

SUPPLEMENTAL INFORMATION REPORT

**TO THE 2008 FINAL ENVIRONMENTAL ASSESSMENT – REDUCING THE IMPACT
ON AT RISK SALMON AND STEELHEAD BY CALIFORNIA SEA LIONS IN THE
AREA DOWNSTREAM OF BONNEVILLE DAM ON THE COLUMBIA RIVER,
OREGON AND WASHINGTON**



May 09, 2011

I. Introduction

On March 14, 2008, the National Marine Fisheries Service (NMFS) 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 seal and 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 NMFS' authorization and remand the decision to NMFS for further explanation. NMFS intends to issue a revised authorization with the additional explanation required by the court. The purpose of this supplemental information report (report) is to determine whether there is a need for supplemental NEPA analysis based on any changes in the proposed action, any significant new circumstances, or any significant new information that are relevant to environmental concerns and bear on the proposed action or its impacts.

II. Background

On December 5, 2006, the States of Oregon, Washington and Idaho applied to the NMFS pursuant to Section 120 of the Marine Mammal Protection Act (MMPA) for authority to lethally take, by intentional means, individually identifiable California sea lions (CSL) that prey on salmonids listed under the ESA, below Bonneville Dam in the lower Columbia River. Following receipt of the states' application, NMFS established a Pinniped-Fishery Interaction Task Force (Task Force) pursuant to MMPA to review the application and available data and provide recommendations to NMFS on whether to approve or deny the application. The Task Force subsequently recommended (with one of 18 members dissenting) that NMFS approve the states' application for lethal take authority, while continuing non-lethal deterrence measures.

After reviewing and considering (1) the states' application, (2) public comment on the states' application, (3) the Task Force report and recommendations, (4) comments and information presented by the Marine Mammal Commission (MMC), and (5) other information about sea lion predation on salmonids at Bonneville Dam, NMFS prepared a draft EA for public review pursuant to NEPA. The draft EA, *Reducing the Impact on At-Risk Salmon and Steelhead by California Sea Lions in the Area Downstream of Bonneville Dam on the Columbia River, Oregon and Washington*, was released for public comment on January 18, 2008 (73 FR 3453). NMFS received over 3,500 comments, including 16 substantive comments, during the 30-day public comment period.

After considering public comments, on March 14, 2008, NMFS issued a final EA and FONSI. In the FONSI, NMFS determined, based on the information and analysis contained in the EA, that the proposed action would not significantly impact the quality of the human environment and

that preparation of an environmental impact statement under NEPA was not necessary (NMFS 2008a).

The EA described the purpose and need of the lethal removal program as supporting the states' efforts to improve adult salmonid survival by reducing pinniped predation at Bonneville Dam, consistent with the MMPA and in consideration of the Task Force's recommendations. The EA explained there was a need to address the seasonally recurring and increasing problem of pinniped predation, which contributes to the decline or impedes recovery of listed salmon and steelhead passing through Bonneville Dam. The final EA included a range of reasonable alternatives, including the "no action" alternative, and an evaluation of the environmental effects of each alternative. The selected alternative, Alternative 3 – Modified Task Force Recommendation – Combine lethal take by intentional means after non-lethal deterrence (Proposed Action), contained a number of limiting conditions including (1) a definition of "individually identifiable CSLs that are having a significant negative impact on ESA listed salmonids" and are therefore eligible for removal, (2) a limit on the number of CSLs that may be removed annually, (3) methods authorized for removal (capture/chemical euthanasia, shooting), (4) the establishment of an animal care committee to review and recommend appropriate protocols to minimize animal suffering during capture, handling and euthanasia, (5) accommodations for placing CSLs in permanent captivity in pre-approved facilities in lieu of killing them, and (6) several administrative requirements to ensure public safety, monitoring, reporting, procedures for amending the list of animals for removal, and retrieval, utilization and disposal of carcasses.

After issuance of the final EA and FONSI, on March 17, 2008, NMFS issued a Letter of Authorization (LOA) pursuant to Section 120 to Washington, Oregon, and Idaho¹, and lethal removal efforts commenced. The LOA contained a number of terms and conditions for removal as well as signaling NMFS' intent to reconvene the Task Force after three years to evaluate the effectiveness of the lethal removal program.

Shortly after NMFS issued the 2008 Section 120 LOA, the Humane Society of the United States and others filed a complaint in the U.S. District Court for the District of Oregon. Plaintiffs alleged that NMFS' approval of the lethal removal of California sea lions violated the MMPA and NEPA. In November 2008, the district court issued an order upholding NMFS' approval of the lethal removal program and NMFS' evaluation of impacts under NEPA. Plaintiffs appealed. On November 23, 2010, the Ninth Circuit affirmed summary judgment in favor of defendants on plaintiffs' NEPA claim, but reversed summary judgment on plaintiffs' MMPA claim. The court

¹ On April 25, 2011 NOAA Fisheries received a letter from Idaho indicating their support for actions to restore and recover threatened and endangered fish including lethal action to control problem sea lions. They withdrew from active participation in the current process and requested that ODFW and WDFW continue to represent their interest on this issue.

instructed the district court to vacate NMFS' Section 120 decision and remand the decision to NMFS "to afford the agency the opportunity either to articulate a reasoned explanation for its action or to adopt a different action with a reasoned explanation that supports it." *Humane Society of the U.S. v. Locke*, 626 F.3d 1040, 1053 (9th Cir. 2010).²

III. Scope of the Supplemental Information Report

In response to the Ninth Circuit's decision, NMFS has determined it will issue a new MMPA decision that follows the court's instructions to provide a more thorough explanation of its decision. The purpose of this document is to determine and document whether changes to the proposed MMPA decision or new circumstances or information require NMFS to supplement its 2008 EA and FONSI.

In making a determination on the need for additional analysis under NEPA, NMFS has considered Council on Environmental Quality (CEQ) NEPA regulations and applicable case law. The CEQ regulations state "[a]gencies shall prepare supplements to either draft or final environmental impact statements if: (i) the agency makes *substantial* changes in the proposed action that are relevant to environmental concerns; or (ii) there are *significant* new circumstances or information relevant to environmental concerns *and* bearing on the proposed action or its impacts." (emphasis added) (40 C.F.R. § 1502.09(c)). The Ninth Circuit has determined that the standard for supplementing an EA is the same as for an EIS. *See Idaho Sporting Congress Inc. v. Alexander*, 222 F.3d 562, 566 n.2 (9th Cir. 2000). In addition, NMFS has considered CEQ's "significance" criteria at 40 C.F.R. § 1508.27 and the criteria relied upon for the 2008 FONSI to determine whether any new circumstances or information are "significant," thereby requiring supplementation of the 2008 EA.

