

**STATUS REPORT – PINNIPED PREDATION AND HAZING  
AT  
BONNEVILLE DAM IN 2008**

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This is the sixth status report for 2008 on the pinniped predation and hazing activities being conducted at Bonneville Dam. Regular observations began on January 11, Mondays through Fridays, and switched to 7 days a week on February 4. Observations begin roughly an hour before sunrise and end an hour after sunset. **Please remember all data are preliminary and final figures are likely to change some after further analysis and proofing, so be careful about quoting these figures.** Boat based harassment has been conducted since December 12 for Steller sea lion preying on sturgeon, 2 to 5 days a week, and has continued for California sea lions to date at least 5 days a week (see Status Report from Bryan Wright, ODFW). Dam based harassment by USDA WS agents began on March 3, and will be conducted 7 days a week, through the end of May. Data collection will end after May 31, as will harassment activities. Some additional observations will occur as long as sea lions are still present after this date.

The states will be attempting to trap and transport several animals after mid-April. The HSUS has filed for an injunction to halt any lethal take, and the courts will have a hearing on that on April 16. Trap and haul to Sea World or other locations was agreed to be allowed to continue. Three additional traps will be built by possibly next week, and a tagging barge should also be present.

## **PRELIMINARY RESULTS**

Data presented here are up through April 13, 2008. A final report of the 2005-2007 evaluation is now available on the Corps website.

### **PINNIPED ABUNDANCE**

Steller sea lion (*Eumetopias jubatus*) presence has continued daily through early April, while the number of California sea lions (*Zalophus californianus*) continues to grow (Figure 1). To date, we have seen as many as 12 Steller sea lions and 40 California sea lions at the dam on any given day (see Figures 10 and 11). The most number of pinnipeds total for one day so far was 50 on April 7. A preliminary look at individuals identified at Bonneville Dam so far suggests we have seen about 50 different California sea lions, 12 Steller sea lions, and 2 Harbor seals. At least 37 of the California sea lions have been seen in previous years.

Of the 60 animals listed for potential lethal take, 30 have been seen at Bonneville Dam so far this year, with about 19 of those being seen on the single trap already, and several others hauled out nearby. An additional 4 branded animals and possibly 7 others that we can identify now qualify to be added to the list, having been hazed, seen to eat at least one salmon, and having been here more than 5 days.

## **PREDATION FIGURES**

Unexpanded numbers for fish observed taken between January 11 and April 13 are:

- 1,246 Chinook, 249 steelhead (see Figure 2)
- 604 sturgeon (21 larger than 5 feet)(see Figures 2, 3 and 4)
- 8 lamprey
- 506 unidentified (see Figure 2)

Steller sea lions are the primary predators of white sturgeon (*Acipenser transmontanus*) in the Bonneville Dam tailrace (Figure 5). Only six sturgeon were taken by California sea lions in past years; 9 this year and 2 by harbor seals (<2'). California sea lions had primarily been taking steelhead, but the past few weeks they have begun catching numerous Chinook (Figure 7). The sea lions are on a pace to equal or exceed the take of 2004 and 2007 (Figure 8). It is likely that most unknown fish observed caught by Steller sea lions are sturgeon, while those unknown fish observed caught by California sea lions are steelhead or Chinook. Just under half (638 of 1,495 or 43%) of the salmonid prey taken by California sea lions have been attributed to specific individuals. There has been a noticeable increase in the number of observations of Steller sea lions stealing salmon caught by California sea lions, which may account for the slowing of sturgeon taken over the past few weeks.

Most sturgeon have been caught at the spillway followed by PH2, while most steelhead and Chinook have been caught at PH1 and PH2 (Figure 6). Figure 3 shows that sturgeon take has far exceeded the take of last year as the presence of Steller sea lions continues. However, smaller sturgeon are being taken proportionally more this year than in previous years (Figure 4).

