UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
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MEMORANDUM FOR: F/NWR - File

FROM: Donna Darm
Assistant Regional Administrator, Protected Resources

SUBJECT: Endangered Species Act (ESA) Section 7 Consultation and Biological Opinion – Applicability to a new decision made in response to Ninth Circuit's vacatur and remand

On March 14, 2008, we (the National Marine Fisheries Service) issued a final environmental assessment (EA) and finding of no significant impact (FONSI) pursuant to the National Environmental Policy Act (NEPA) in connection with its authorization to reduce sea lion (pinniped) predation below Bonneville Dam in the lower Columbia River on salmon and steelhead (salmonids) listed under the Endangered Species Act (ESA). On November 23, 2010, the Ninth Circuit instructed the district court to vacate our authorization and remand the decision to NMFS for further explanation. We reviewed the instructions from the Court and have decided to issue a revised authorization with the additional explanation required by the court. In doing so we analyzed new information that has become available during implementation of the 2008 authorization, prepared a NEPA Supplemental Information Report (NMFS 2011a) and determined that the proposed authorization contains only minor changes from the original authorization and that there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts. The purpose of this document is to determine whether there is a need for further formal consultation under Section 7 of the ESA based on any changes in the proposed action, or whether prior formal consultations that were completed for the 2008 authorization appropriately analyze the potential adverse effects from the proposed action on threatened or endangered species, and designated critical habitat.

Consultation History and Background

Over the past decade, we have received funds to implement the Federal Columbia River Hydropower System's Biological Opinion. A portion of those funds has been granted to the Pacific States Marine Fisheries Commission to work with the Oregon Department of Fish and Wildlife (ODFW) and the Washington Department of Fish and Wildlife (WDFW) to reduce pinniped predation on ESA listed adult salmonids passing Bonneville Dam. In 2006 and 2007 we consulted with ourselves on the funding of that grant; we also consulted with the Corps who also funds and conducts (in partnership with ODFW and WDFW) non-lethal sea lion deterrence activities at Bonneville Dam. These consultations resulted in findings of "not likely to adversely affect" ESA listed salmonids or their designated critical habitats, or adversely affect MSA essential fish habitat [consultation #s 2006/00481, 2006/01021, 2007/00896]. In 2006, Idaho Department of Fish and Game, ODFW and WDFW (collectively referred to as the States)

applied for authority to lethally take, by intentional means, individually identifiable California sea lions in accordance with Section 120 of the Marine Mammal Protection Act (MMPA) in the vicinity of Bonneville Dam. We again consulted with ourselves on both the actions previously analyzed and on partially granting the States' application and reached a finding of not likely to jeopardize the continued existence of threatened or endangered salmonids or adversely modify their designated critical habitats, or adversely affect MSA essential fish habitat. The biological opinion also concluded that the action would not "jeopardize" the continued existence of the listed Steller sea lions and would have "no effect" on designated critical habitat for the species [consultation # 2008/00486]. During the first year of implementation of the 2008 LOA an accident occurred and two Steller sea lions died. Section 7 consultation was reinitiated and procedural modifications were adopted to reduce the likelihood of future mortality. The modified procedures were analyzed and a revised 2009 biological opinion and incidental take statement were prepared. (consultation # 2008/08780). The action and environmental conditions that provided the basis for the detailed description of the proposed action, action area, status of species and critical habitat, environmental baseline, and effects analysis including cumulative effects, as presented in the 2009 biological opinion are substantially unchanged, except for the minor updates presented here and are incorporated by reference.

Affected Species: Endangered Upper Columbia River spring Chinook salmon (*Oncorhynchus tshawytscha*)
Endangered Snake River sockeye salmon (*O. nerka*)
Threatened Snake River spring/summer Chinook salmon (*O. tshawytscha*)
Threatened Lower Columbia River coho salmon (*O. kisutch*)
Threatened Columbia River chum salmon (*O. keta*)
Endangered Upper Columbia River steelhead (*O. mykiss*)
Threatened Snake River Basin steelhead (*O. mykiss*)
Threatened Middle Columbia River steelhead (*O. mykiss*)
Threatened Lower Columbia River steelhead (*O. mykiss*)
Threatened Eastern U.S. stock Steller sea lion (*Eumetopias jubatus*)

Summary Description of the Proposed Action and Relationship of the Anticipated Impacts from the Action to the 2008 and 2009 Biological Opinions

The proposed action is to re-authorize the sea lion lethal removal program, as previously authorized in 2008 (i.e. – Alternative 3 from the 2008 EA). In particular, the measures, standards, and levels of sea lion removal identified in the 2008 LOA, evaluated in our 2008 EA and FONSI, and analyzed in our 2008 and 2009 biological opinions will be continued, with the exception of two minor changes.

