Oregon
Kate Brown, Governor

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October 30, 2020

Barry Thom
Regional Administrator, West Coast Region
National Marine Fisheries Service
1201 Northeast Lloyd Boulevard, Suite 1100
Portland, OR 97232

Dear Mr. Thom:

The following information comprises our 2020 annual report to the National Marine Fisheries Service (NMFS) from the Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, and Idaho Department of Fish and Game (States), documenting compliance with the terms and conditions of our authorization for the lethal removal of predatory California sea lions (CSLs) in the vicinity of Bonneville Dam under §120 of the Marine Mammal Protection Act. The current authorization was granted April 17, 2019 and replaced NMFS' June 28, 2016, authorization.

Due to the COVID-19 pandemic, anticipated management work in spring 2020 was not conducted due to governor's orders and transmission risk for staff in handling animals. This decision was made unanimously by managing partners for both Bonneville Dam and Willamette Falls. Consequently, there are no management actions or resultant dietary analysis from removal animals to report. Pinniped survey activities and boat-based hazing activities at the beginning of the pandemic were briefly conducted by CRITFC and are summarized in this report.

Adherence to relevant Terms and Conditions are listed below.

Terms and Conditions

No. 1
N/A

No. 2

No. 3
Based on the observations conducted, no new animals were requested to be added to the Bonneville Dam Removal Authorization List in 2020.

No. 4
N/A

No. 5
The States consulted with our Institutional Animal Care and Use Committee (IACUC) prior to the 2020 field season in order to review protocols for capture, holding, and euthanasia of individually identifiable predatory CSLs.

No. 6.
N/A

Nos. 7 and 8.
N/A

No. 9
N/A

No. 10
N/A

No. 11
N/A

No. 12
The States notified the Regional Administrator, NMFS West Coast Region, of the cancellation of fieldwork for the spring 2020 season.

No. 13
The States, in cooperation with the USACE and the Columbia River Inter-Tribal Fish Commission (CRITFC), presented results from on-going monitoring of predation, the use of non-lethal deterrence, and the effectiveness of removals to reduce adult salmonid mortality in a February 8, 2017 report titled "Effectiveness review of Marine Mammal Protection Act §120 implementation under 2012 Letter of Authorization to Washington, Oregon, and Idaho.

No. 14
This letter describing our compliance with the terms and conditions of the current authorization and the following field report represents our annual monitoring report to NMFS. As of August 14, 2020, managing parties are under new authorization to conduct similar management activities at Bonneville Dam and an extended geographic area under a new set of requirements. The newest authorization also includes Steller sea lions within the geographic area of management (SEE: “NMFS MMPA Section 120 Permit Authorizing the Intentional taking on the Waters of

the Columbia River and its Tributaries of California Sea Lion and Steller Sea Lions", 14 August 2020).

No 15.
Under this authorization, the States consulted with the USACE predation observation program to identify any new CSL that have met the criteria for removal but no new animals were added. Under the new 2020 permit, individual identification of sea lions is not required. However, if previously-qualified animals are captured this will be noted and reported to NMFS.

No. 16
We understand that the authorization may be modified, suspended, or revoked by NMFS at any time given 72 hours' notice to the States.

No. 17
We understand that this authorization is valid until June 30, 2021, at which time it may be extended by NMFS for an additional period to be determined by NMFS.

Managing parties remain committed to pursuing all reasonable approaches to reduce pinniped predation on threatened and endangered Columbia River salmonids. As you know, however, existing non-lethal tools have proven highly ineffective and no effective new options have been identified. While we would prefer to find and implement successful non-lethal methods for reducing predation, permanent removal of some number of repeat offending predatory sea lions may continue to be necessary for the foreseeable future.

We thank you for your assistance and support of our work to monitor and reduce sea lion predation on threatened and endangered salmonids below Bonneville Dam and elsewhere in the lower Columbia River basin. Please let us know if we can provide further information related to our annual reporting obligations.