Observations from the area of Tanner Creek to Ives Island by PSU student volunteers has been collected also, and up through March 19, an additional 12 Chinook, 15 steelhead, and 4 sturgeon have been observed taken (plus 8 unknown). The area between our observers at the dam and Tanner Creek will be observed by WDFW/ODFW personnel as well from now until the end of the season, but this data will take more time to process and may not be available for updates.

## **HAZING IMPACTS**

Full hazing from both boat and dam began on March 3<sup>rd</sup>. After March 15, the tailrace of PH2 was not to be hazed with above water pyrotechnics to allow for animals to haul out more on the traps for capture and for other potential activities in the future. However, on April 7 it was determined to resume hazing as far too many sea lions were becoming active in the PH2 tailrace, and this was far enough away from the trap. Chinook counts exceeded 1,000 per day on April 11, and therefore seal bombs are no longer allowed to be used inside the boat restricted zone (Bonneville dam near tailrace area) for protection of the fish. SLEDs were installed at PH2 entrances on January 28. Cascades Island SLEDs were installed the week of February 10, and PH1 and B-branch SLED's were installed the week of February 24. Acoustics were deployed at all major fishway entrances by January 10. Some animals have been observed to be successfully chased downstream while others have not responded to multiple crackershells or rubber bullets.

## OTHER ITEMS OF INTEREST

The single trap platform was found upside down on the morning of April 11, likely as a result of too many sea lions trying to get on or off the platform at one time. However, this did not deter the sea lions from continuing to use it as a platform to haul out on (Figure 9)! It is likely a crane will be needed to right the trap sometime this week.

**Night predation** - We have conducted some before dawn and after daylight observations (about 13 hours so far). I don't want anyone to panic and start calculating expanded catch estimates without more information, but we have noticed hunting activity and catch occurring during these periods, both by California sea lions and Steller sea lions. This may explain why we see many animals only hauled out during the day and not hunting. Whether this is a result of daytime hazing activities, less dominant animals being pushed from daytime predation by larger numbers of dominant animals, or if it extends throughout the night has yet to be determined. So far, we have observed an average of 2.5 animals present for those hours and they have taken a total of 1 salmonid, 1 sturgeon, and 18 unknown fish (about 1.5 fish per hour observed). Sometimes animals are present at the start or the end of the hour, but often they arrive or leave during the hour of observation.

## SUMMARY

Pinniped numbers are now averaging between 30-40 a day, as more California sea lions are showing up. Predation on Chinook has greatly increased over the past few weeks. Boat and dam based harassment continues. Some night-time predation has been observed.

Figure 1. Daily minimum pinniped abundance.

