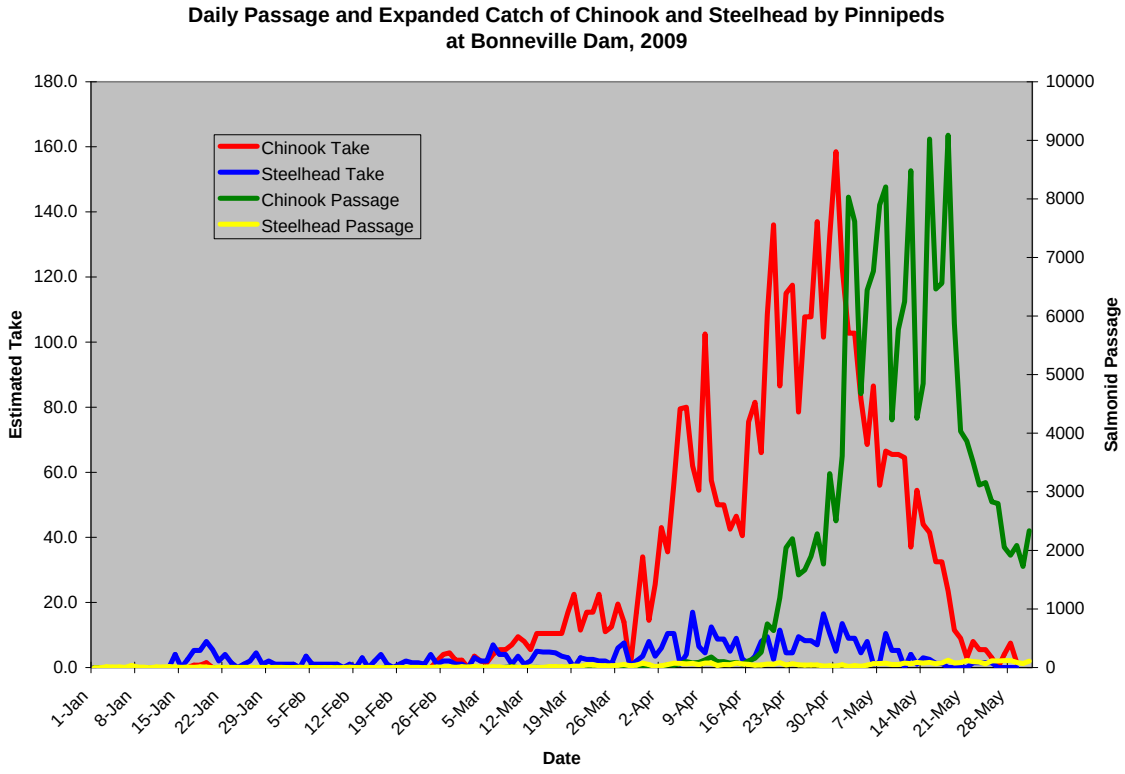

Figure 10. Daily Chinook predation at Bonneville Dam, 2006-2009.

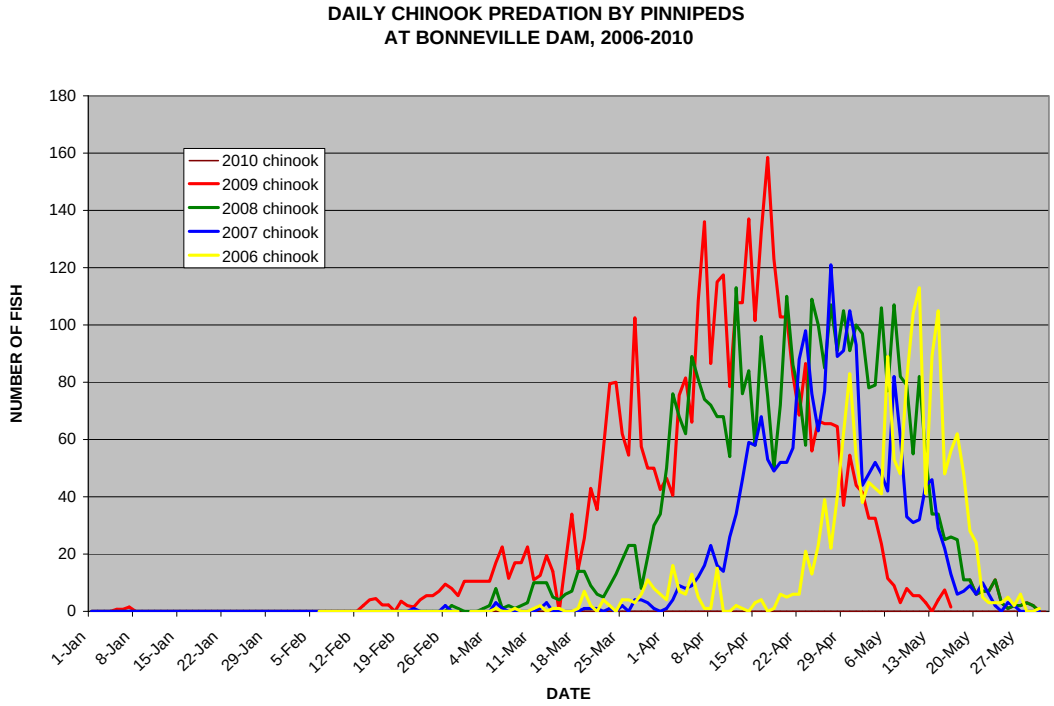

Figure 11. Stills from video taken at the four traps by the corner collector on the morning of March 1, showing 27 Steller sea lions. An additional four Steeler sea lions were swimming in the water nearby.