Proposed Action

The proposed sea lion removal program at Bonneville Dam includes two types of actions that may affect listed salmonids and Steller sea lions. They are: (1) lethal removal of California sea lions, and (2) non-lethal deterrence of all pinnipeds, as described below. The proposal includes the amendments adopted in 2009 following a programmatic review of sea lion capture procedures conducted in response to the accidental deaths of six sea lions on May 4, 2008. These actions would occur annually for a period of three years. The core period of operation of

non-lethal deterrence would take place from mid-March through early June but removal of individually identified predatory sea lions, as governed by the States' Letter of Authorization, may occur at any time.

Lethal Removal of California Sea Lions

The proposed authorization allows the States to permanently remove (i.e., kill or place in permanent captivity) up to 85 California sea lions annually. Those animals would be removed from the action area described in the 2008 EA by (1) catching them in a trap (floating dock-like structure that animals jump onto to rest and dry off) and either placing them in a display facility or killing them with lethal injection or gunshot, or (2) shooting them in the area below the dam. Various measures will be implemented to ensure that trapped animals are held, transported, and/or killed humanely; that Steller sea lions are not accidentally killed; and that public safety is maintained.

Non-Lethal Deterrence Activities

Funded by NMFS, the Corps, and the BPA, the States (in partnership with the Corps and CRITFC) propose to continue using non-lethal sea lion deterrence methods including: above water (vessel chasing, cracker shells, aerial pyrotechnics, rubber projectiles) and under water (sea lion exclusion devices (physical barriers), acoustic deterrent devices, and underwater firecrackers). A detailed description of these techniques was provided in the previous biological opinions and is incorporated by reference. Non-lethal hazing tools will be used on Steller sea lions observed on or around the sea lion traps below the dam to minimize their use of the trap platforms as resting areas.

The Corps has specified safety protocols for using underwater firecrackers within the boat-restricted zone for the protection of personnel and juvenile and adult fish:

- A 100-foot minimum approach distance for boats near all project structures
- A 150-foot minimum approach distance from fishway entrances
- No use of firecrackers within 300 feet of all fishways, floating orifices, Bonneville Powerhouse 2 Corner Collector, smolt monitoring facility outfalls, or within 150 feet of any shoreline or shallow area
- No more than five firecrackers per animal per encounter within the boat restricted zone
- No firecracker use within the boat-restricted zone once fish counts reach 1,000 fish per day

Seal bombs would be deployed according to manufacturer's instructions and in compliance with Corps' safety protocols. Approximately 2,500 seal bombs would be used each season during non-lethal deterrence activities.

Capture, Marking, and Relocation

Sea lions would be captured at the dam using up to four or more caged floating platforms that would be placed in locations readily accessible to the animals. The cages operate with manually operated drop type doors which, when tripped, fall into place securing the cage and the sea lions inside. The trap door closing mechanisms are fitted with physical retaining pins with trigger lines and magnetic releases to activate the door closing systems. California sea lions would be

handled and potentially marked according to protocols outlined in the MMPA permit held by ODFW. Steller sea lions may be handled pursuant to a separately issued MMPA/ESA Scientific Research Permit (Number 14326) or immediately released from the trap with minimal handling and according to agency pinniped safe handling protocols. When trapping activities are not scheduled, the trap doors will be secured with mechanical or electronic magnetic locks so that the doors cannot be accidentally tripped. Under these circumstances the locked traps will be monitored several times per day for animal presence and trap condition.

During active capture operations the traps would be unlocked and monitored hourly throughout the day to be sure the doors remain open until intentionally tripped. The traps would be monitored day and night using a combination of physical visits to the trap site, viewing from the Washington shoreline, and/or remote camera observation as visibility permits.