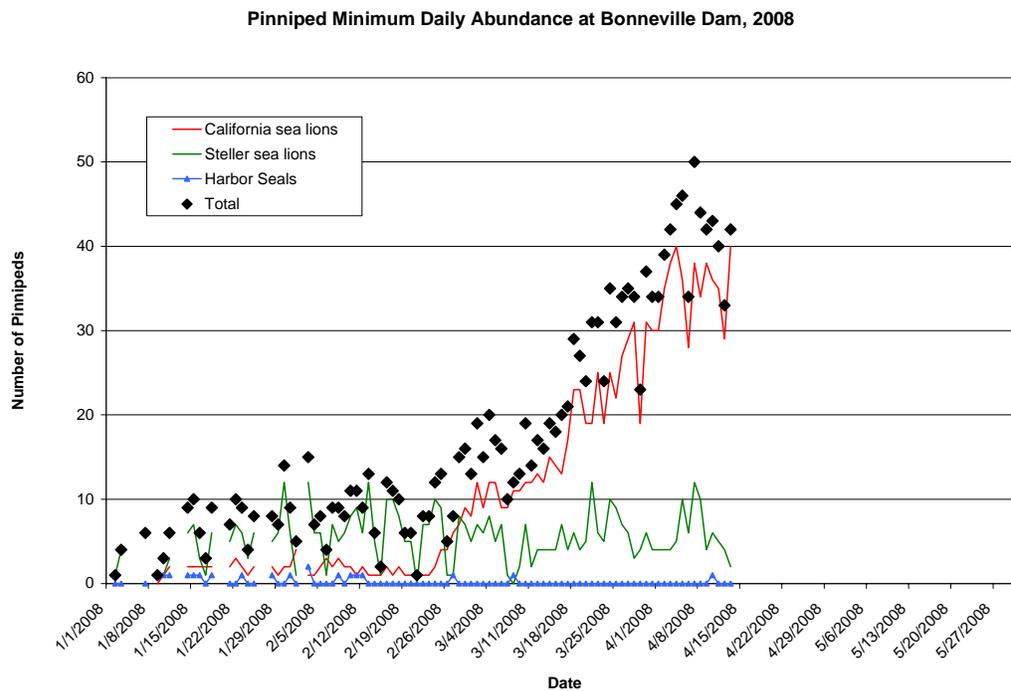




Figure 2. Daily salmonid, sturgeon, and unknown fish predation by pinnipeds, unexpanded observations.

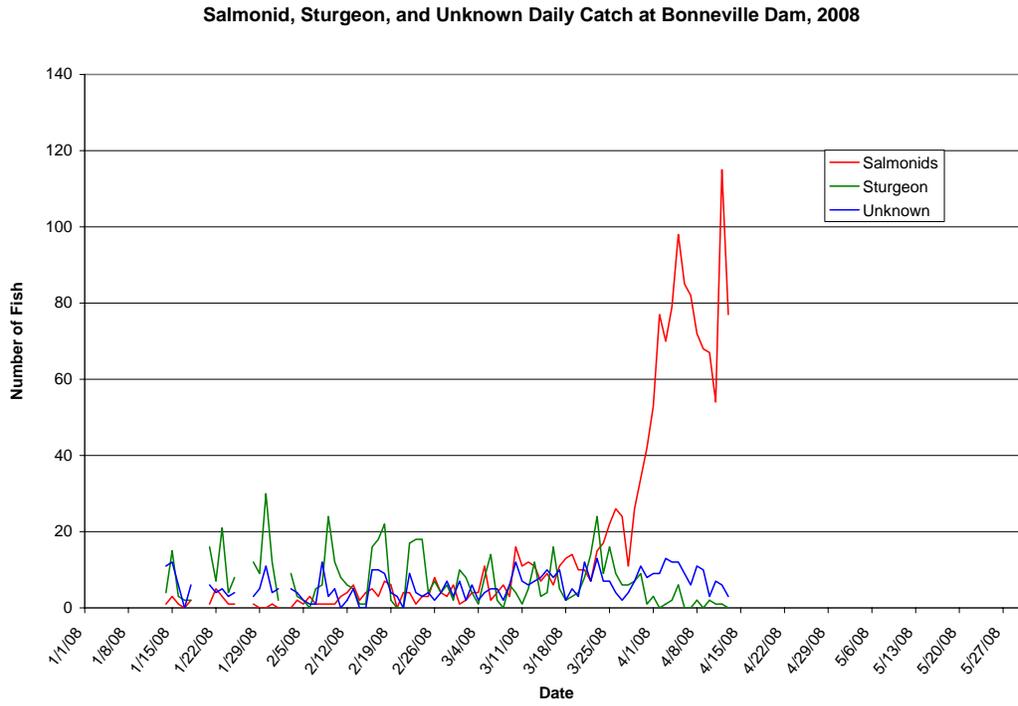


Figure 3. Cumulative estimated daily sturgeon catch by pinnipeds at Bonneville Dam, 2006-2008. 2008 data are not expanded and are preliminary.