This report first describes NMFS' proposed action and compares it to the action analyzed in the 2008 EA. This report next considers whether there are any significant new circumstances or information that are relevant to environmental concerns and have a bearing on our proposed action or its impacts. For our consideration of new circumstances and information, we have consulted, among other sources, our files, state and Federal field reports and publications from 2008-2010, and presentations made during the 2010 Task Force meetings. The new circumstances and information are related to: A) updated information on pinnipeds in the action area (population, presence, predation); B) updated salmonid information (status and trends, recovery planning, passage counts, predation versus run size, hatchery versus wild components); C) non-lethal deterrence efforts; D) permanent pinniped removals carried out under the previous

² The Ninth Circuit determined that NMFS had not adequately explained, for purposes of its MMPA Section 120 decision, its significance determinations in light of seemingly inconsistent findings in other actions that affect salmonid survival, e.g., fishery harvest and hydropower operations. *Id.*

section 120 LOA; E) impacts of predation on other fish species; and F) recent recommendations from the Task Force.

IV. Changes in the Proposed Action

NMFS proposes 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 and evaluated in our 2008 EA and FONSI will be continued, with the exception of two minor changes.

The specific changes are: a) the elimination of the 1% average salmonid predation rate threshold for suspending lethal removal activities (Condition 15 in the 2008 LOA); and b) 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 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 expressed as a percentage of the adult return fluctuates widely with the strength of the run. Run sizes of 600,000 fish would be needed to accommodate the current level of predation (approximately 6,000 fish) and meet the 1% trigger. Conversely, if run sizes of 250,000 could be maintained a 1% predation rate would equate to 2,500 fish. This level of predation was last seen in 2003 and observations have shown that predation remained established and grew from that point. Accordingly, the 1% predation rate trigger could result in an early cessation of sea lion removals and set the stage for re-growth of the pinniped-fishery interaction. Finally, as noted below, based on the past three years of predation levels and run sizes, NMFS does not expect that the 1% predation rate will be achieved over the course of the current LOA. Instead of the one percent predation threshold, the Regional Administrator will consult with the resource agencies when there is a detectable decline in the absolute number of salmonids killed by CSLs per season and a declining trend in predation has been observed. The purpose of consultation will be to assess the benefits of continuing the lethal removal action to further reduce predation and determine whether or if the Task Force should be reconvened to evaluate the success of the lethal removal action. This change is not substantial and is within the limits analyzed in 2008 because no change is proposed for the annual limits on the number of CSLs to be removed and the practical limits on the number of CSLs that can be removed has thus far proven to be much lower. The proposed change is not an “open ended” extension of the authorization because the proposed authorization period will end in 2013 and any subsequent action will be assessed at that time. There is virtually no expectation that adult salmonid returns will approach the run sizes needed (600,000) to offset the current rate of predation (6,000) in order for a 1% predation trigger to be implemented. The parameters of the

proposed action and its impacts continue to be within the range and scope evaluated in the 2008 EA.

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 upstream of the dam. He was captured and released downstream (because he hadn't been observed taking fish in the tailrace observation area prior to moving upstream). Once downstream he was observed taking salmonids in the observation area, subsequently captured and euthanized. The proposed change falls within the scope of the previous analysis. The proposed action therefore does not represent a substantial change from actions previously conducted or subjected to environmental review, and the changes are not expected to result in any significant or uncertain impacts. Thus, because this action and its associated environmental effects fall within the scope of the previous analysis, NMFS has determined there is no need to supplement the 2008 EA and FONSI.

V. Consideration of New Circumstances and Information

This section presents circumstances and information that are new or that have been updated since the analysis conducted in the 2008 EA, where those circumstances or that information are relevant to environmental concerns and bear on our proposed action or its impacts. We have evaluated whether any of these new and relevant circumstances or information are “significant” pursuant to NEPA and in light of the analysis contained in our 2008 EA. Where the new circumstances or information are within the scope of the 2008 EA, and will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, we conclude they are not “significant” for purposes of the NEPA inquiry required in the CEQ regulations.

A. Pinnipeds

1. **Population Data** – Several pinniped stocks, CSL - US stock, Steller sea lion - eastern US stock (SSL), and harbor seal – Washington/Oregon coastal stock, are present in the action area during the period when CSL predation on salmonids peaks during the spring. Population status information is periodically updated and published in NMFS Marine Mammal Stock Assessment Reports (SARs). (Carretta et al. 2010, and Allen and Angliss 2010). The minimum population number (N_{\min}) and the potential biological removal (PBR) level for CSL has not been updated since the analysis in the 2008 EA and remains the best scientific information available. For SSL a new population estimate was reported in the Allen and Angliss 2010 revised SAR and is currently the best available scientific information. The revised SAR indicates that the N_{\min} for SSL increased to 52,847 from the N_{\min} of 44,404 reported in 2008 and the calculated PBR

increased to 2,378 from the 1,998 previously reported. There is no new information on abundance of harbor seals in the OR/WA coastal stock since the estimate of 24,732 based upon surveys in 1999.

Analysis and Conclusion: The new information on pinniped populations is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. There is no new information on abundance of CSL since the 2008 EA. The estimated numbers of SSLs increased since the 2008 EA was completed, thus continuing the positive trend of SSL abundance noted in the 2008 EA. Prior analysis conducted in 2008 did not anticipate any intentional lethal removals for this species, and no SSLs were intentionally killed or transferred under the program. SSL are listed as “threatened” under the ESA and therefore intentional lethal removal may not be authorized under the MMPA if a new LOA is granted to the states under Section 120. Information on the population status of harbor seals has not been updated since the 2008 EA. However, Allen and Angliss (2010) suggest that OR/WA coastal harbor seals remain within the stock's OSP. The 2008 EA did not anticipate any intentional lethal removals for this species, and no harbor seals were intentionally or incidentally killed, injured, or transferred under the program. Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

2. Pinniped Presence at the Dam – The US Army Corps of Engineers (COE) conducted observations of pinnipeds and salmonid predation at Bonneville Dam between January 1 and May 31, 2008 through 2010 (Stansell et al. 2010) and the new information on pinniped presence is presented in Table 1. Harbor seals were seen only occasionally at the dam and the number of individuals has remained low (as many as three in 2006 but two per year from 2008-2010). The minimum estimated total number of CSLs observed at the dam was 82 in 2008, 54 in 2009, and 89 in 2010. The minimum estimated total number of SSLs at the dam was 39 in 2008, 26 in 2009, and 75 in 2010. The mean daily attendance by pinnipeds in the observation area was about 20 between 2008 and 2010, and the maximum daily estimated number of pinnipeds reached an all time high of 69 individuals in April 2010. This number was strongly influenced by the presence of increasing numbers of SSLs which accounted for more than half of the mean daily attendance in 2010 (average 12.6 SSL per day of an overall average 21.5 pinnipeds). Mean residency time for CSLs at the dam declined from just below 20 days in 2008 to 9.3 days in 2010. CSLs not previously identified at the dam continue to be encountered there.

Some of the increase in numbers of SSLs can be explained by a change in methodology, initiated in 2009, for tallying that species. (Stansell et al 2009). Prior to 2009, the maximum daily count of SSL observed during the season was used as the minimum estimated number present during that year. In 2009, the COE began a review of SSL 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 SSLs present. The methodology is similar to that used when assessing CSLs 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 SSLs 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 SSLs beginning in 2008 but also indicates that there was an actual increase in the number of SSLs present at the dam between 2008 and 2010. The growing number of SSLs is a concern but the effects of the activities at the dam on the animals, as described in detail below, have remained within the levels analyzed in the EA (i.e., short term displacement by non-lethal hazing activities).