Changes from the Previous Action

The specific changes in the current proposed authorization compared with the 2008 LOA are 1) the elimination of the 1% average salmonid predation rate threshold for suspending lethal removal activities (Condition 15 in the 2008 LOA); and 2) modification of criteria for defining "individually identifiable predatory California sea lion" to include animals seen taking salmonids in the fish ladders or above Bonneville Dam.

The detailed rationale for these changes is presented in the Supplemental Information Report prepared for the proposed action. The 1% average salmonid predation rate threshold for suspending activities is unnecessary because the number of CSLs that would be authorized for removal under the proposed action (1% of the potential biological removal level for the marine mammal stock) is adequate to protect the sea lion population. Salmonid predation rate expressed as a percentage of the adult return fluctuates widely with the strength of the run and therefore it is an unreliable measure of the risk posed by predation on listed salmonids. The minor modification to include CSLs observed taking salmonids in the fish ladders or above the dam will address circumstances such as the one observed sea lion (C697) preying on salmonids above Bonneville Dam in 2010, and the possibility that additional CSLs may learn to successfully forage in the fish ladders or above the dam in the future. Sea lion C697 had been observed in the tailrace numerous times before being observed taking fish in the forebay. He was captured and released downstream (because he hadn't been observed taking fish in the tailrace observation area prior to moving upstream). The 2008 LOA required that to be eligible for removal a sea lion must have been observed taking salmonids in the observation area below the dam. Ultimately C697 captured above the dam and released on the coast, returned, was observed taking salmonids below the dam, and was removed. The delayed removal resulted in additional predation by this individual prior to recapture.

Except for these minor changes to the administration of the authorization, there are no changes to the three activities specified above (lethal removal, non-lethal deterrence, and capture) from those implemented in 2009 and 2010 under the 2008 LOA. This document provides a brief summary and update of the Environmental Baseline and the Effects Analysis from the 2008 and 2009 biological opinions to examine the anticipated impacts from implementation of our proposed authorization to the States to lethally remove California sea lions, our and BPA's funding of non-lethal sea lion deterrence activities, and the Corps' continuing program to deter

nuisance sea lions from entering the adult fish passage system at Bonneville Dam. We conclude that the effects from the current proposed authorization on ESA listed salmonids, Steller sea lions and designated critical habitat, will be within the scope of the 2009 Biological Opinion and that re-initiation of formal consultation under Section 7 of the ESA is not required. We base this conclusion on the fact that the action is substantially the same as the 2008 action on which we previously consulted; the conclusions from that consultation; and on the updated information and analysis presented here, in the Supplemental Information Report prepared for the action.

Action Area

The proposed action would be implemented at Bonneville Dam. Bonneville Dam is located on the Columbia River at river mile 146, approximately 42 highway miles east of Portland, Oregon. The Oregon-Washington state boundary lies along the main Columbia River channel, dividing the project area between the two states. The Bonneville Lock and Dam facility includes two navigation locks, two powerhouses, a spillway, fish passage facilities, a fish hatchery, and two of the largest visitor complexes administered by the Corps.

The action area is the Columbia River from Bonneville Dam from river mile 140 – 147. The proposed action would occur in the section of the Columbia River starting at navigation marker 85 (approximately river mile 140) continuing upstream to the immediate vicinity of the tailrace, dam and forebay. This is a slight change from the area described in 2009 because an additional mile has been added upstream of the dam in the forebay area to accommodate observations of predation in that area. The downstream "observation area" (composed of three zones) used by the Corps in their monitoring efforts and the Boat Restricted Zone (BRZ) remain unchanged from the area described in the 2008 and 2009 biological opinions. Observers at the dam may conduct observations in the forebay to document sea lion abundance, attendance, and predation in the area. As with the prior authorization, California sea lions would only be shot within the BRZ. The trapping, marking and possible lethal injection operations would occur within the BRZ or in the forebay, as well as at two existing and permitted sea lion trapping operations (Astoria, Oregon and Puget Sound, Washington). The forebay has been added to the description of the area where trapping may occur. For clarification, however, we specifically consider that the 2008 authorization allowed trapping activities coastwide except for rookeries. The coastwide trapping authorization is unchanged in the proposed action considered here.