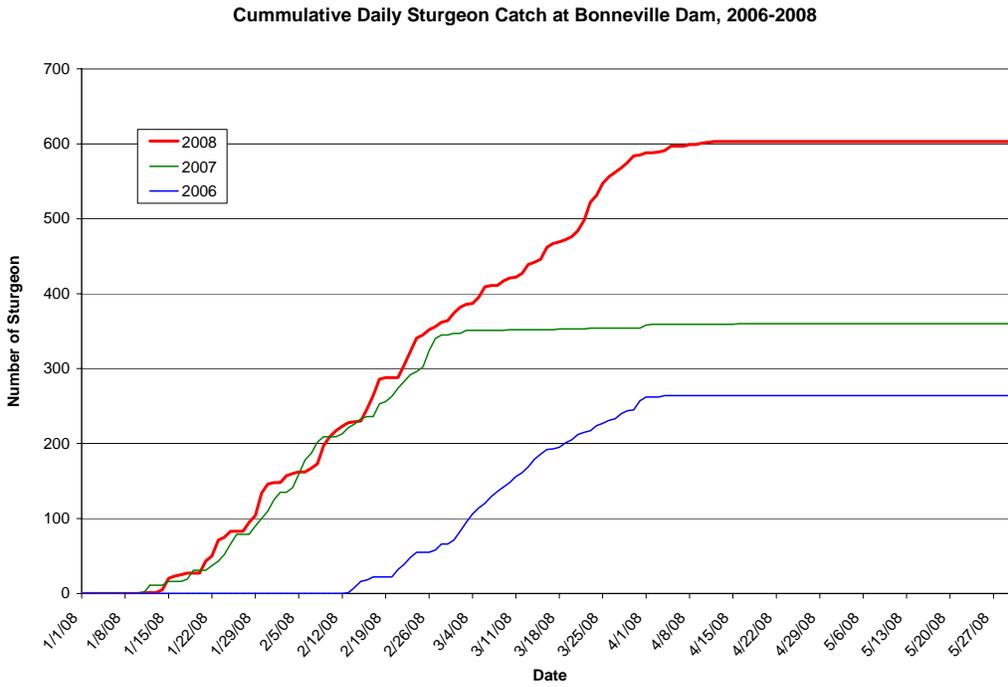


Figure 4. Size distribution of sturgeon caught at Bonneville Dam, 2002-2008.

