**STATUS REPORT - PINNIPED PREDATION AND DETERRENT ACTIVITIES AT BONNEVILLE DAM, 2011**

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This is the tenth weekly status report of 2011 and summarizes all pinniped predation monitoring and deterrent activities at Bonneville Dam from January 1 through April 6, 2011 (unless otherwise noted). This report and earlier reports can be found at: http://www.nwd-wc.usace.army.mil/tmt/documents/fish/2011/sea_lion_hazing2011.html. Regular daylight observations began on January 7 and will continue to the end of May, five days per week. Weekends will not be regularly monitored this year, as was the case in 2009/2010. 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 field report.

# PRELIMINARY RESULTS

*All data presented here are preliminary as of the status report date. Predation figures are unexpanded (unless otherwise noted) 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 2011 evaluation will be available in the fall of this year.*

## PINNIPED ABUNDANCE

We have seen as many as 21 Steller sea lions (*Eumetopias jubatus* - SSL) and 14 California sea lions (*Zalophus californianus* - CSL) at the dam on any one day so far this year (Figure 1). There are now fewer SSL present per day on average this year compared to last year, but far fewer average CSL per day to date since 2003 (Figures 2 and 6). CSL numbers exceeded SSL numbers for the first (and so far only) time this year (April 4). The highest daily abundance estimate for pinnipeds at Bonneville dam was 29 on April 1. We have documented about 66 different individual SSL since January 7, at least 23 of those being confirmed as seen in past years. We have now documented about 24 individual CSL, at least 17 have been seen in previous years. The numbers of CSL picked up then dropped off the past week, possibly because of the high flows, turbidity and tailwater levels Figure 1).

## PREDATION DATA

Unexpanded numbers for fish observed taken in the Bonneville Dam tailrace for 2011 are:

| | California Sea Lions | Steller Sea Lions | Total |
|---|---|---|---|
| Chinook | 135 | 116 | 251 |
| Steelhead | 42 | 98 | 140 |
| Sturgeon | 3 | 1340 | 1343 |
| Lamprey | 0 | 0 | 0 |
| Shad | 0 | 88 | 88 |
| Other | 0 | 1 | 1 |
| Unknown | 20 | 649 | 669 |

It is likely that at least 90% of the unknown fish caught by Steller sea lions were sturgeon and over 95% of the unknown fish caught by California sea lions are salmonids. The Steller sea lions are catching many 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 3). Only 4 sturgeon were observed caught last week (Figure 4) as all pinnipeds seem to focus more on Chinook and steelhead now. There are still few Chinook passing the count stations (2,851 steelhead, 438 Chinook since January 1) with 72 Chinook on April 7 being the high so far this year. Columbia River water temperature measured at Bonneville Dam hit 46 degrees F a few days ago, so that may help to move Chinook up through the system soon. Total salmonid catch to date (507 expanded by interpolating for weekends) is the lowest cumulative catch to date since 2002 (Figure 5), and the majority of those catches have been by Steller sea lions, although the California sea lions are gaining fast. Only 40 cleptoparasitism events have been seen so far, but it has pick up recently.

## DETERRENTS/TRAPPING

The States trapped pinnipeds on two days this week, for branding and application of acoustic tags. On April 6, they captured 1 Steller sea lion which was given an acoustic tag but not branded. On April 7, they captured 6 SSL. Two very large SSL were not branded and released (very large). The other four were given acoustic tags, branded O14 through O17 and released. CRITFC deployed acoustic receivers in the tailrace of Bonneville and farther downstream this week. They also deployed a video camera observation system at PH2 to try and determine if they can successfully estimate pinniped abundance and predation events by comparing to COE observations. If successful, this could help estimate pinniped abundance and predation in other stretches of the river downstream of the dam.

Hazing by CRITFC (boats) and USDA (land) began on February 28 and has continued daily (most Mondays through Fridays for boat hazing). Hazing appears to be a little more effective this year so far, at least keeping the number of pinnipeds and amount of predation low for 7-8 hours during the day. This may be because most of the pinnipeds are the Stellers (which seem to be chased off a bit more easily than California sea lions) and the California sea lions that are present are mostly new to Bonneville. However, as in past years, as soon as the hazing ends, the numbers of pinnipeds present increases as does the predation.