STATUS OF THE SPECIES AND CRITICAL HABITAT

The ESA defines species to include "any subspecies of fish or wildlife or plants, and any distinct population segment (DPS) of any species of vertebrate fish or wildlife which interbreeds when mature." An 'evolutionarily significant unit' (ESU) of Pacific salmon (Waples 1991) and a 'distinct population segment' (DPS) of steelhead (71 FR 834; January 5, 2006) are considered to be 'species,' as defined in section 3 of the ESA.

Recently Listed Species

Two additional species, listed under the ESA were not included in the 2009 biological opinion. The southern DPS of eulachon (*Thaleichthys pacificus*) listed as threatened in 2010 (75 FR 13012; March 18, 2010) and the southern DPS of green sturgeon (*Acipenser medirostris*) listed as threatened in 2006 (71 FR 17757, April 7, 2006).

Eulachon occur in the Columbia River and many of the major tributaries in the lower Columbia River Basin (Gustafson et al. 2010). Historically the range of eulachon in the Columbia River likely extended as far upstream as Cascade rapids (Oregon Fish Commission 1953), although some fish may have ascended as far as Hood River (Smith and Saalfeld 1955), bypassing Cascade Rapids via Cascade Locks. Following completion of Bonneville Dam both Cascade Rapids and Cascade Locks were submerged, removing the rapids as a passage barrier. It is highly unlikely that eulachon can ascended the Bonneville Dam fish ladder, but they have been documented passing through the dam shipping locks (Oregon Fish Commission, 1953). Eulachon have been reported upstream of the dam in several years, including significant numbers in 1945 and 1953 (Oregon Fish Commission 1953; Smith and Saalfeld 1955) and sporadically in recent years, 1988 (Johnsen et al., 1988), 2003 (Corps, 2003), and 2005 (Martinson et al., 2010). It is unknown whether eulachon spawn in the Columbia River in the immediate vicinity of Bonneville Dam, but the nearest documented eulachon spawning area is the Sandy River at Columbia River mile 120.

Other than the observations of eulachon using the navigation locks and smolt bypass facilities at Bonneville Dam we know very little about eulachon presence in the area below the dam. We assume that eulachon movements are restricted to slower moving water because of their size and used juvenile salmonids as a surrogate for estimating potential behavioral effects. The number of eulachon that ascend as far Bonneville Dam is unpredictable but expected to be small because the majority of the eulachon entering the river either spawn in the lower river or are drawn to down river tributaries to spawn (including the Cowlitz, Grays, Kalama, Lewis, and Sandy Rivers). The effects of sea lion deterrence activities on eulachon are discountable because of the remote likelihood of exposure. Eulachon have not been documented in the area since 2005 and only sporadically before that. Safety protocols for underwater firecracker use that have been in place since 2006 to protect both adult and juvenile salmonids would also likely benefit eulachon if present. Under water firecrackers are most often used in proximity to the power houses to initiate vessel pursuit of sea lions and the strong currents in the areas below the power houses would not be accessible to eulachon. Exposure to vessel noise and residual sound energy from aerial deterrents may elicit a short-term startle response from fish but would have no measurable effect on distribution or survival of individual fish and would therefore be insignificant. Residues from pyrotechnics (paper, carbon, sulfur) would be carried away by the wind or quickly diluted in the flowing water and therefore would have no measurable effects. Underwater firecrackers have not been used in the lock chamber or fish bypass facilities where eulachon have been documented.

Green sturgeon may occur in the Columbia from the mouth to Bonneville Dam but abundance in the river is concentrated in the lower estuary below river mile 46. Observers at Bonneville Dam have reported predation by pinnipeds on white sturgeon below the dam from 2002 to 2010 but no predation events involving green sturgeon have been reported. There have been no reported surface behaviors, injuries or mortalities of eulachon or green sturgeon associated with the non-lethal pinniped deterrence activities conducted in the action area for the last six years (2005 through 2010).
Based on the low likelihood of occurrence, existing safety protocols, and lack of any observed evidence of exposure to previous activities, NMFS has determined that activities under the

proposed authorization, including non-lethal pinniped deterrence activities are not likely to adversely affect listed eulachon or green sturgeon.