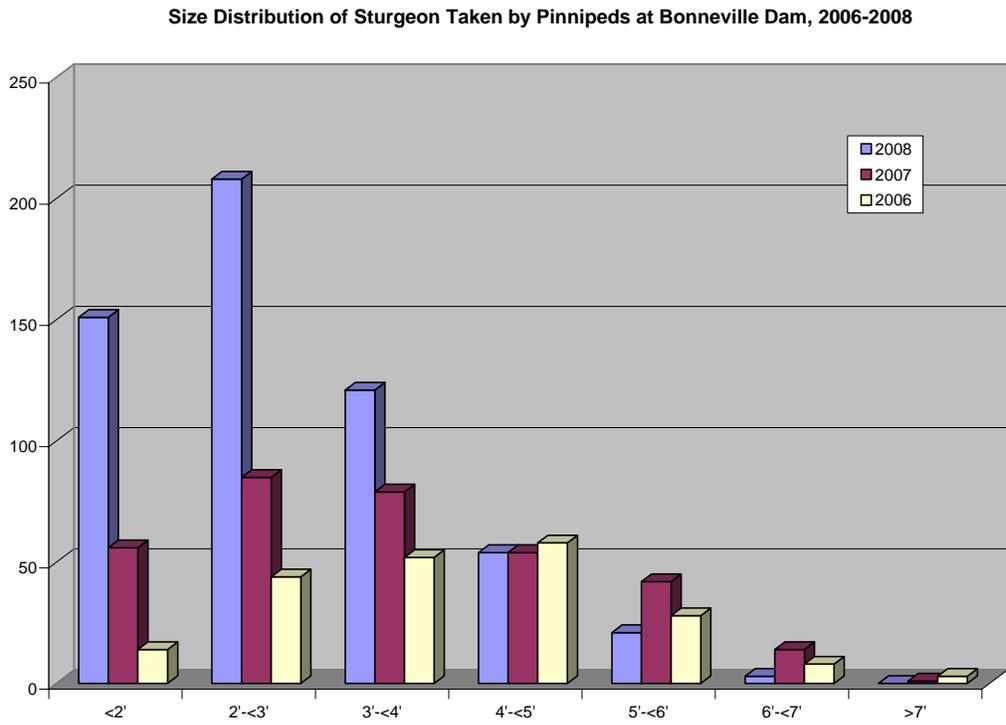


Figure 5. Prey taken by species of Pinniped at Bonneville Dam, 2008.

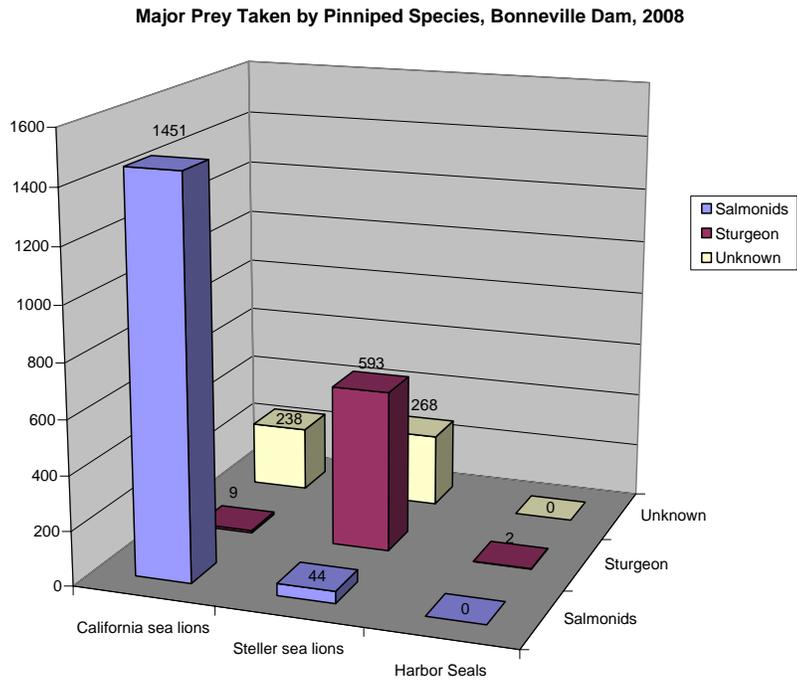


Figure 6. Location of prey taken at Bonneville Dam, 2008.