## OTHER ITEMS OF INTEREST

We conducted our second night observation of the season on April 1. Results were somewhat similar to last time in that few predation events were observed (only one). However, no pinnipeds were observed at all at PH1 while at PH2 pinniped presence actually seemed to increase a bit (from 2 to 4) before dropping off to zero by 02:00h. Trap use definitely increased initially as the night progressed, but heavy rain and no ambient light made enumeration difficult to impossible the last few hours. Forced spill occurred most of the week and tailwater levels were very high.

Figure 1. Daily pinniped abundance, by species, at Bonneville Dam, 2011.

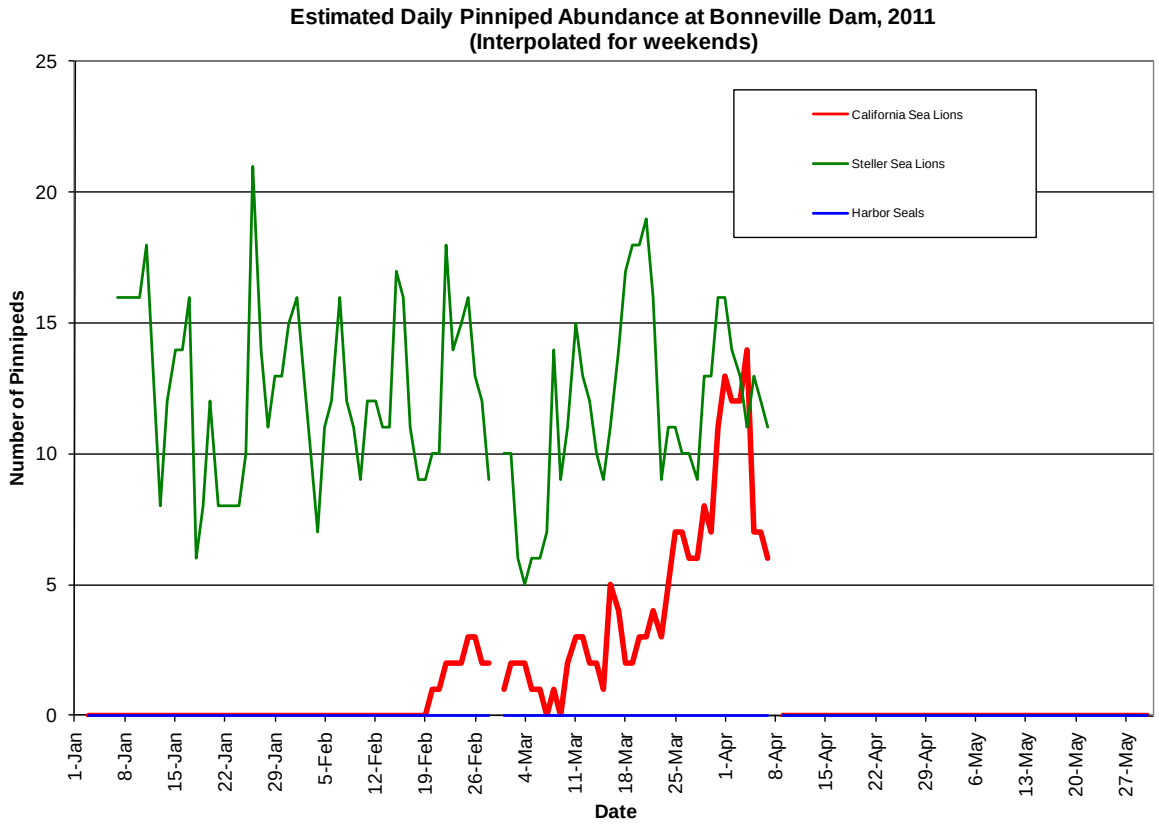

Figure 2. Average daily presence of pinnipeds, by species, to date (April 7) for each year at Bonneville Dam.

