

**STATUS REPORT – PINNIPED PREDATION AND HAZING
AT
BONNEVILLE DAM IN 2007**

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This report is the fifth of regular status reports on the pinniped predation and hazing activities being conducted at Bonneville Dam in 2007.

Preliminary Results

The first Steller sea lion (*Eumetopias jubatus*) was seen at Bonneville on December 10, 2006, the first California sea lion (*Zalophus californianus*) on January 8, 2007, and the first harbor seal (*Phoca vitulina*) on January 18, 2007. This is about one month earlier for the California sea lions to arrive than last year. We have seen as many as 9 Steller sea lions and 25 California sea lions at the dam so far on any given day (see Figure 1). Most of the California sea lions seen were also observed previous years, with a few newcomers.

Predation Figures

Unexpanded numbers for fish observed taken between January 8 and April 5 are:
421 salmon/steelhead (216 steelhead, 64 chinook, 141 salmonid)(see Figure 2)
359 sturgeon (55 larger than 5 feet)(see Figure 2)
8 Lamprey, 2 smolt, 264 unidentified (see Figure 2)

Hazing Impacts

Hazing actually began on February 28, for much of the day. February 28 was a practice day for hazing personnel from participating agencies, and full-time daylight hazing began on March 1.

PINNIPED ACTIVITY

Pinniped abundance has begun to increase over the past two weeks (Figure 1), primarily because of new California sea lions. Steller sea lions are typically seen only once or twice a day now, with up to three seen early in the morning. Once hazing begins, they are usually chased out of the tailrace area successfully. However new California sea lions are beginning to show up now and the Chinook run is still to come.

SALMONID AND STURGEON CATCH

Total catch (salmonids in particular) has increased over the past two weeks as can be seen in Figure 2. However, the Chinook run (Figure 4) is just starting to show up and a better result will be how many salmonids are caught by the end of the season compared to the 2,500-3,500 over the past few years.

Steller sea lions are the primary predators of white sturgeon (*Acipenser transmontanus*) in the Bonneville Dam tailrace (only one taken by California sea lions). As Steller sea lion numbers declined, so did sturgeon catches. Observers recorded only 18 of the 359 sturgeon takes after hazing began.

Most salmonid species have been caught at PH 1 tailrace so far this year (241), followed by PH 2 (152) and the spillway (26). Most unidentified fish were seen caught at the spillway (103), followed by PH 1 (83) and PH 2 (78). Most sturgeon were observed caught at the spillway (235), followed by PH 2 (106) and PH 1 (18). At least 2 salmonids and 2 unidentified fish have been seen caught elsewhere on the project, and more likely (data not fully entered). Steller sea lions account for 354 of the 359 sturgeon seen taken. California sea lions account for 412 of the 421 salmonids observed taken. California sea lions took approximately 90 additional unidentified fish (likely salmonids) while Stellers were seen to take approximately 172 additional unidentified fish (likely sturgeon). Harbor seals were observed to take 2 unidentified fish and have not been seen since hazing began.

OTHER ITEMS OF INTEREST

C404 was observed on March 28, 29, 31, April 2, 4, and 5 in the Washington shore fish count window and in the tailrace area on most days. One of our SCA observers saw C404 attempt to climb over one of the floating orifice gates at Powerhouse 2 six times before he eventually succeeded in entering the fishway. On April 4 he was hazed inside the Washington shore ladder three times with no affect. He has been seen to haul out on the corner collector concrete apron, but not on the trap yet. He also appears to be in the fishways before 5:00h and after 20:00h, so he is likely active at night. We have also been noting 2-5 California sea lions working Tanner Creek before 6:00h, so the hazing may have caused some of the animals to begin to forage at night. We will try and make some night observations in the near future (I need to learn to drink coffee!).

Trapping occurred on April 4 by the states and NMFS personnel, with Bonneville project crane support. Animals had been hauling out regularly and that date was chosen to capture some animals. One large Steller sea lion (about 1,500 lbs) was captured along with five California sea lions (2 already had brands, and 3 were not branded, with one of those a known individual seen every year since 2002). The procedure went well, with the California sea lions being enticed into a transfer cage and craned out to be put into a large transport trailer. The process went faster with each animal, except for the Steller sea lion which was stubborn and took longer, but in the end, it was successfully transported. One of the branded animals and all the unbranded animals were fitted with satellite tags, the unbranded animals were given brands, and the Steller was too big for the squeeze trap so he was given a yellow ID patch attached to his rump. They were all released late evening that night in the Astoria boat basin. Bets are being placed on the first to return to Bonneville! As of this morning, four of those California sea lions were still seen in Astoria.