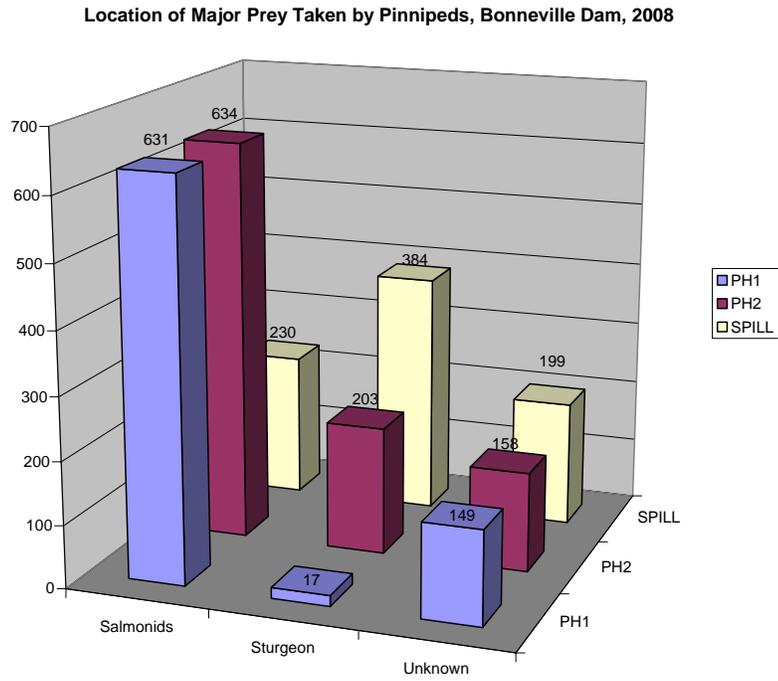


Figure 7. Daily Steelhead and Chinook take at Bonneville Dam, 2008. Data are unexpanded and preliminary.

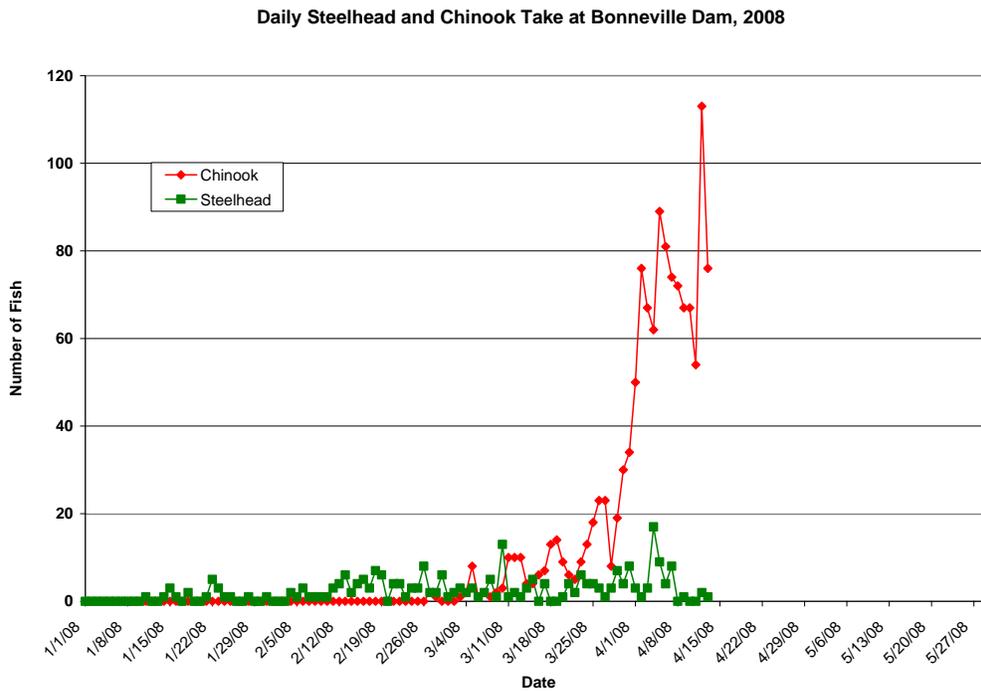


Figure 8. Cumulative estimated daily salmonid catch by pinnipeds at Bonneville Dam, 2006-2008. 2008 data are not expanded and are preliminary.