Critical habitat was designated for green sturgeon in 2009 (74 FR 52300; October 9, 2009) and includes the lower Columbia River estuary below river mile 46. Critical habitat for eulachon was proposed in 2011 (76 FR 515, January 15, 2011) and includes the lower Columbia River below Bonneville Dam and final designation is pending review of public comments. There is no designated critical habitat for green sturgeon in the action area and the area in the Columbia River from river mile 46 to Bonneville Dam is considered to be of low conservation value for the species. Proposed critical habitat for eulachon includes the action area but effects of the proposed action are expected to be negligible for similar reasons described for listed salmonid critical habitat. The action will not affect the essential feature components of the proposed critical habitat including river flow, water temperature, or substrate quality, and the action will not alter the abundance or distribution of other prey species in the area. In addition, effects on water quality from non-lethal pinniped deterrence activities are expected to be negligible.

A species' status is generally governed by the risks posed to its abundance, diversity, production, and distribution. The status of critical habitat is affected by the condition of the physical and biological features that are essential for species recovery.

Columbia River Basin Salmon and Steelhead

In the Columbia River basin there are currently13 ESUs/DPSs of salmon and steelhead listed as threatened or endangered under the ESA. Of these 13 listed species, nine have a geographic range that overlaps with the action area and have juvenile or adult run-timing that coincides with the period when pinnipeds are present below Bonneville Dam and would therefore be present when the California sea lion removal program takes place.

The nine ESUs/DPSs of salmonids whose spatial and temporal distributions coincide with the presence of pinnipeds in the action area are the: (1) Upper Columbia River spring-run Chinook ESU; (2) Snake River spring/summer-run Chinook ESU; (3) Snake River sockeye salmon ESU; (4) Upper Columbia River steelhead DPS; (5) Snake River Basin steelhead DPS; (6) Middle Columbia River steelhead DPS; (7) Lower Columbia River steelhead DPS; (8) Columbia River chum salmon ESU, and (9) Lower Columbia River coho salmon ESU. The extinction risk and ESA status for these ESUs/DPSs are the subject of an ongoing status review and new information from the review is unavailable. Preliminary results presented to the Pinniped Fishery Interaction Task Force in 2010 (Rumsey 2010) indicate that salmonid population status remains substantially unchanged or slightly improved from that described in 2009. Therefore, the species descriptions, listing history, viability ratings and current status reported in the 2009 biological opinion and are incorporated by reference.

Salmonid Critical Habitat

Critical habitat has been designated for 12 of the 13 listed salmonids in the Columbia River basin (the exception being lower Columbia coho). The proposed action would occur in the designated critical habitat of 10 ESUs/DPSs with designated critical habitat (that is, all nine salmonids affected by the proposed action and one not affected by the action). The dates of designation and a general description of the area designated, for the affected ESAs/DPSs, with federal register

citations (58 FR 68543; December 28, 1993, 64 FR 57399; October 25, 1999, 70 FR 52630; September 2, 2005) were provided in the 2009 biological opinion and are incorporated by reference.

Steller Sea Lions

Steller sea lions were listed as threatened under the ESA in 1990 (55 FR 49204; November 26, 1990) across their entire range. Further research on stock structure and continued declines in the western portion of the population led to a listing of the western U.S. DPS as endangered in 1997 (FR 62, 24345; May 5, 1997) however the eastern U.S. DPS remained listed as threatened. Steller sea lions in Washington and Oregon are from the eastern DPS. The Recovery Plan for the Steller Sea Lion, published March 5, 2008 (73 FR 11872; March 5, 2008) identified eight factors as having the potential to influence the population including (1) predation; (2) harvest, killing, and other human impacts; (3) entanglement in debris; (4) parasitism and disease; (5) toxic substances; (6) global climate change; (7) reduced prey biomass and quality; and (8) disturbance. With exceptions in southern and central California, populations associated with the majority of west coast rookeries from northern California to southeast Alaska have either increased or stabilized at relatively high levels in recent years. General life history, distribution and population status information with references were provided in the 2009 biological opinion, remain unchanged and are incorporated by reference.

Steller Sea Lion Critical Habitat

There is no critical habitat for Steller sea lions designated within the action area. A review of the status of critical habitat for the eastern U.S. DPS of Steller sea lions can be found in the final Steller sea lion Recovery Plan (NMFS 2008).