Table 1: Summary of Annual Pinniped Abundance and Duration at the Bonneville Dam Tailrace – 2002-2010

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Min. total number of individual pinnipeds	31	109	104	86	86	82	123	82	166
California sea lion	30	104	99	81	72	71	82	54	89
Steller sea lion	0	3	3	4	11	9	39	26	75
Harbor seal	1	2	2	1	3	2	2	2	2
Maximum daily number of pinnipeds	14	32	37	43	46	54	63	47	69
Maximum number of days individual California sea lion was present	16	25	33	39	73	70	80	67	39
Average number of days California sea lions were present	5.3	6.5	7.6	7.5	19.9	20.3	19	19	9.3
Date of first California sea lion sighting	3/20	3/14	2/22	2/20	2/9	1/8 ^a	1/9 ^a	1/5	1/8
Date of last California sea lion sighting	5/17	5/27	5/26	6/10	6/5	5/26	6/2	5/29 ^b	6/1
Total days California sea lions were present	59	71	95	96	106	123	146	145	145

Source: Stansell pers comm. 2008, Stansell pers comm. 2010

a - In 2007 a CSL was seen at the dam in the fall (11/8/07) prior to the 2008 spring season and in 2008 CSLs were observed as early as 9/18/08 prior to the 2009 season.

b - In 2009 one CSL passed the dam and remained upriver and in the forebay all summer, fall and winter.

On May 16, 2009 a CSL (C697) passed through the locks and subsequently spent the summer up-river between Bonneville Dam and The Dalles Dam. The animal was repeatedly observed by COE staff consuming salmonids exiting the Bonneville fish ladder in the forebay area near the navigation lock (Brown et al. 2009).

Analysis and Conclusion: The new information on pinniped presence at the dam is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. The number of different CSLs that were counted at the dam fluctuated during 2008-2010. However, the mean daily attendance of CSL at the dam combined with shorter residency times indicate that CSL presence overall was lower in 2010 than it was in 2008 but within the range of presence seen in earlier years and examined in the 2008 EA. The number of SSLs appears to be increasing but fluctuated between 2008 and 2010 so it is unclear whether this is beginning a trend or an isolated event. The number of animals present on any one day represents a subset of a larger pool of animals that frequent the dam. It is not known whether the shifts in presence are related to the demographics of the animals in attendance following the removals of a number of predatory CSL, non-lethal deterrence, or possibly related to interspecies competition with increasing numbers of SSL in the tailrace. The new information about CSL predation at the fish ladder exit shows the adaptive nature of CSLs and signals the potential for expansion of the pinniped predation conflict above Bonneville.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

3. CSL Movements in the Estuary - New information on movements of CSLs was presented to the Task Force in October 2010. ODFW captured and fitted satellite location tags to 26 CSLs at two sites on the Columbia River (Astoria, OR and Bonneville Dam). Approximately half of the CSLs (12) had unknown foraging histories while the others (14) were known to have foraged at upriver locations (Bonneville Dam, Willamette Falls). The location fixes received from the animals after their release indicated that range movements were highly variable among and between individuals. The study showed that animals with known up-river foraging histories do occasionally leave the river to feed off the coast of Oregon and Washington as well as move upstream and downstream in the Columbia River to feed. In contrast, the CSLs that had not been

previously documented at the up-river sites (Bonneville Dam, Willamette Falls) only occasionally traveled upriver beyond Astoria. One animal traveled several times upriver as far as the mouth of the Lewis River and another to the mouth of the Kalama River. None of the animals that had not previously been documented at Bonneville Dam or Willamette Falls traveled upriver as far as either of these two sites. (Wright et al. 2010)

Analysis and Conclusion: The new information on CSL movements in the estuary is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. As documented in the 2008 EA, pinnipeds were known to move about the estuary. The October 2010 study reiterates that CSLs at the mouth of the Columbia River do not necessarily move upstream to forage at Bonneville Dam. This information implies that the pool of CSLs frequenting the dam is a subset of the larger number of animals that inhabit or pass by the mouth of the river. The rate of recruitment from the larger population at the mouth and the smaller subset at the dam is unknown but may dictate the rate of removals necessary to reduce CSL predation at the dam.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

4. Pinniped Predation on Salmonids – There is no new information concerning harbor seal predation in the action area. All salmonid predation observed in the 2008 – 2010 period was attributed to CSLs or SSLs (Stansell et al. 2010). CSLs and SSLs were more numerous at the dam in 2008 and 2010 than in 2009 and observed predation events by both species remain common throughout the spring observation period. CSLs and SSLs took an estimated 4,466 salmonids in 2008, 4,489 in 2009, and 6,081 in 2010. The estimates represent the number of salmonids observed taken at the surface, expanded to daylight periods when observers were not present (meals, breaks, etc.). They are minimum estimates. CSLs caught the majority of the adult salmonids consumed by pinnipeds at Bonneville, with 4,290, 4,014, and 5,095 in 2008, 2009, 2010, respectively. In contrast, SSLs caught 172, 475, and 986 in the same years. (Stansell et al. 2010). There has been an increase in predation on salmonids by SSLs since 2007 when an estimated 13 salmonids, or 0.4% of the total salmonids taken by pinnipeds, were caught by SSLs. By 2010, SSL predation accounted for about 16.2% of all salmonids taken by pinnipeds.

The 2008 EA reported that not all salmonids caught by pinnipeds are killed and consumed outright and that monitors at Bonneville documented scars and injuries attributed to pinnipeds on 11 to 37 percent of returning Chinook and steelhead. New information presented by Michelle

Rub to the Task Force reported scars on 24.8 and 29 percent of salmonids returning in 2008 and 2010 respectively. (Rub et al. 2010)

Table 2: Summary of Estimated Pinniped Predation on Salmonids 2002 - 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: Stansell 2010

Analysis and Conclusion: The new information concerning pinniped predation on salmonids is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. The data continue to reveal that the predation rate on salmonids by CSLs remains high and the conflict between pinnipeds and salmonids persists. CSL predation estimates increased each year from 2008-2010 and were higher than in 2006 and 2007. CSLs continue to be the principle pinniped predator taking salmonids at the dam, and the numbers of salmonids taken continued the increasing trend observed in the years included in the 2008 EA. SSL predation on salmonids in 2008-2010 was higher than predation levels in 2006 and 2007 and accounted for about 16% of the total salmonid predation even in 2010 when SSL predation was the highest yet observed.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those

we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

B. Columbia River Salmonids

1. Status and Trends - NMFS is currently conducting status reviews on all of the ESA-listed salmonid stocks on the West Coast (Rumsey 2010). The status reviews are not complete but some preliminary status and trend information is available. Overall the abundances of Chinook and steelhead stocks that are potentially impacted by pinniped predation have increased or stayed about the same since the last status review was conducted prior to 2005. The status review teams noted several items relative to the last review relevant to Columbia River salmonids including: (1) high uncertainty regarding changes in habitat; (2) no change relative to harvest levels or hatchery practices; (3) degraded conditions due to climate change; (4) no substantive change in impacts by avian and non-native predators; (5) concern regarding increased pinniped populations along the entire West Coast; (6) and continued uncertainty regarding the overall impact of pinniped predation in the lower river and estuary.

