



Sea lions take rising toll

Predation on salmon and steelhead expanding on the Columbia River



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Sea lions set new records for salmon consumption

The sea lion population in the Columbia River estuary has increased dramatically in recent years, presenting a greater threat to wild salmon and steelhead runs than ever before. Despite a 15-year effort by state wildlife managers to control predation on recovering fish populations, sea lions are setting new records for predation on wild fish below Bonneville Dam.

Figure 5 shows a number of troubling developments in recent years:

- In 2015, observers from the U.S. Army Corp of Engineers documented the record loss of 10,859 salmon and steelhead due to predation by sea lions in the tailrace areas near the base of Bonneville Dam.
- In 2016, California and Steller sea lions consumed a record 5.8 percent of all spring chinook salmon and steelhead pooling below the dam on their way upriver.
- Steller sea lions – some weighing up to a ton – set a record of their own in 2017 by taking more fish than the smaller California sea lions for the first time.

Meanwhile, sea lions are expanding into several tributaries of the lower Columbia River, notably the Willamette River. In 2016, they took an estimated 25 percent of the winter steelhead returning to the Willamette, prompting warnings from Oregon fish managers that the run could soon go extinct if predation isn't brought under control. Sea lions have also targeted sturgeon in recent years.

NOAA-Fisheries, the federal agency that oversees both salmon and sea lions, estimates that 45 percent of the spring chinook salmon consumed by sea lions are wild fish listed for protection under the federal Endangered Species Act (ESA). State, federal and tribal fishery managers have all warned that current trends in sea lion predation threaten to undermine the multi-billion-

dollar public investment to restore wild runs, while further constricting fishing opportunities for non-listed stocks.

Although neither sea lion species found in the Columbia River is listed under the ESA, both are protected under the Marine Mammal Protection Act (MMPA) of 1972. Since then, the coastwide population of California sea lions has grown to 300,000 animals, and the Steller sea lion population has increased to 70,000.

In 2008, five years after California sea lions started arriving at Bonneville Dam in large numbers, NOAA-Fisheries authorized Washington, Oregon and Idaho to trap and euthanize up to 93 California sea lions observed preying on salmon and steelhead in those waters. That authorization, granted under Section 120 of the MMPA, allows the states to remove individual California sea lions that meet the criteria outlined below.

Due to the difficulty of meeting these requirements, state wildlife managers have removed an average of 19 California sea lions a year, well below the annual limit of 93 animals.

Over the past decade, state wildlife managers from Washington and Oregon have removed a total of 199 California sea lions below Bonneville Dam that met the federal criteria for removal the dam. Of that number, 175 were euthanized by lethal injection, 15 were placed in zoos and aquariums, and nine died from accidental injuries.

Wildlife managers estimate that the removal of those animals has saved 15,000 to 20,000 spring chinook salmon that otherwise would have been eaten by California sea lions since 2009. It has not, however, prevented the loss of thousands of other fish or halted the increase in sea lions preying on wild salmon and steelhead runs every year.

Current requirements for removing a sea lion

Since 2008, NOAA-Fisheries has authorized fish and wildlife agencies in Washington and Oregon to trap and euthanize up to 93 California sea lions per year from the tailrace area below Bonneville Dam. The authorization does not allow the states to remove Steller sea lions.

To remove a California sea lion under the current rules, each animal must be:

- Individually identifiable, which usually requires trapping, marking, and releasing the animal.
- Observed at Bonneville Dam for five days.
- Previously observed eating a salmon at Bonneville Dam.
- Subjected to non-lethal hazing while at the dam.

Once a sea lion meets these criteria, the states must submit a request, along with supporting data, to NOAA-Fisheries for review. If NOAA approves the request, the state must again trap the specific sea lion before it can be euthanized.

Changes to the MMPA needed to address sea lion predation

The Marine Mammal Protection Act (MMPA) severely limits the ability of the fish and wildlife managers to expeditiously and efficiently address the sea lion issue. The solution:

- Revise the MMPA to give fishery managers the authority to remove sea lions that are moving into the lower Columbia River tributaries – before they habituate to natural and manmade bottlenecks where salmon and steelhead populations are vulnerable.
- Immediately expand geographic scope of the current permit to include the Willamette River and other lower Columbia River tributaries.