ENVIRONMENTAL BASELINE IN THE ACTION AREA

Environmental baselines for biological opinions are defined by regulation at 50 CFR 402.02, which states that an environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process.

Listed Salmonids

The environmental baseline for listed salmonids in the action area, including elements of critical habitat in freshwater migration corridors, remains unchanged from the conditions described in the 2009 biological opinion.

Steller Sea Lions

Steller sea lions were first observed below Bonneville Dam in 2003 when three individuals were observed. By 2006, that number had grown to 11 (compared to more than 70 individually identified California sea lions) (Stansell 2010). During the 2007 season, Steller sea lions were first observed at the dam on December 10, 2006. Up to nine Stellers were observed on any one day during the early spring, but numbers and attendance at the dam dropped dramatically following the initiation of concentrated hazing effort on February 28, 2007. The first Steller sea

lion seen in the tailrace at the beginning of the 2008 season was observed on November 6, 2007. The estimated number of individual pinnipeds observed at Bonneville Dam in 2008 was higher than estimates from the previous three years (Tackley et al 2008). Up to 17 Steller sea lions were observed on any one day during the spring, but unlike their behavior in 2006 and 2007, Steller sea lions did not leave after dam- and boat-based hazing commenced in 2008. The minimum estimated total number of Steller sea lions at the dam was 39 in 2008, 26 in 2009, and 75 in 2010. The 2008 through 2010 Steller sea lion estimates were made using different methodology initiated by the Corps in 2009 (Stansell et al 2009). Prior to 2009, the maximum daily count of Steller sea lion observed during the season was used as the minimum estimated number present during that year. In 2009, the Corps began a review of Steller sea lion observation data and used observations of unique markings (anatomical features, color patterns, scars, etc) to identify individual animals and refine the minimum estimated number of Steller sea lions present. The methodology is similar to that used when assessing California sea lions at the dam. Applying the new methodology to data from the 2008 season, the Corps estimated that the minimum number of SSLs at the dam was 39 (32% of the total pinnipeds present), or more than twice as many as was estimated using the maximum daily count (17) as the basis for the estimate for that year. The minimum estimated total number of Steller sea lions was 26 in 2009 (32%) but jumped to 75 in 2010 or 45% of all pinnipeds present. Using the new methodology consistently over the three years from 2008 – 2010 changes the baseline estimate for Steller sea lions beginning in 2008 but also indicates that there was an actual increase in the number of Steller sea lions present at the dam between 2008 and 2010.

Steller sea lions at Bonneville Dam feed primarily on white sturgeon (Stansell 2007). Additional summary data from the Corps for 2002 – 2007 identifies prey preference by species, attributing 99.2 percent of observed salmonid take to California sea lions, 99.2 percent of observed lamprey take to California sea lions, and 97.8 percent of observed sturgeon take to Steller sea lions (R. Stansell, pers. comm., Corps, September 4, 2007). Observations in 2008 showed similar trends, with 96.2 percent of the salmonid predation being attributed to California sea lions and 97. 7 percent of white sturgeon takes coming from Steller sea lions (Tackley et al 2008). In 2008 – 2010 salmonid consumption by Steller sea lions began to increase. Table 1 shows the expanded catch of salmonids by California sea lions and Steller sea lions based on surface observations. California sea lions still take the majority of salmonids at the dam but Steller sea lion predation was greater than 16% of the salmonids taken by pinnipeds in 2010. Regardless of increasing numbers of Steller sea lions at the dam, the action area is one of many areas available to Steller sea lions for foraging and we consider it to be of marginal importance given that the vast majority of Steller sea lions in the lower Columbia are concentrated in the lower estuary near the mouth of the river (up to 1000 animals seasonally at the South jetty). The individuals present in the action represent a small fraction of the overall Steller sea lion population.