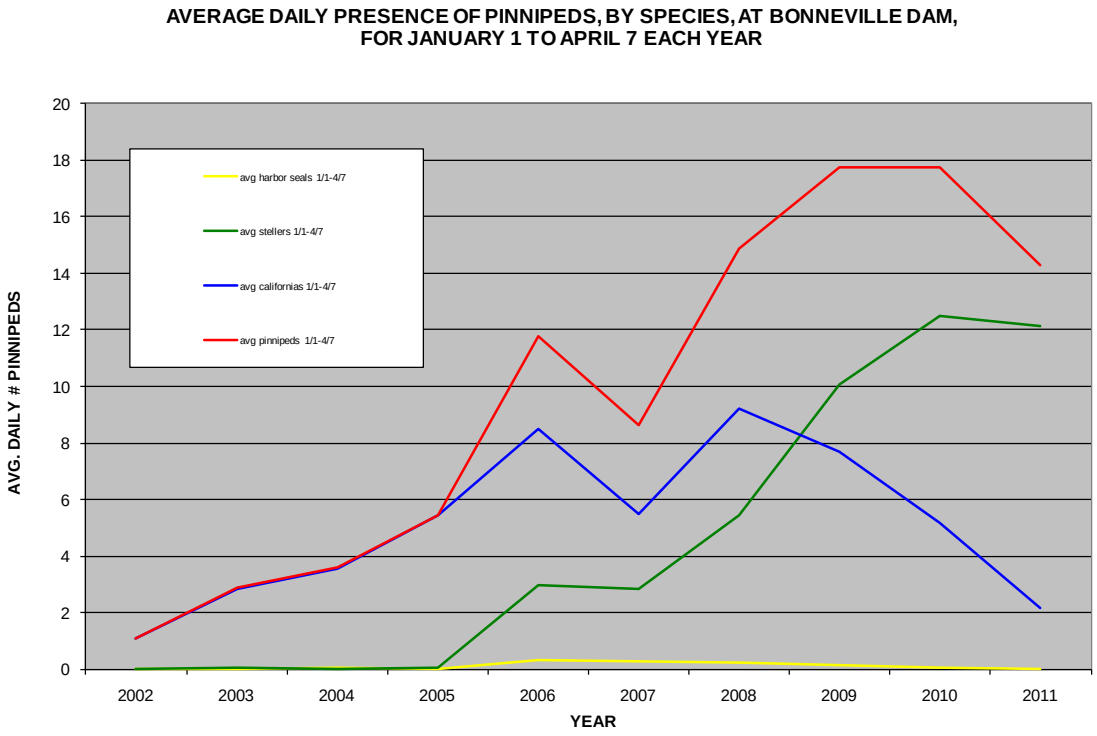


Figure 3. Major prey species taken by Pinnipeds by location, 2011.

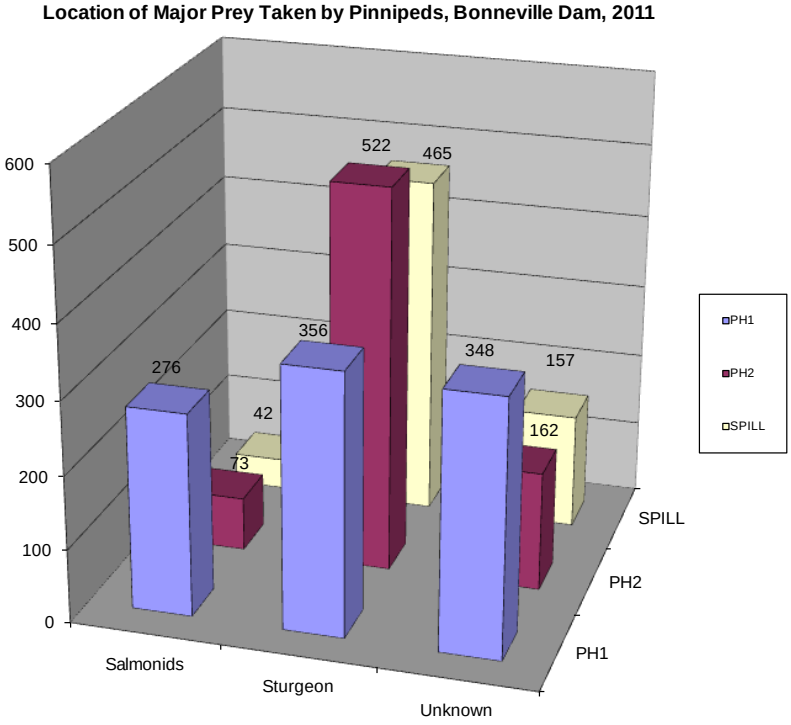

Figure 4. Daily cumulative sturgeon catch (interpolated for weekends) at Bonneville Dam, 2006-2011.