Sincerely,

Sheanna M Steingass

FIELD REPORT:
2020 PINNIPED RESEARCH AND MANAGEMENT ACTIVITIES AT BONNEVILLE DAM

Sheanna Steingass[1], Steven Jeffries[2], Doug Hatch[3], and Joe Dupont[4]

October 30, 2020

[1] Oregon Department of Fish and Wildlife
[2] Washington Department of Fish and Wildlife
[3] Columbia River Inter-Tribal Fish Commission
[4] Idaho Department of Fish and Game

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INTRODUCTION

Bonneville Dam, located approximately 235 km (146 miles) upriver from the Pacific Ocean, is the lowermost hydroelectric project on the Columbia River. During the 1980s and 1990s, one to two California sea lions (CSLs; *Zalophus californianus*) were reported annually at the dam during fishway inspections (Stansell 2004). In 2001, however, there were reports of up to six CSLs observed at one time, and in 2002 the U.S. Army Corps of Engineers (USACE) estimated that 30 CSLs were foraging at the dam for salmonids (*Onchorynchus* spp.), many runs of which are listed under the Endangered Species Act (ESA). Since then the minimum number of CSLs has fluctuated between approximately 40-200 individuals per year with associated predation of between approximately 1,000 and 8,000 salmonids per year (Tidwell et al. 2019).

Steller sea lion (SSL; *Eumetopias jubatus*) abundance and residency at the dam has also increased over the last decade, increasing from zero animals before 2003 to a maximum of 89 individuals in 2011 (Tidwell et al. 2019). They have also become a nearly year round presence, unlike CSLs which are present primarily in the spring. While SSLs initially foraged primarily on white sturgeon (*Acipenser transmontanus*), in recent years they have consumed more salmonids than sturgeon and have increasingly impacted fall and winter salmonid runs. Most notably, in 2017, SSLs consumed more salmonids than CSLs did in 2006 when the initial §120 authority was requested (Tidwell et al. 2019).

In response to increasing pinniped predation at the dam, state, federal, and tribal agencies have attempted to deter pinnipeds using a variety of non-lethal deterrents. Starting in 2005, these methods have included aerial and underwater pyrotechnics, acoustic harassment devices, vessel chase, rubber projectiles, and capture-relocation. While hypothetically effective at deterring predation by naïve animals, they have generally been found to be ineffective at deterring predation by habituated individuals (Scordino 2010).

Increasing predation by CSLs on ESA-listed salmonids, coupled with unsuccessful non-lethal deterrence efforts, led the States of Washington, Oregon, and Idaho in November 2006 to apply under §120 of the Marine Mammal Protection Act (MMPA) for the authority to permanently remove CSLs that were observed preying on salmonids near Bonneville Dam. In March 2008, National Marine Fisheries Service (NMFS) partially approved the States' application and issued a Letter of Authorization (LOA) for the lethal removal of certain CSLs under specific conditions (NMFS 2008). This authority was repeatedly challenged in federal court, which resulted in intermittent removal activity. Litigation ended in September 2013 when the US Court of Appeals for the Ninth Circuit ruled in NMFS's favor, allowing for the removal activity to continue under the State's 2012 LOA. That LOA expired on June 30, 2016 but was renewed in 2019 and then again this work was re-authorized until June 30, 2021 (NMFS 2016, NMFS 2019).

This report summarizes pinniped research and management activities at Bonneville Dam in spring 2020 in light of the COVID-19 pandemic. This work was led by the Oregon Department of Fish and Wildlife (ODFW) and the Washington Department of Fish and Wildlife (WDFW), in cooperation with the Columbia River Inter-Tribal Fish Commission (CRITFC). This work has been conducted in close coordination and cooperation with USACE and NMFS, as well as numerous other agencies.

METHODS

Boat-based deterrent activities

Boat-based hazers from CRITFC used a combination of deterrents (e.g., seal bombs, cracker shells, and vessel chase) in an attempt to deter pinnipeds from consuming threatened and endangered Columbia River salmon and steelhead as well as white sturgeon. Hazers primarily patrolled the tailrace Boat Restricted Zone (BRZ) at the dam in pursuit of foraging sea lions. The following was recorded for each discrete hazing event: species and number of pinnipeds encountered; starting location, time and direction of travel of pinniped(s); type and number of deterrent devices used; and ending location, time and direction of travel of pinniped(s). Predation observations and identifying marks of pinnipeds were also noted.

For personnel safety, and as recommended by the Fish Passage, Operations, and Management working group, boat access within the BRZ was limited to approximately 30 m from all Bonneville project structures and 50 m from main fishway entrances. No seal bombs were used within 100 m of fishways, floating orifices, the Powerhouse-2 corner collector flume or the smolt monitoring facility outfall. In addition, seal bombs use was halted once salmon passage exceeded 1,000 fish per day. Hazing activities were coordinated daily with the USACE Control Room and Fisheries Field Unit (FFU) personnel, as well as with USDA Wildlife Services staff, who were conducting additional sea lion hazing activities from project ground facilities. VHF-radio contact was maintained with Control Room staff while boat-hazing crews were active in the BRZ.