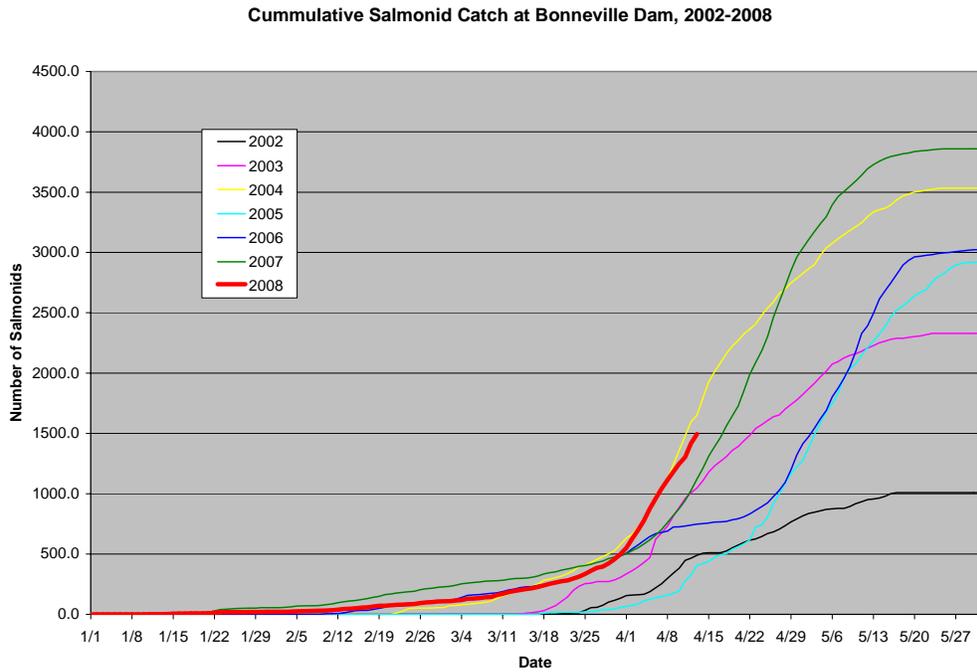


Figure 9. California sea lions hauled out on trap that has been flipped upside-down.



Figure 10. Steller sea lion abundance at Bonneville Dam, 2002-2008.

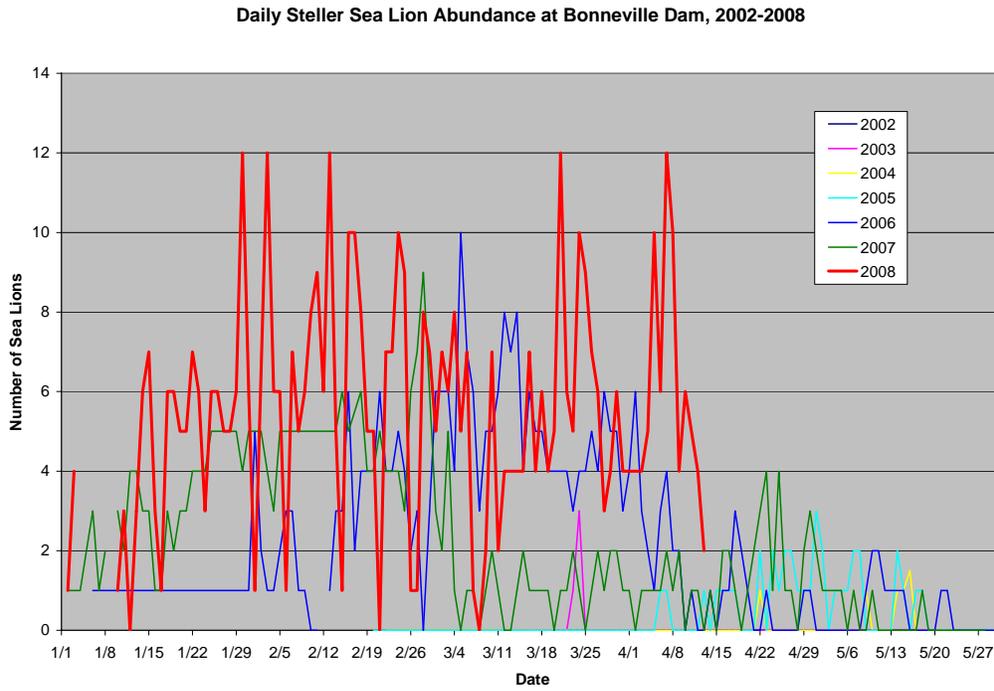


Figure 11. California sea lion abundance at Bonneville Dam, 2002-2008.