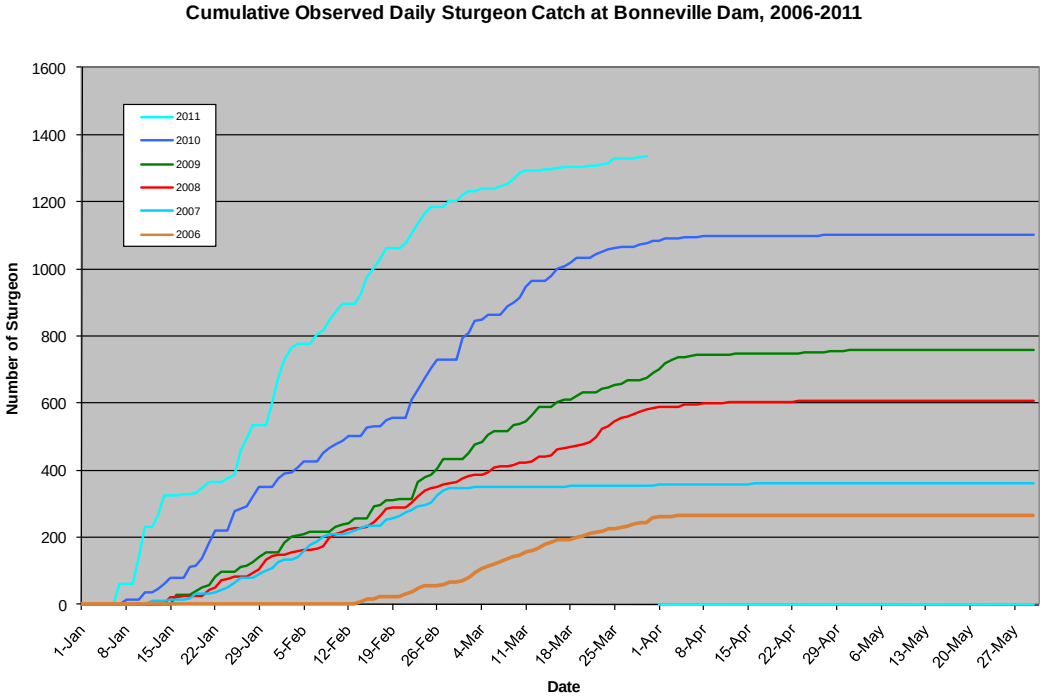


Figure 5. Daily cumulative salmonid catch (interpolated for weekends) at Bonneville Dam, 2006-2011.

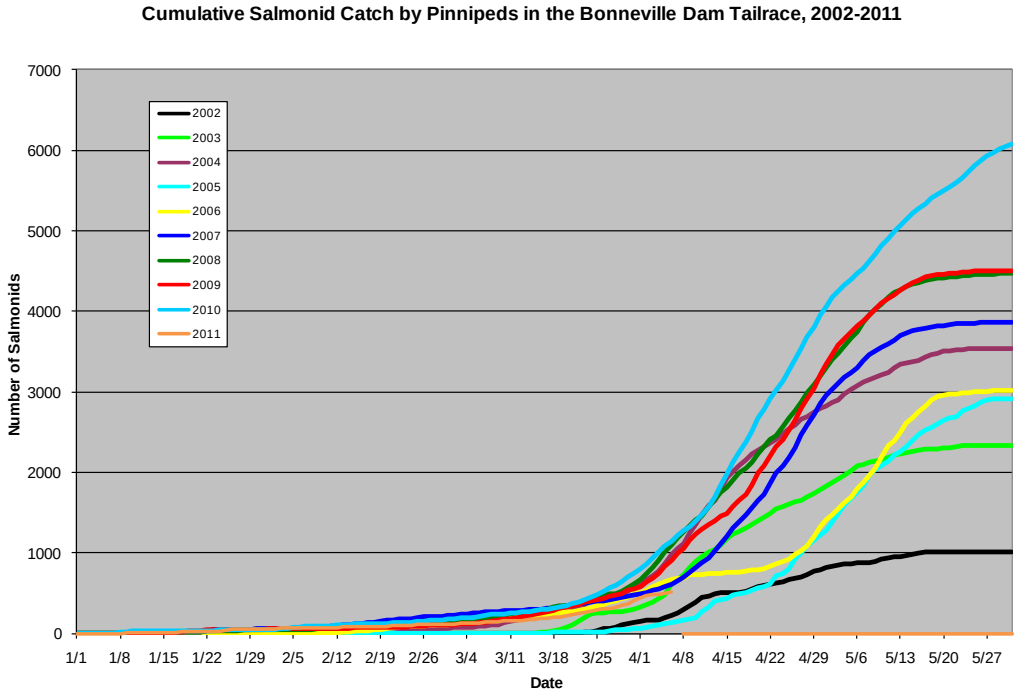

Figure 6. Daily California sea lion numbers for 2011 compared to the average daily CSL numbers averaged from 2002-2010.