Pinniped surveys

River surveys were conducted by CRITFC to document and enumerate sea lion abundance and predation activity in the river below Bonneville Dam. Surveys either extended from the Bonneville Dam tailrace to the East Mooring Basin, in Astoria, Oregon or from the Bonneville Dam tailrace to the mouth of the Cowlitz River near Longview, Washington. Most surveys were conducted by two independent boats in order to estimate sea lion detectability. Each boat was crewed by a captain and at least one observer. Sea lion species, predation events and GPS location data were recorded for all sightings. In addition, counts of sea lions hauled out at the East Mooring Basin and at Phoca Rock were conducted throughout the season.

RESULTS AND DISCUSSION

Boat-based deterrent activities

The boat-based hazing crew from CRITFC hazed sea lions for a total of seven days between March 4, 2020 and March 20, 2020. After the latter date, all hazing activities were halted due to safety concerns related to difficulties in social distancing on boats and in vehicles. The hazing that took place resulted in 14 and 30 "takes" of CSLs and SSLs, respectively (where "take" refers to a discreet hazing event). A total of 169 cracker shells and 117 seal bombs were used during deterrent activities.

2020 Hazing Below Bonneville Dam

			Take*		Munitions	
Statistical Week	Week of	Days	#CSL	#SSL	Cracker Shells	Seal Bombs
10	3/1/2020	3	0	0	0	0
11	3/8/2020	2	6	10	70	49
12	3/15/2020	2	8	20	99	68
Grand Total		7	14	30	169	117

As in previous years, the purpose of non-lethal, boat-based deterrent activities was three-fold. First, it attempts to disrupt sea lion foraging behavior and reduce sea lion abundance immediately below Bonneville Dam, thereby increasing salmonid survival. Second, hazing may discourage naïve animals from becoming habituated to foraging below the dam, thus limiting the number of animals that may become eligible for permanent removal. Lastly, boat-based and/or structure-based hazing also fulfills the LOA requirement that predatory CSLs be exposed to hazing prior to subjecting them to permanent removal efforts. However, based on our anecdotal observations, there was no obvious reduction in overall sea lion abundance or predation in response to hazing. This is similar to other studies that have demonstrated that pinnipeds habituate quickly to acoustic and other deterrents that may be initially effective (see reviews by Fraker and Mate 1999 and Scordino 2010).

Pinniped surveys

Boat-based surveys took place beginning on February 24, 2020 and took place for four subsequent weeks before all activities were halted. A preliminary review of the tandem boat count data showed a return of relatively high sea lion abundance during this period between Portland's I205 bridge and Astoria. Estimates from the complete data set are still pending, but based on counts from a single boat, the average weekly in-river abundance was 543 (range 429-646) sea lions, and the haul-out counts at the Foss and Rainier docks averaged an additional 443 (range 146-825) sea lions per week during the same period. As in past years, the majority of these sea lions were observed near the mouth of the Cowlitz River.

ACKNOWLEDGEMENTS

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- PSMFC: Shay Valentine, Dan Heiner, Dave Colpo, Sarah Kirk.
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- IDFG: Christine Kozfkay, Donald Whitney, Robert Hand, Mark Drew DVM, Nicole Walrath DVM
- Safety and Security: Chris Allori, Oregon State Police; Murray Schlenker and Jeff Wickersham, Washington Department of Fish and Wildlife; and Jennifer Baker and Greg Webb, USACE.
- Katie Prager DVM, veterinary externs.

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We also wish to acknowledge and congratulate three colleagues who retired in 2020 that have worked on salmon and sea lion issues in the Columbia River Basin for decades and for whom we owe a great debt of gratitude: Tom Murtagh (ODFW), Steve Jeffries (WDFW), and Bob DeLong (NMFS). And more sadly, we note the passing of two long-time colleagues in 2020 who were also instrumental in salmon conservation and sea lion work in the Columbia River Basin: Bobby Begay (CRITFC) and Dan Heiner (PSMFC). For all five of these colleagues we can truly say that if we are successful in our work then it will be by building on the strong foundation that they have laid.

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