New information indicates that effects of predation by non-indigenous fish species on juvenile salmonids in the Columbia River could equal or exceed impacts from each of the four most commonly addressed factors affecting salmonids, which are habitat alteration, harvest, hatchery practices and hydrosystem development (Sanderson et al. 2009). The full mitigation package that accompanies the operating plan for the Federal Columbia River Power System (FCRPS) includes piscivorous predation measures and an action to develop strategies to reduce non-indigenous fish (COE et. al 2007).

Analysis and Conclusion: The new information concerning salmonid status is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. While information on the status and trends of ESA listed salmonids in the Columbia River are in review, the preliminary findings indicate that all of the stocks that are potentially impacted by pinniped predation have increased or stayed about the same but remain listed and vulnerable as was the case during the previous listing determinations. New information was presented from a review of a number of focal studies on salmonid predation by non-indigenous fish species that have become established in the Columbia River drainage. The extent of mortality from this source is unknown at this time and further research is needed into region-wide impacts from non-indigenous fish species; however these research activities are beyond the scope of actions to reduce mortality from sea lion predation and would have no bearing on the effects on the human environment of a pinniped predation control action. Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those

we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

2. Recovery Planning – Of the five listed salmonid ESU/DPSs whose spatial and temporal distributions coincide with pinniped presence at the dam, NMFS had completed a recovery plan for upper Columbia River spring Chinook at the time of the 2008 EA. Since the 2008 EA, NMFS completed a Recovery Plan for middle Columbia River steelhead. Recovery plans for Snake River spring/summer Chinook and steelhead and lower Columbia River steelhead are still in progress. Each of these plans have unique geographical boundaries based on the biological needs of the individual ESUs/DPSs along their river migratory routes and in their natal reaches and tributaries. All of the affected up-river ESU/DPSs share the tidally influenced areas of the Columbia River from the alluvial plume to Bonneville Dam. In 2011, NMFS completed an Estuary Recovery Module to complement other recovery plans and to focus on habitat conditions and processes in the estuary and plume other than hatchery or harvest practices, hydroelectricity production, or lower river tributary habitats (NMFS 2011). The goal of the module is to identify and prioritize management actions to reduce the impacts of limiting factors that impede salmonid survival during their migration through and rearing in the estuary. The Estuary Recovery Module identifies predation in general - and predation by pinnipeds in particular - as a high priority limiting factor and includes a management action to identify and implement actions to reduce salmonid predation by pinnipeds.

In 2008, NMFS issued a 10-year biological opinion for the FCRPS that recommended a reasonable and prudent alternative (RPA) sufficient to avoid jeopardy and adverse modification of critical habitat for 13 listed salmonid species affected by FCRPS operation (NMFS 2008b). The biological opinion has been the subject of continued litigation. In early 2010, the court authorized a voluntary, limited remand to allow NMFS and the action agencies to integrate an adaptive management implementation plan into the 2008 biological opinion and issue a supplemental biological opinion. The biological opinions do not estimate the actual levels of marine mammal predation in the lower Columbia River and estuary because, except for observations at Bonneville Dam, we do not know how many pinnipeds of each species are frequenting the lower river, how long they stay, or which ESUs/DPSs they are feeding on. (NMFS 2010). In the absence of these estimates NMFS could not assess the broader impact of lower river predation on the status of the upriver ESUs/DPSs or the relative impact of predation in the estuary beyond Bonneville Dam on the risk of extinction for these stocks. Based on observations of increased marine mammal predation at Bonneville Dam since 2000, NMFS estimated an 8.5% impact on the status of upper Columbia River spring-run and Snake River spring/summer-run Chinook ESUs and a 21.8% impact on lower Columbia River winter run steelhead. NMFS projected a future continuing impact of 3% on upriver Columbia River spring-run and Snake River spring/summer-run Chinook and a 7.6% continuing impact on lower

Columbia River winter steelhead assuming the continuation of non-lethal hazing and lethal removal activities at the dam. (NMFS 2010)

Analysis and Conclusion: The new information concerning Recovery Plans and estimates provided in the recent biological opinions underscores the importance of continuing the hazing and lethal removal program for pinniped predation control at Bonneville in order to improve adult fish survival but does not suggest there will be any level or type of impact from the proposed action different from those reported in the 2008 EA. The estimates of pinniped predation impacts presented in the biological opinions indicate that the lethal removal program implemented from 2008 through 2010 may have made progress toward reducing marine mammal predation. The prospective estimates of future impacts from predation would likely be negatively affected in the absence of a lethal removal program.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

3. Salmonid Passage - Salmonid passage at Bonneville Dam from January 1 through May 31 was 147,543 in 2008, 186,060 in 2009, and 267,194 in 2010 (Stansell et al. 2010). During the period 2002-2007, salmonid passage at the Dam ranged from a high of 284,733 in 2002 to a low of 82,006 in 2005 (NMFS 2008a). The average passage during the 2008-2010 period was 200,265 compared to 160,710 during the earlier period reported in the 2008 EA.

Analysis and Conclusion: The new information concerning salmonid passage is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in 2008. Salmonid passage counts at the dam between January 1 and May 31 in the years since completion of the 2008 EA are within the range of those analyzed in the EA. The counts are well below the return of 440,330 adult upriver spring Chinook observed in 2001, the highest observed since counting began at Bonneville Dam in 1938, but well above the all time low of 12,800 fish observed in 1995 (ODFW/WDFW 2011). The improved fish counts for 2008 through 2010 are reflected in lower predation rates, when reported as a percentage of passage at the dam, in spite of increases in the actual number of fish killed by CSLs and SSLs each year. As previously assessed, run sizes at the dam are likely to remain variable, however, ocean conditions are cyclic and will likely become less favorable to salmonids, returning to conditions similar to those experienced in the 1990s. When that occurs adult returns will decline from current levels (Peterson et al. 2010).

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those

we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

4. Predation Compared to Run Size – Although absolute numbers of salmonids killed by pinnipeds has increased since the 2008 EA, because of the increasing numbers of adult salmonids passing Bonneville Dam the pinniped predation rate, as a percentage of run size, has decreased. Based on observations of surface predation on salmonids in the tailrace, pinnipeds intercepted 4,466 salmonids (4,294 by CSL, 172 by SSL) or 2.9% of returning adults at the dam in 2008, 4,489 (4,037 by CSL, 452 by SSL) salmonids representing 2.4% of the fish passing in 2009 and 6,081 (5,095 by CSL, 986 by SSL) or 2.2% of the run in 2010 (Table 2). Chinook salmon that arrived at the dam early in the season were more heavily targeted proportionally than later returning fish (Stansell et al. 2010).