Summary

California sea lion numbers and salmonid take have increased over the past two weeks. Chinook counts are still low but starting to show up in small numbers daily (less than 10 per day). Steller sea lion presence has been dramatically reduced, resulting in substantial declines in predation on

white sturgeon near the dam. Hazing has been less effective at reducing California sea lion numbers and predation, but observers and hazing personnel have reported changes in sea lion behaviors. These changes include increased travel between tailraces in response to hazing, less time spent at the surface during foraging, and less time spent close to dam structures. Chinook salmon are the primary prey item for California sea lions at Bonneville Dam, are only beginning to arrive, so it is uncertain what impact hazing might have on sea lion predation in the long-term as the run increases and more sea lions travel to Bonneville Dam.

Figure 1. Daily minimum pinniped abundance.

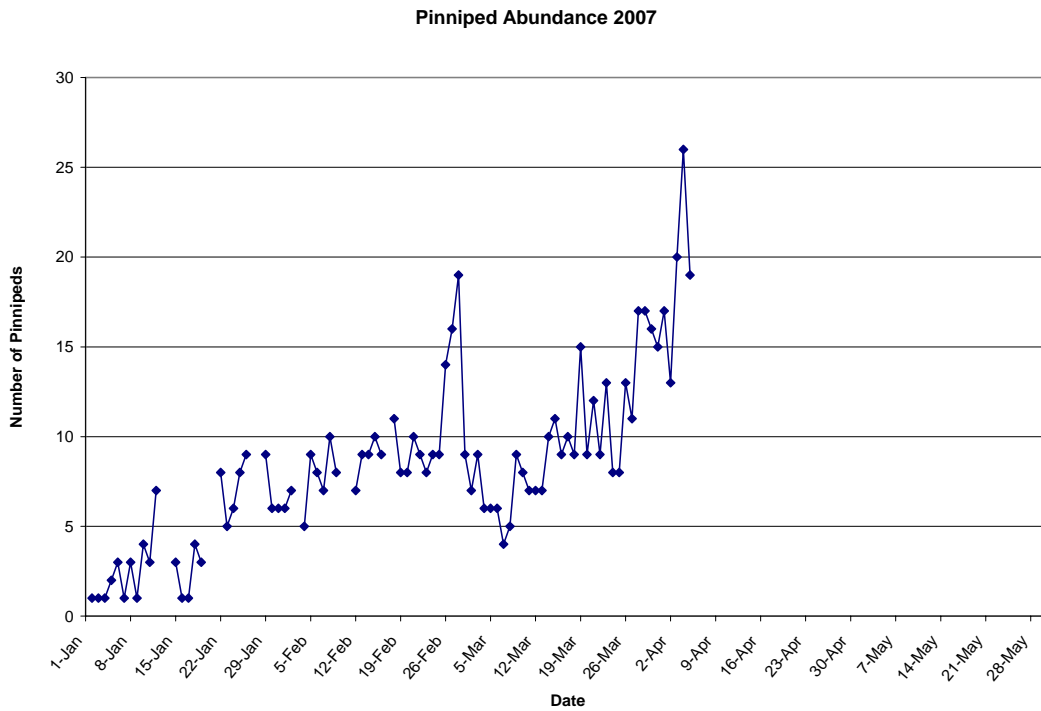


Figure 2. Daily salmonid, sturgeon, and unknown fish predation by pinnipeds

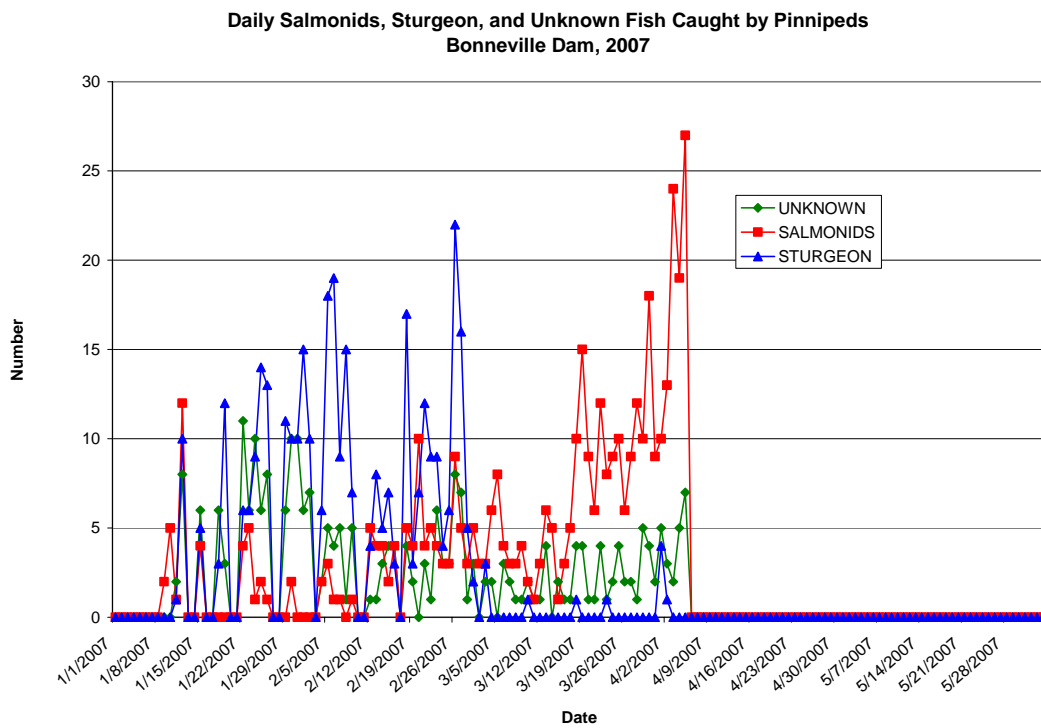


Figure 3. Sturgeon size distribution of those taken by pinnipeds.

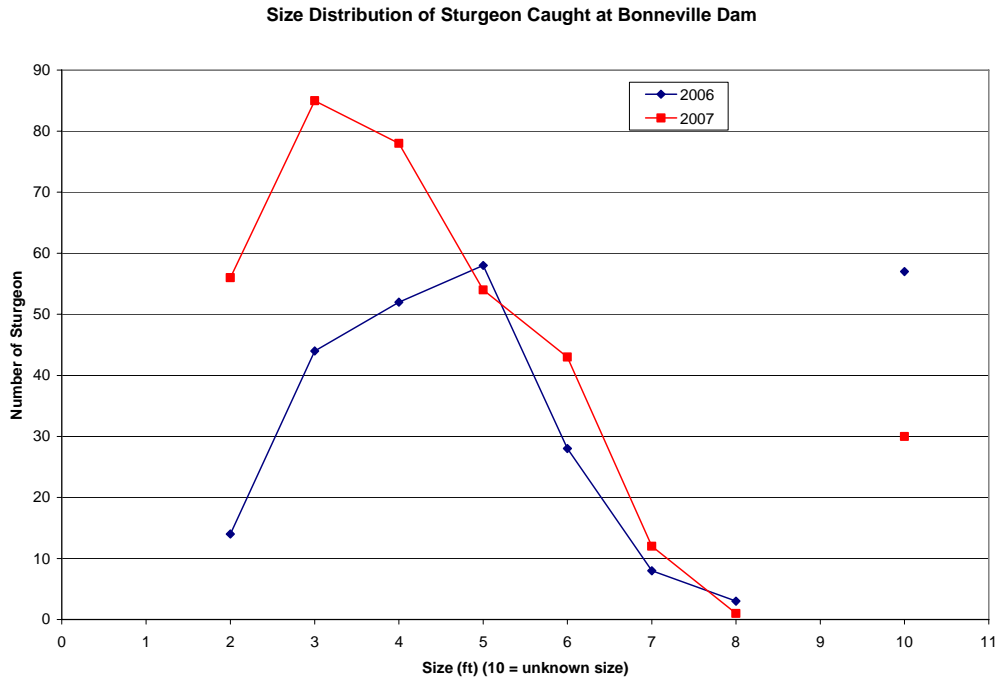


Figure 4. Total daily salmonid passage (steelhead and Chinook) at Bonneville Dam, 2007.

