

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

**Robert Stansell, Sean Tackley, and Karrie Gibbons**

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This report is the tenth 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*) this season 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 51 California sea lions at the dam so far on any given day (see Figure 1). The most number of sea lions total for one day so far was 54 on April 30 and May 1. A preliminary look at individuals identified so far suggests we have seen about 75 different marine mammals so far at Bonneville Dam, over half being observed in previous years.

### **PREDATION FIGURES**

Unexpanded numbers for fish observed taken between January 8 and May 10 are:  
3,262 salmon/steelhead (see Figure 2)  
360 sturgeon (55 larger than 5 feet)(see Figures 2)  
47 Lamprey, 3 smolt, 491 unidentified (see Figure 2)

Total catch (Chinook in particular) has increased over the past few weeks, but dropped off a bit last week, as can be seen in Figure 2. At least 154 salmonids were observed taken on April 27. The Chinook run this year (Figure 3) is running now and topped 4,000 on May 9, however we have not seen a large peak in passage yet. It is another later than average run this year (Figure 4). If the current rate of fish take continues (Figure 5), we may surpass the number of fish estimated taken in 2004 (3,533).

Steller sea lions are the primary predators of white sturgeon (*Acipenser transmontanus*) in the Bonneville Dam tailrace (only six taken by California sea lions). As Steller sea lion numbers declined, so did sturgeon catches only 19 of the sturgeon taken after hazing began.

Lamprey take has started to increase this past week, with over 30 observed caught.

### **HAZING IMPACTS**

Hazing began on February 28. The hazing was effective in reducing the number of Steller sea lions present and drastically reduced the number of sturgeon taken after this began (Figure 2).

Hazing also altered the behavior of the California sea lions in that they stayed farther away from the dam and did not surface as much. However, now that the Chinook run has begun, fewer animals seem impacted by the hazing activities and remain in the tailrace. As the number of Chinook passing Bonneville Dam exceeded 1,000 per day on April 17, the boat hazing is no longer using seal bombs in the boat restricted zone to reduce the chance of harming or impacting salmon. In addition, with spill occurring, the boats are not allowed into that area for safety reasons, and many sea lions use this area as a sanctuary. Land based hazing at this location is mostly ineffective due to the distances involved. The spillway has become the area where most fish are taken over the past couple of weeks.

### **OTHER ITEMS OF INTEREST**

**C404** was first observed on March 28, and was seen in the fishways on at least nine days. He was last seen at Bonneville on May 5<sup>th</sup> and was seen in Astoria in the afternoon of May 7. This year he was at Bonneville for at least 38 days, while last year he was here for 73 days. The previous three years he was at Bonneville for 42-47 days. The last three years he has arrived at Bonneville and stayed here without returning to Astoria until he decided to leave for the season. Several other animals from Bonneville have gone back to Astoria this past week.

**Trapping** did not occur this week. To date, 9 California sea lions and 3 Steller sea lions have been trapped and transported to Astoria. All but the Steller sea lions and one California sea lion trapped on April 25 have returned to the dam. Between 0-4 animals have been seen hauled out on the trap in the morning this past week. Most are hauling out on the concrete apron to the corner collector, and as tailwater is rising, the trap is situated farther from dry concrete sites. At least 50 sea lions were hauled out on the concrete May 1 with four more observed hunting in the tailraces!

**A sea lion was reported in the forebay** on April 30 by several Corps personnel, but we were unable to locate him and identify the individual. It is likely he passed up and downstream through the navigation lock undetected (see attached photos of a sea lion hitching a ride on a barge downstream through the navigation lock last year).

## **SUMMARY**

California sea lion numbers and salmonid take actually dropped some in the last week compared to the previous week, but are still relatively high for the season. Chinook counts are fluctuating between 1,000 and 3,000 fish per day. 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. Preliminary evidence (Figure 5) suggests that the increase harassment program this year is not having a substantial impact on reducing predation in the tailrace below Bonneville Dam nor the number of sea lions present.

Figure 1. Daily minimum pinniped abundance.