For the 2008 analysis we calculated the potential consumption of salmonids based on: (1) the average number of CSLs (86) at the dam from 2003 – 2007; (2) the average number of days that individual sea lions were present at the dam (20.3); and (3) an estimate of CSL salmonid consumption based on energetic modeling (1.48 fish/day) or the observed maximum number of fish consumed by an individual (10 fish/day). The calculation yielded an estimated 2,584 to 17,458 salmonids consumed by CSLs, indicating that salmon consumption could be much higher than observed. For 2011, we updated the evaluation of potential consumption using data on: (1) the average of the minimum estimated total number of CSLs at the dam in 2008 through 2010 ($82 (2008) + 54 (2009) + 89 (2010) \div 3 = 75$ (Stansell et al. 2010)); (2) the average number of days sea lions were present ($19 (2008) + 19 (2009) + 9.3 (2010) \div 3 = 15.8$ (Stansell et al. 2010)); and (3) an estimated median number of salmonids consumed by individual CSLs (3 fish/day) using updated bioenergetic techniques (Wright pers. comm to Task Force 10/27/2010). For comparison we again calculated an estimate using the observed maximum number of fish consumed by an individual (10 fish/day) but adjusted for numbers of sea lions and residency time. The results of these calculations yield an estimated range of salmonids consumed by CSLs between 2008 and 2010 from 3,555 to 11,855.

Analysis and Conclusion: The new information comparing predation to run size is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from that reported in the 2008 EA. Salmonid passage at the dam has fluctuated since 2002, with a declining trend through 2007 and then increasing between 2008 and 2010. Predation estimates (based on surface observation) as an overall percentage of fish passage is well within the range considered in the 2008 EA (0.4% to 4.2%), however, the number of individual fish observed consumed has increased from a high of 3,859 fish in 2007 and now exceeds the figures included in the 2008 EA. The updated calculation, based on bioenergetics and maximum observed predation, still indicates that potential consumption could be substantially higher than estimated based on surface observations. The high end of the estimated level of predation (11,855) represents about 4.2% of the run for years like 2010 (with relatively strong returns), it would represent 12.7% of the run in a year like 2005, where the run size was much lower (but still higher than many years during the 1990s).

The increased numbers of fish consumed is not significant for purposes of NEPA because the effects of the removal program on CSLs will not differ from the effects previously analyzed in the EA.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

5. Harvest - From 2005 through 2007, upriver Columbia spring Chinook salmon fisheries were managed through a stipulated Interim Management Agreement adopted by the court under continuing jurisdiction of *U.S. v Oregon*. The interim agreement contained a sliding scale harvest rate schedule that specified harvest impact limits of from 5.5% to 17% based on run size. The 2005 through 2007 harvest rate schedule was adopted, with minor treaty/non-treaty catch balancing modifications in the “2008-2017 *U.S. v Oregon Management Agreement for upriver Chinook, sockeye, coho, and white sturgeon*” that was in effect and considered in the 2008 EA analysis. The Management Agreement remains in effect and was part of the comprehensive mitigation package that NMFS analyzed when developing its 2008 biological opinion on the operation and maintenance of the FCRPS.

In 2008, the pre-season forecasted return of upriver spring Chinook was 269,000 (ODFW/WDFW 2009) and the allowable harvest rate was set at 12% (10% treaty, 2% non-treaty). The actual run materialized late and came in below predicted numbers so fishery managers adjusted the allowable harvest rate downward to 11% (9.1% treaty, 1.9% non-treaty). The actual return of 178,564 adults was 66% of the pre-season forecast and resulted in harvest exceeding the guideline for the final run size. The estimated fisheries harvest impact on upriver Chinook totaled 16% (13.9% treaty, 2.1% non-treaty) in 2008.

In 2009, the pre-season forecasted return of upriver spring Chinook was 298,000 based on traditional cohort relationships (ODFW/WDFW 2009), the allowable harvest rate (pre-season) was set based on state allocation matrices and an amended harvest rate schedule was established to achieve catch balancing between the treaty and non-treaty fisheries. The amended harvest rate schedule incorporated a sliding scale (within the 5.5 – 17% harvest rate) dependent on the total upriver spring Chinook run size. The total harvest rate indicated in the schedule for the forecasted run size (298,000) was 13% (10.8% treaty, 2.2% non-treaty). However, based on their experience in 2008, managers adopted protective buffers, constraining the amount of upriver spring Chinook impacts that each fishery could use prior to an in-season run update to ensure that, in the event of a run downgrade, fisheries would not exceed allowable ESA impacts. The final run size for 2009 was 169,300 (57% of the pre-season forecast). The allowable impact limit was reduced to 1.9% for non-Indian fisheries as a result of the in-season run size downgrade. The estimated fisheries harvest impact on upriver wild spring Chinook totaled

10.2% (8.5% treaty, 1.7% non-treaty) (ODFW/WDFW 2010). The protective buffers were successful at holding harvest impacts to within the harvest rate schedule limits for the final run size.

For 2010, managers reviewed numerous alternative models to develop a preseason estimate of 470,000 returning upriver spring Chinook (ODFW/WDFW 2010). The final run size totaled 315,345 adults and was less than forecasted but was nevertheless strong at 150% of the recent ten year (2000-2009) average return. The return showed a more normal run timing curve over Bonneville Dam than the previous two years, which were later than the 1977-2004 average (ODFW/WDFW 2011). In 2010, managers followed the same basic catch sharing principles, protective impact buffers and allocations used in 2009. The total harvest impact rate indicated in the schedule for the in-season adjusted (final) run size of 315,000 was 13% (10.8% treaty, 2.2% non-treaty). The estimated 2010 fisheries harvest impact on upriver wild spring Chinook totaled 17% (14.8% treaty, 2.2% non-treaty) (ODFW/WDFW 2011).

All steelhead encountered downstream of Bonneville dam during November through April are considered winter steelhead. Winter steelhead stocks are comprised of wild natural spawning and hatchery produced fish. Non-Indian fisheries conducted during the winter season incidentally handle wild winter steelhead while targeting hatchery Chinook or hatchery steelhead (wild fish must be released). The highest impacts on wild winter steelhead populations occur in tributaries of the Columbia River where hatchery steelhead are a recreational target species. Lesser impacts also occur during mainstem recreational and commercial spring Chinook seasons. Tributary recreational fisheries are conducted under separate permits issued by NMFS and the associated impacts are considered separately from mainstem fisheries. There is a 2% annual impact rate limit for all non-Indian fisheries on the Columbia River mainstem (ODFW/WDFW 2011). For 2008, 2009, and 2010 the impact from release mortality in mainstem non-Indian fisheries, 0.16%, 0.13%, and 0.57% respectively were well below the 2% impact rate limit. Winter steelhead take in treaty-Indian commercial fisheries has been low in recent years because fishing effort in the winter season has targeted sturgeon (334 fish in 2008, 0 fish in 2009, and 12 fish in 2010) (ODFW/WDFW 2011).