Table 1 –Estimates of Salmonids Caught by California and Steller sea lions based on Surface Observations 2002 through 2010

		All Pinnipeds			CSL			SSL	
	Total	Estimated	%		Estimated	%		Estimated	%
	Salmonid	Salmonid	Run		Salmonid	Catch		Salmonid	Catch
Year	Passage	Catch	Taken		Catch	Taken		Catch	Taken
2002	281,785	1,010	0.36%		1,010	100%		0	0%
2003	217,934	2,329	1.06%		2,329	100%		0	0%
2004	186,770	3,533	1.86%		3,516	99.5%		13	0.5%
2005	81,252	2,920	3.47%		2,904	99.5%		16	0.5%
2006	105,063	3,023	2.80%		2,944	97.4%		76	2.6%
2007	88,476	3,859	4.18%		3,846	99.6%		13	0.4%
2008	147,534	4,466	2.94%		4,294	96.1%		172	3.9%
2009	186,060	4,489	2.36%		4,037	89.9%		452	10.1%
2010	267,184	6,081	2.23%		5,095	83.8%		986	16.2%

Source: Expanded estimates of observed predation Stansell et al 2010.

EFFECTS OF THE PROPOSED ACTIONS

NMFS section 7 regulations at 50 CFR 402.02 define the effects of the action as "the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the environmental baseline." 50 CFR part 402 directs us to determine whether the effects of an action can "reasonably would be expected . . . to reduce appreciably the likelihood of both survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." This is known as the jeopardy determination.

Effects on Critical Habitat

Salmonid Critical Habitat

The field activities to be conducted under the proposed authorization are the same as those previously analyzed in the 2009 biological opinion and no new effects on salmonid critical habitat are anticipated.

Steller Sea Lion Critical Habitat

There would be no effect on Steller sea lion critical habitat because there is no designated habitat within hundreds of miles of the action area (the closest critical habitat is off the Southern Oregon coast).

Effects on Salmonids

The potential direct and indirect effects on listed salmonids from the pinniped deterrence program at Bonneville Dam remain unchanged because activities at the dam will be the same as those previously assessed. The effects of surface activities directed at sea lions, vessel hazing, aerial pyrotechnics, and cracker shells present no new or unknown risks compared to those

previously considered. Safety protocols for the use of underwater firecrackers that were implemented to protect fish will remain in place.

In 2005, the first year of non-lethal sea lion deterrence testing below Bonneville Dam, approximately 100 juvenile and one adult salmonids were observed reacting (coming to the surface, erratic swimming) to the use of seal bombs. This event led to the establishment of the seal bomb use protocol described above. No adult or juvenile salmonids were observed reacting, injured, or killed during the non-lethal sea lion deterrence activities during sea lion control operations in 2006, 2007, or in 2008 (NMFS 2007 and Brown et al 2008). Field reports prepared by COE and the States on activities conducted between 2008 and 2010 did not address salmonid injury or mortality resulting from non-lethal deterrence activities. The COE, however, confirmed that no injuries or mortalities of salmonids associated with non-lethal pinniped deterrence measures have been observed since 2008 and that they have no evidence to suggest any fish injured or killed due to any of the hazing/non-lethal deterrents over the years (R. Stansell pers. comm. 2011). The observations conducted between 2008 and 2010 have not revealed any new or unanticipated effects on listed salmonids.

Take – The estimated abundances of returning adults and juvenile salmonids migrating through the action area are expected to fall within the range examined in 2009. Given the numbers of listed fish (both adult and juvenile) likely to be present during the action, the small likelihood of actually encountering them, and the even smaller chance that they will suffer any permanent ill effects from any such encounters, NMFS determined that the non-lethal deterrence and removal actions are likely to cause the following levels of take. For the duration of the action (2009 through 2012), and based on the observations made in 2005, we anticipate a yearly harassment take of up to 100 adult salmonids and a lethal take of up to 10 adult salmonids. Because all the ESUs and DPSs will be distributed throughout the action area in a more or less random fashion, those numbers represent totals for all species combined. Further, and for the same reasons, we also anticipate that up to 1,000 salmonid smolts may be harassed, and up to 100 salmonid smolts may be killed yearly. The list of affected species and estimates of potential impact between life stages were presented in Tables 9 & 10 in the 2009 biological opinion and are incorporated by reference. Given that there have been no observed salmonid injuries or mortalities following the implementation of protective safety measures for underwater firecrackers, the previous take estimate has not been exceeded and appears conservative and adequate for the proposed action through 2013.