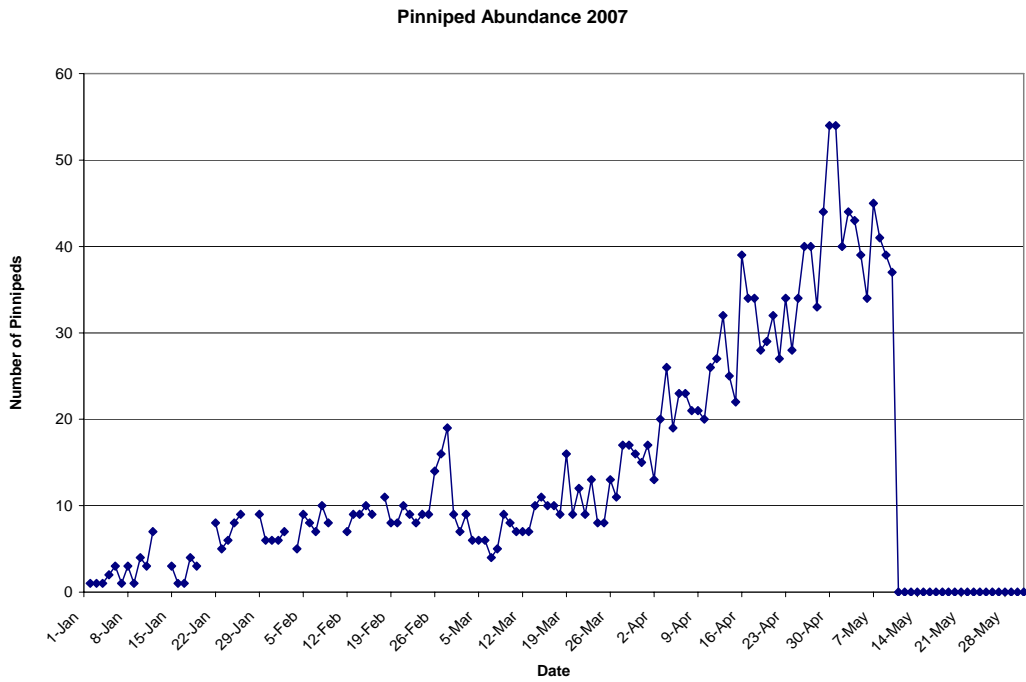


Figure 2. Daily salmonid, sturgeon, and unknown fish predation by pinnipeds

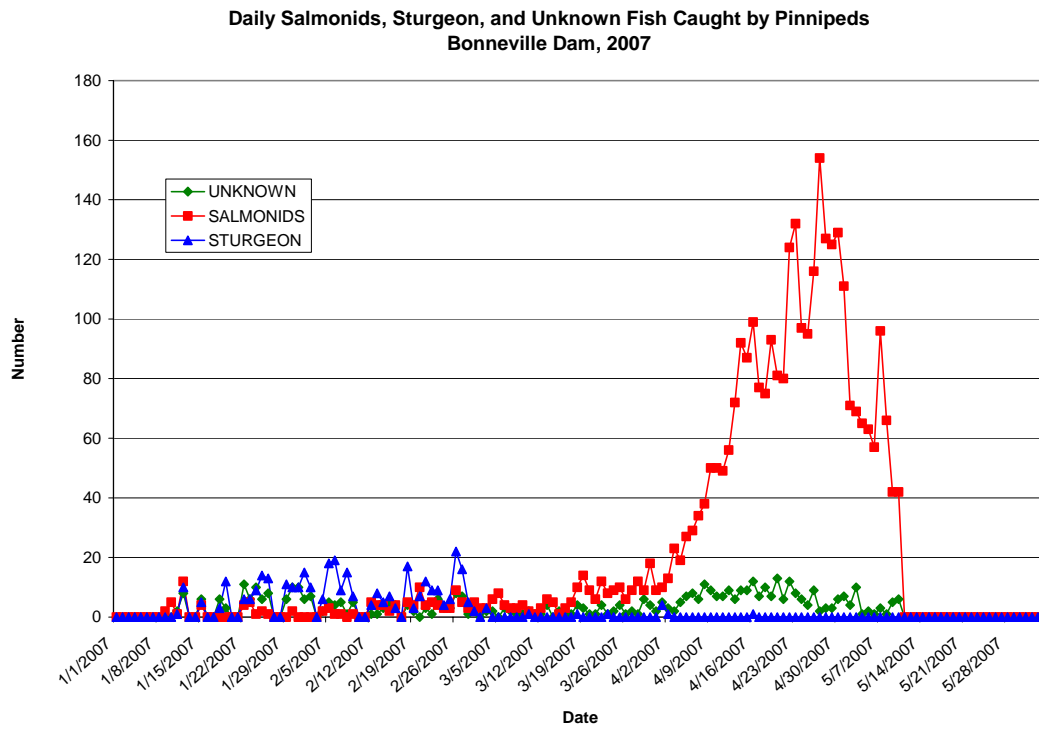


Figure 3. Total daily salmonid passage (steelhead and Chinook) at Bonneville Dam, 2007.