Analysis and Conclusion: The new information concerning harvest is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. The spring Chinook total harvest impact guidelines of 5.5 – 17% remain in effect and harvest rates have been consistent with these guidelines for the run returns experienced in 2008-10. Preseason run size forecasts have been difficult to predict and delayed fish arrival affected the timing of in season run size updates in two of three years. The select fishery (wild fish release) regulations and 2% harvest impact guideline for winter steelhead in mainstem non-Indian fisheries (commercial, recreational) is the same condition as considered in 2008. Steelhead harvest impacts were well below the allowable

guideline. The treaty and non-treaty fisheries will continue under the harvest guidelines as outlined in the 2008 Management Agreement negotiated under *U.S. v Oregon* through 2017.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

C. Non-lethal Deterrence of Pinnipeds

Corps of Engineers observers documented pinniped presence in the Bonneville Dam tailrace and foraging for ESA-listed salmon and steelhead despite the continued implementation of dam/shore-based and on water non-lethal deterrence measures by personnel from the COE, ODFW, WDFW and the Columbia River Inter-Tribal Fisheries Commission (CRITFC). Information was presented to the Task Force indicating that studies of experimental electronic grid deterrence technology showed potential for negative effects on fish passage and the equipment was not deployed in the river.

1. Dam and Shore Based Deterrence - The COE successfully deployed physical barriers to exclude pinnipeds from entering the fish ladders at the dam in each of the years 2008-2010. In addition, acoustic deterrent devices were installed to discourage CSLs from taking fish that may pause at ladder entrances. Dam-based personnel used aerial pyrotechnics from the dam to target/haze both pinnipeds and avian predators near the structures. Dam-based hazing activities were conducted for 886, 455, and 782 hours between January and May of 2008, 2009, and 2010, respectively (total 2123 hours) (Stansell et al. 2010).

2. On Water Deterrence - 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 LOA. In 2008, boat-based hazing deployed 9,225 crackershells, 3,148 seal bombs, and 590 rubber buckshot rounds resulting in 1,353 reported takes by harassment (830 CSL and 523 SSL) as animals were chased from the observation area (Brown et al. 2008). In subsequent years 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, and 168 rubber buckshot rounds were used resulting in 1,039 reported takes by harassment (612 CSL and 427 SSL) (Brown et al. 2009). In 2010, 539 takes by harassment were reported (202 CSL and 337 SSL) with 4,921 crackershells, 777 seal bombs, and 97 rubber buckshot rounds deployed (Brown et al. 2010). Individual CSLs and SSLs 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.

Field reports prepared by COE and the states 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 were injured or killed due to any of the hazing/non-lethal deterrents over the years (R. Stansell pers. comm. 2011).

Analysis and Conclusion: The new information concerning non-lethal pinniped deterrence is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. Previous analysis indicated that non-lethal deterrence measures have not been effective in reducing total pinniped predation of salmonids in the area below the dam, and NMFS continues to find that these efforts have limited utility because they result in only temporary displacement. Many of the animals exposed to non-lethal hazing return to the dam a short time after exposure or seek refuge in the spillway area where they continue to feed. Hazing is totally ineffective or impossible in the spillway area because of the size of the area and very turbulent water conditions. Further, NMFS is unaware of any new information or non-lethal deterrence techniques that could achieve the goal of reducing total pinniped predation.

The 2008 EA reported on the presence of SSL and predation on sturgeon as part of the affected environment at the dam. From 2003 to 2007 a maximum of 10 SSLs had been observed at the dam in any year. In 2008, the number of SSL increased and SSL showed increased tolerance to non-lethal hazing activities. Following the unanticipated mortality on the sea lion traps in 2008 (described below) NMFS recommended that non-lethal hazing targeting SSL at the traps be used to discourage them from hauling out on the traps and thus reducing potential for trapping SSL in future year activities. NMFS reinitiated consultation on the approval of the state's Section 120 request and issued a new biological opinion on the effects of the action in 2009 (F/NWR/2008/08780). Based on the increasing trend in the number of SSL at the dam and increased tolerance to disturbance/displacement by non-lethal hazing techniques, NMFS estimated that up to 889 harassment takes of SSL would occur annually for the duration of the project. The observed take of SSL in 2009 and 2010, 427 and 337 respectively, are well below the projected levels.

The COE has not observed any injuries or mortalities of salmonids associated with non-lethal deterrence measures, which is consistent with the 2008 EA. Finally, information concerning the development of new electronic grid technology, to control sea lion presence in the tailrace, indicates that the device has negative effects on salmonid migration. Accordingly the new technology will not be deployed and no new effects are anticipated from this technology.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those

we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

D. Permanent Pinniped Removals

Permanent removal of individually identifiable predatory CSLs began in 2008. CSLs captured on the traps that did not meet the criteria for removal outlined in the LOA received permanent marks (brands) for ease of future identification and were released.

1. Authorized Removals and Salmonids Saved– In April 2008, 11 CSL and two SSL were captured during two trapping operations. Of the animals captured, four CSL and two SSL were released back to the wild. Seven of the CSLs captured in April were determined to have met the LOA criteria for removal at the time of capture. Six of the identified predatory CSLs were subsequently transferred to permanent captivity, at NMFS pre-approved public display facilities, and the seventh died under anesthesia during pre-transfer health screening (Brown et al. 2008).

In 2009, 21 CSLs were captured and handled during trapping operations. Fifteen of these animals were determined to have met the criteria for removal. Four of the identifiable predatory CSLs were transferred to permanent captivity at pre-approved facilities and 11 were chemically euthanized. The remaining six CSL and one SSL that were captured during the season were released back to the wild. The six CSL released to the wild were fitted with acoustic transmitters to monitor their movements throughout the estuary and beyond (Brown et al. 2009).

A total of 22 CSL were captured during 2010 operations. Some CSL were captured more than once during the season. Of the 22 individuals, 14 were determined to have met the criteria for removal and were chemically euthanized because no pre-approved facilities were available to receive transfers for permanent captive holding. The remaining 8 CSL were released to the wild, 5 of which were fitted with acoustic transmitters. Nine individual SSL were captured during the season and were released back to the wild.

Brown et al. (2010) estimated the number of salmonids saved, using energetic simulation modeling, and based on the CSL removals between 2008-2010 was in the range of 1,357 to 4,921 salmonids. This estimate is for salmonids saved over the three year life of the project because not all of the 37 CSLs were removed in the first year. The range from Brown et al. (2010) falls within the estimated potential annual increase in the number of salmonids passing Bonneville Dam (901 – 6,090 salmonids/year) from removal of 30 sea lions that was reported in the 2008 EA.

Analysis and Conclusion: The new information concerning authorized removals and salmonids saved is consistent with the data considered in the 2008 EA and does not suggest there will be

any level or type of impact different from those reported in the 2008 EA. Thirty-seven CSL lethally removed or transferred to permanent captivity under the authorization (eight in 2008, 15 in 2009, and 14 in 2010) is well within the number authorized, 1% percent of PBR (85 animals) annually, or the number anticipated for removal (30 animals) annually, and previously analyzed in the EA. The salmonid savings numbers are also within the range of what was previously analyzed in the 2008 EA, acknowledging the fact that current estimation methods have improved since the original analysis.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

2. Unanticipated Mortality - In May 2008, six sea lions (4 CSL and 2 SSL) were discovered caged in the traps under unknown circumstances. By the time handling crews arrived at the scene, all of the animals had died. Post mortem examination of the CSL/SSLs involved indicated that the animals died from conditions exacerbated by heat exhaustion. Of the six sea lions found on the trap in May, one CSL met the criteria for removal under the LOA (Brown et al. 2008). The NMFS Office for Law Enforcement initiated an investigation of the deaths but the cause for the entrapment of the animals (i.e., how the trap doors came to be closed in the absence of the capture team) remains undetermined.