Effects on Steller sea lions

The deterrence activities conducted in the field under the proposed authorization will not change and there are no new or anticipated direct effects beyond those previously assessed. ODFW, WDFW, and CRITFC conducted non-lethal pinniped deterrence activities from boats downstream of the dam during the three years since the issuance of the 2008 LOA. In 2008, boat based hazers deployed 9,225 crackershells, 3,148 seal bombs, 590 rubber buckshot rounds resulting in 523 Steller sea lion harassment takes during 1,353 reported hazing events as animals were chased from the observation area (Brown et al. 2008). Even though Steller sea lion numbers increased from 2008 through 2010 the number of harassment takes declined as boat hazing crews became more involved in sea lion trapping activities which will be discussed further below. In 2009, 10,227 crackershells, 1,627 seal bombs, 168 rubber buckshot rounds

were used resulting in 427 Steller sea lion takes by harassment (Brown et al. 2009). In 2010, 337 Steller sea lion takes by harassment were reported with 4,921 crackershells, 777 Seal bombs, and 97 rubber buckshot rounds deployed (Brown et al. 2010). Individual Steller sea lions may be harassed multiple times over the course of a day as they move from place to place around the tailrace or from day to day over the course of a season. The observations conducted between 2008 and 2010 have not revealed any new or unanticipated effects on listed Steller sea lions.

Take - In 2008, the non-lethal deterrence activities took place during daylight hours over 89 days from December 12, 2007 through May 15, 2008. A total of 523 harassment "takes" of Steller sea lions were recorded during 749 hazing events. (California sea lions are the primary target for hazing activities, multiple animals may be "taken" in a single hazing event and animals that return repeatedly may be taken multiple times.) The harassment take therefore exceeded the estimate in the 2008 biological opinion (Tracking Number F/NWR/2008/00486). The main reason for this is that the animals showed increased tolerance to the hazing activity in 2008. In addition, the number of Steller sea lions present during the season increased substantially in 2008 over 2006/07 levels. Given the observed increase in numbers of Steller sea lions in 2008, combined with the observed behavioral changes we concluded, in the 2009 biological opinion, that the trend would likely stabilize or continue to increase. Accordingly, and based on the experience in 2008, we estimated up to 889 harassment takes of Steller sea lions could occur annually throughout the duration of the proposed program from 2009 through 2012. Although the trend in abundance has continued upward, actual harassment takes of Steller sea lions have declined as shown above. Based on the observed take levels under the prior authorization and activities as amended in 2009, the estimated take level (889) was not exceeded in 2009 and 2010 and appears conservative and adequate for the proposed action through 2013. The proposed action has been extended through 2013 to allow an additional season of data collection. It is unlikely that the non-lethal deterrence activities will kill or injure any animals because no marine mammal injuries or mortalities have been observed during the four years the program has run so far. In addition, no Steller sea lions have been injured or killed during trapping operations since additional safety measures were implemented in 2009. Those safety measures will remain in place under the proposed authorization.

Conclusion

The California sea lion removal program and funding of non-lethal sea lion deterrence activities will not affect listed salmonid stocks or Steller sea lions in any way not previously considered, so the previous analysis of adverse effects remains valid. After reviewing the available information presented in the 2009 biological opinion and the Supplemental Information Report for the proposed action, the environmental baselines for the action areas, the effects of the proposed sea lion removal program and any cumulative effects, I have determined that the conditions of re-initiating consultation have not been exceeded and further formal consultation is not required. As discussed above, the reasons for this conclusion with the respect to listed salmonids, Steller sea lions and critical habitat are:

- The amount or extent of the specified annual take has not been exceeded and is expected to remain within the level prescribed (see 2009 Incidental Take Statement). Only a very small number of individual salmonids, if any, are likely to be injured or killed.

- The new information from observations between 2008 and 2010 do not reveal effects to listed salmonids, Steller sea lions, or critical habitat in a way not previously considered.

- The proposed action has not been modified in a way that causes an effect on the listed species or critical habitat that was not previously considered.

- For species not previously addressed (eulachon and green sturgeon and their designated or proposed critical habitat), the above discussion documents that this action is either not likely to adversely affect or to have no effect, and there are no other new listed species or designated critical habitat in the action area that may be affected by the proposed action.

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