Figure 5: Predation on Salmon and Steelhead Below Bonneville Dam

Year	Salmon/ Steelhead Runs*	California Sea Lions Counted	California Sea Lion Predation	Steller Sea Lions Counted	Steller Sea Lions	Predation By All Sea Lions	Percent of Salmon/ Steelhead Run
2002	284,732	30	1,010	0	0	1,010	0.4%
2003	217,934	104	2,329	3	0	2,329	1.1%
2004	186,771	99	3,516	3	7	3,533	1.9%
2005	81,252	81	2,904	4	16	2,920	3.4%
2006	105,063	72	3,312	11	85	3,401	3.1%
2007	88,474	71	4,340	9	15	4,355	4.7%
2008	147,558	82	4,735	39	192	4,927	3.2%
2009	186,056	54	4,353	26	607	4,960	2.7%
2010	267,167	89	5,296	75	1,025	6,321	2.4%
2011	223,380	54	2,689	89	1,282	3,970	1.8%
2012	171,665	39	1,067	73	1,293	2,360	1.4%
2013	120,619	56	1,497	80	1,431	2,928	2.4%
2014	219,929	71	2,747	65	1,874	4,621	2.1%
2015	239,326	195	8,324	69	2,535	10,859	4.3%
2016	154,074	149	6,676	54	2,849	9,525	5.8%
2017	109,040	92	2,142	63	3,242	5,384	4.7%

Source: Army Corps of Engineers

* Passage at Bonneville Dam

Q&A

Will the removal of more California sea lions from the Columbia River threaten the overall sea lion population?

No. California sea lion numbers have grown rapidly since the 1970s and the species is now at “carrying capacity” – the highest level the environment can sustain. The U.S. population of California sea lions is currently estimated at some 300,000 animals, all on the Pacific coast. In the 1950s, the U.S. population of California sea lions estimated at 30,000 animals. Meanwhile, the eastern population of Steller seas lions is now estimated at 75,000 animals, up from 18,000 in 1979.

Why can't sea lions be relocated to other natural areas?

Previous efforts to relocate sea lions to other waters have been largely unsuccessful, because sea lions often return to the site where they were captured. The experience with sea lions at the Ballard Locks in Seattle in the late 1980s is a prime example: In 1988 and 1989, resource managers captured 39 California sea lions that had been foraging at the Ballard Locks and transported them to the outer Washington coast near Long Beach, where they were released. Within a few weeks, 29 of those animals returned to the Locks to resume preying on salmon and steelhead.

Are other impacts to ESA-listed salmon and steelhead being addressed?

Yes. There has been an extraordinary and growing effort in this region to protect and recover salmon and steelhead

populations. Sport and commercial fisheries on the Columbia River are specifically designed to target hatchery-produced fish and spare threatened and endangered stocks. In most cases, wild salmon and steelhead must be released, and fishing seasons are managed to hold incidental mortality rates for those fish within strict federal limits.

Meanwhile, recovery plans are being developed in every watershed to restore important habitat, improve dam passage survival and reform hatchery programs to assist wild fish populations. Northwest citizens have supported restoration efforts, and borne the costs, because of the importance of salmon to our heritage, their cultural value to Native Americans and the economic value of salmon to the Pacific Northwest.

Are sea lions native to the Columbia River?

Sea lions have roamed the Pacific coast for centuries, but were not seen entering the Columbia River in significant numbers until the 1980s. Steller sea lions are native to Northwest waters, and are now present at the mouth of the Columbia River year-round. California sea lions spend their annual breeding season at rookeries off the coast of southern California and Mexico. In fall, thousands of adult males and juveniles return north to forage for food along the west coast of North America. Surveys have shown that 2,000-3,000 California sea lions and 1,000 Steller sea lions have been present in the lower Columbia River near Astoria in recent years.