Following the event, trapping activities were halted and the project Institutional Animal Care and Use Committee (IACUC) was convened to review capture protocols and make recommendations to improve animal safety during trapping procedures. In August 2008, the states proposed revisions to the capture protocols at Bonneville Dam based on the IACUC recommendations. The revisions included measures to mechanically secure trap doors when left unattended, increase monitoring during active trapping periods and increase security around the traps. NMFS responded with additional recommendations to reduce the incidental capture of SSLs. The revised trapping protocols were further analyzed by NMFS under Section 7 of the ESA and the agency issued its biological opinion on the new procedures on February 20, 2009 prior to the re-initiation of trapping activities at the dam.

Analysis and Conclusion: The new information concerning unanticipated mortality is consistent with the acknowledgement of risk stated in the 2008 EA. As a result of changes in trapping protocols, it is reasonable to expect that the impacts of the trapping activities will be similar to those reported in the 2008 EA. Pinniped capture and handling bears some risk but injuries and mortalities rarely occur. Capture methods and protocols were reviewed and approved by the IACUC prior to the initiation of the removal program. The IACUC was reconvened and procedures modified to minimize the potential for future mishap. The deaths of two SSLs

represented about one thousandth of the PBR of the U.S. Eastern Stock of SSLs and, accordingly, did not have a detectable effect on the increasing trend of this stock. Similarly, the unanticipated mortality of three CSL represented a minute portion of the stock's PBR and had no detectable effect on the status or trend of the population. In sum, the revised trapping procedures have been designed to reduce further any possibility of accidental capture or death of pinnipeds. Thus, NMFS has determined it is highly unlikely that (1) animals will be caught accidentally in traps, and (2) even if caught, appropriate measures are in place to prevent injury or death. No additional incidental mortalities of SSL or non-target CSL have occurred during the intervening seasons since the adoption of the revised trapping procedures.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

E. Impacts of Predation on Other Fish Stocks

In addition to information on pinnipeds and salmonids, new information has become available on predation by pinnipeds on white sturgeon and Pacific lamprey.

1. White Sturgeon - The minimum estimated consumption of white sturgeon by sea lions (primarily SSL) in the observation area increased from 792 in 2008 to 1,241 in 2009 and up to 1,879 in 2010 (Stansell et al. 2010).

2. Pacific Lamprey - The minimum estimated consumption of Pacific lamprey showed a decreasing trend from 2008 to 2010. Lamprey comprises the lowest proportion of observed catch by CSL/SSLs at Bonneville. However, predation impacts on lamprey may be significantly underestimated by surface observation techniques because the prey is small relative to adult salmonids and may be consumed below the surface. In 2008, sea lions (primarily CSL) took an estimate 145 lamprey followed by 102 in 2009 and 77 in 2010 (Stansell et al. 2010).

Analysis and Conclusion: The new information concerning pinniped predation on non-salmonids is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. SSLs are responsible for the majority of predation on white sturgeon that occurs at the dam. From 2008 through 2010 the numbers of SSLs have increased several fold and predation on sturgeon has followed that trend. The 2008 EA analysis anticipated that SSL predation could decline if SSL were displaced from the dam by non-lethal deterrence activities directed at CSLs; however, implementation of non-lethal deterrence has not reduced SSL attendance at the dam and sturgeon predation continues. The impacts of SSL predation on sturgeon has not been assessed but is a

concern for fisheries managers. CSLs are responsible for the majority of predation on lamprey observed at the dam. The number of lamprey consumed by CSLs annually is down from the highs observed in 2004 and 2005 but the reason for the decline is unknown. The number of lamprey consumed below the surface is unknown and the overall impact of pinniped predation on lamprey has not been assessed but is of potential concern.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

F. Pinniped-Fishery Interaction Task Force Recommendations

On October 25, 2010, NMFS reconvened the Task Force to review the information available from the initial three years of implementation of the MMPA Section 120 LOA. The purpose for reconvening the Task Force was to provide them with an opportunity to evaluate the effectiveness of the lethal removal program and to make any additional recommendations for modifying the action as determined by the Task Force. The results of the review and recommendations can be found in the *Final Report and Recommendations of the MMPA Section 120 Pinniped-Fishery Interaction Task Force – Columbia River 3- Year review and Evaluation*. The report contains several findings and recommendations including:

- 1. The Authorization Has Not Been Fully Implemented** - The Task Force reviewed the available data and determined that in their view, “the current program (hazing, identifying, trapping, and removing) has not been effective at allowing the authorization to be fully implemented, nor at reducing predation on listed salmonids to less than one percent [the interim goal threshold recommended by the 2008 Task Force].”
- 2. The Interim Goal Should be Retained** – The interim goal of reducing predation to one percent or less of salmonids passing the dam has not yet been tested but still remains a reasonable target. NMFS should revisit the goal after five years, considering other factors, such as ratio of listed to unlisted fish.
- 3. Hazing Not Effective at Reducing Predation** – Remove non-lethal hazing as a condition of the lethal take authorization but retain it as an option for the States to enhance permanent removals.
- 4. Increase Trapping** – To increase the number of CSL trapped, increase the number of traps, dedicate more people to the operation, operate the traps more frequently, discourage SSL on traps, and decrease alternative haul out sites to encourage CSL to use the traps.

5. Change the Authorization to Encourage Removal Using Firearms – Encourage use of firearms on land and from boats, increase haul out areas that are suitable for shooting or make current haul out sites accessible to shooters. Develop and use a plan for shooting CSLs from boats.

6. Change Predatory Sea Lion Criteria – Use alternative marking techniques to identify individual CSL more quickly and add them to the list of animals eligible for lethal removal as soon as possible **or** end the lethal take authorization.

Option A - Change the eligibility criteria so that more CSL may become eligible for removal more quickly. Allow CSL to become eligible for removal by virtue of meeting any one of a number of criteria including taking a fish above Tanner Creek **or**; sighted above Tanner Creek multiple days **or**; sighted above Tanner Creek in more than one year.

Option B – Change the eligibility criteria so that CSL that arrive early in the run (February – April) can be targeted immediately.

Option C – Zero tolerance of CSL above Tanner Creek. Any CSL above Tanner Creek shall meet the statutory definition and be eligible for removal.

Option D – Acknowledge that small scale lethal removal is ineffective and discontinue the authorization for lethal take.