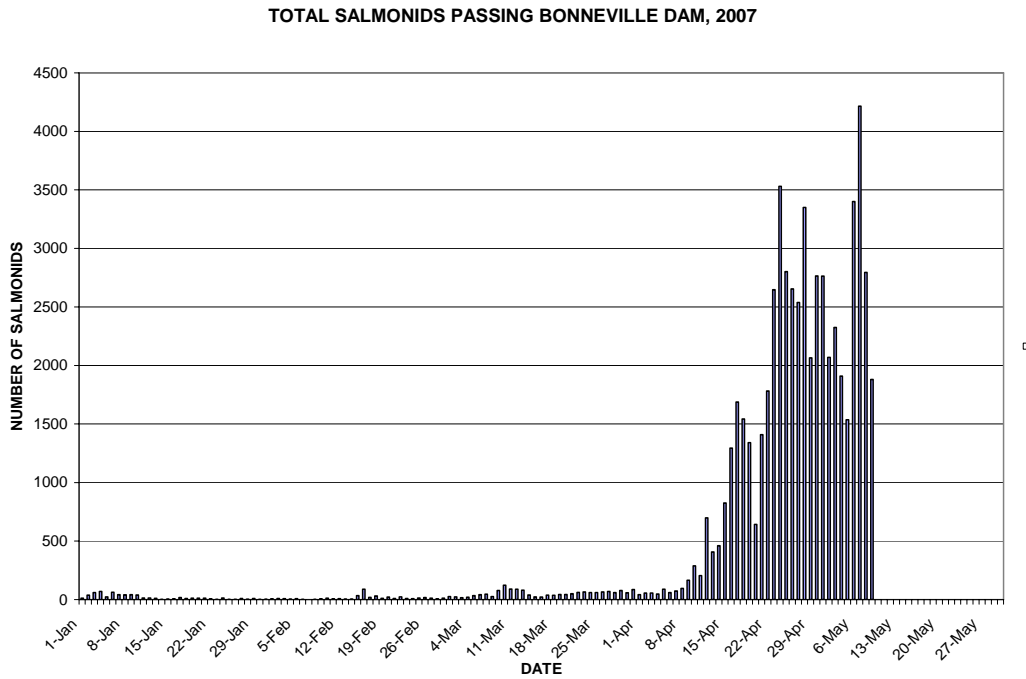


Figure 4. Daily Chinook passage at Bonneville Dam in 2005, 2006, and the 10 year average.

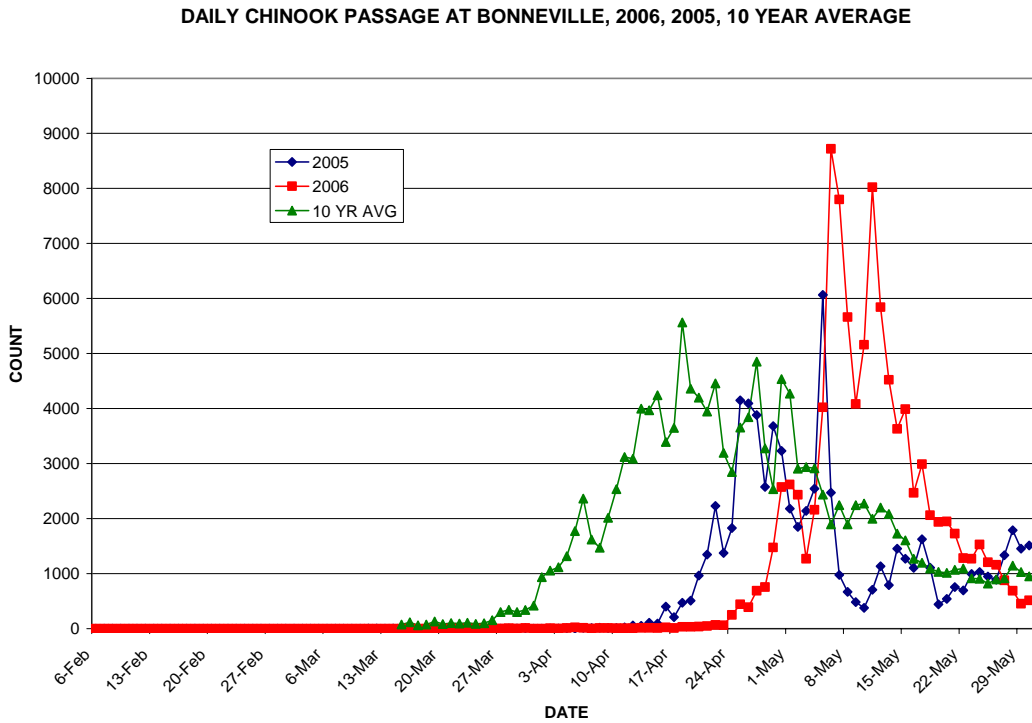


Figure 5. Cumulative estimated daily salmonid catch by pinnipeds at Bonneville Dam, 2002-2007. 2007 data not expanded yet and preliminary.