Analysis and Conclusion: The new information concerning the Task Force evaluation of data collected since 2008 and resulting additional recommendations is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. The Task Force stated that the implementation of the 2008 authorization was unsuccessful at reaching the interim goal of reducing predation on ESA listed salmonids to an average rate below 1% of passage numbers at the dam. Although correct, when the Task Force submitted its recommendations to NMFS in 2007, they responded to several questions developed by NMFS to guide the Task Force's recommendations. Regarding criteria to evaluate success of an authorized lethal removal program, the Task Force recommended an interim goal that the average predation rate should be no more than 1% of the total fish passage over Bonneville Dam. The Task Force noted explicitly that the 1% value was chosen only as an interim criterion because there was insufficient information to provide a quantitative level of predation to distinguish between significant and insignificant impacts on salmonids for purposes of the MMPA. The Task Force suggested that 1% would be substantially closer to a historical rate of predation than is observed more recently, and the historical predation rate was believed to be greater than zero. NMFS used the Task Force's recommendation of a 1% predation rate by describing a limit to the number of CSLs that could be removed from the Bonneville Dam area to protect salmonids (the annual limit was proposed as the lower of 1% of the PBR of CSLs or the number of removals necessary to achieve an observed average percent predation rate of 1% of the adult salmonids tallied by fish counters over 3 years). Thus, a threshold of 1% predation rate was used as a second limit on the number of CSLs that could be

removed under the authorization. The number of CSLs removed since the issuance of the LOA in 2008 (37) has fallen below the limits authorized (1% of PBR,85 annually), or adequate to achieve a running average predation rate of 1% of fish passage at the dam as the number of salmonids taken by CSLs increased each year.

The Task Force recommended that the interim average 1% predation rate goal be retained because it has yet to be tested. NMFS intended the 1% average predation rate, included in the LOA, as an independent limit on the numbers of CSLs that could be lethally removed to address the predation problem and to balance the policy value of protecting all pinnipeds, as expressed in the MMPA, against the policy value of recovering threatened and endangered species, as expressed in the ESA. That is, NMFS considered it reasonable to limit removal of sea lions to a level no more than would be required to achieve the Task Force's recommended interim criterion of a 3-year average predation rate of 1%. During the period 2008-2010 when sea lion removals were conducted at Bonneville Dam, accompanied by intense non-lethal deterrence, numbers of salmonids taken by California CSLs at the Dam continued to rise in both absolute numbers and as a percentage of fish passage at the dam. Therefore, it is not reasonable to expect that, as a result of the proposed action, the predation rate will decline to, or even approach the 1% average predation rate interim goal. Accordingly, a measure of success that NMFS has identified for the intermediate term is whether there is a detectable decline in the total number of salmonids killed by CSLs near Bonneville Dam annually, the increasing trend in predation is reversed and a decreasing trend in number of salmonids caught by CSLs is established. Once management actions have resulted in a decline in predation, NMFS can develop specific biological and environmental performance standards and a longer term target level of predation or goal for the program at that time.

The Task Force recommended removing non-lethal hazing as a prerequisite to lethal removal but retain it as an option for enhancing permanent removal efforts. Non-lethal deterrence is part of the removal action initially proposed by the states in their original application. The pre-requisite for hazing is included in the 2008 LOA definition of an individually identifiable sea lion that is eligible for removal because it further substantiates that an animal is persistent in its pursuit of prey at the dam. There is no way to effectively measure the number of unidentified individual animals that may arrive at the dam and subsequently leave as the result of hazing without becoming persistent and successful predators in the tailrace. The 2008 LOA requirements did not specify the type or intensity of hazing and allowed the states flexibility for implementation.

The Task Force also recommended increased trapping. The 2008 LOA did not limit the number or location of floating traps used for implementation of the removal authority. Implementation of the recommendation may affect the rate of removal but the overall limitation on the number of animals to be removed would not change.

The Task Force recommended changing the authorization to encourage the use of firearms. NMFS assessed the use of firearms in the 2008 EA. NMFS worked closely with the states to identify potential target locations and shooting strategies to conduct its analysis. The 2008 EA found that shooting from boats presented greater risk than shooting from land. The 2008 LOA included a number of terms and conditions regarding the safety of humans, animals and property, while providing adequate opportunities for use of firearms. In the absence of a more detailed explanation or description of potential shooting strategies from the Task Force, further analysis of shooting would be unproductive and adoption of the recommendation for expanding shooting opportunities is not part of the new proposed action.

The Task Force recommended alternative marking strategies for indentifying individual CSLs more easily and expediting their addition to the list of animals eligible for removal. The 2008 EA and LOA criteria for identifying animals eligible for removal included natural and human applied markings and did not limit marking strategies. In addition, the Task Force suggested three options for changing the criteria for defining “predatory” CSLs to increase the number of animals eligible for removal and remove them more quickly – **or** – ending the lethal removal authorization. NMFS conducted a preliminary analysis of the potential effects of changing the “predatory” sea lion criteria during the 2010 Task Force review and found that a primary factor in the rate of sea lion removal is the encounter rate of individual CSLs on the sea lion traps. One option, to change the “predatory” definition by eliminating the “additive” criteria to increase the number of animals eligible for removal would not automatically make them “available” for capture and removal. A second option to allow removal of animals arriving early to the dam, is within the scope of the 2008 authorization which allowed removal whenever an eligible animal is encountered. A third “zero tolerance” alternative proposed by the Task Force and which we considered in the 2008 EA may not meet the statutory requirement that animals to be removed must be “individually identifiable” and are having a significant negative impact on salmonids that are listed or approaching listing under the ESA. We have therefore not included it in the proposed new action. The practical result of the recommendation to end the lethal removal authorization was examined as the “No Action” alternative in the 2008 EA and was not selected because it would not reduce sea lion predation on at-risk salmonids.

The new information contained in Task Force recommendations following its 2010 review of information collected since issuance of the 2008 LOA is within the scope of the 2008 EA analysis, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

G. Other Aspects of the Affected Environment

The 2008 EA examined the potential effects of the proposed action and alternatives on a number of additional elements of the human environment (e.g., air quality, tourism, recreation, water quality, etc.). The new information on the effects of activities conducted to reduce sea lion predation on salmonids fall within the analysis contained in the 2008 EA. For example, effects of smoke from aerial pyrotechnics or boat exhaust in the air were short term, localized and immeasurable in the large open areas where the activities occurred. Similarly effects on water quality, fish habitat, terrestrial wildlife and birds, general vegetation, social and economic resources, tourism and recreation, cultural resources, noise, aesthetics, transportation, public services, and safety and human health were minimal as previously described. Some commenters, critical of the 2008 action speculated that tourists would be deprived of opportunities to view CSLs in the action area or participate in water sports such as kayaking in the action area. The new information collected since 2008 shows that CSLs continue to visit the action area and can be viewed from the surrounding shoreline. The observation areas defined by the sea lion removal project are closed to vessel traffic for security and safety reasons unrelated to the project. Water sports activities in the open areas adjacent to the boat restricted zone were unaffected.

Analysis and Conclusion: The new information concerning other aspects of the affected environment is consistent with the data considered in the 2008 EA and does not suggest there will be any level or type of impact different from those reported in the 2008 EA. Sea lions (CSL, SSL) continue to thrive in the Columbia River estuary and the general effects of the action on the physical environment have been small and short term as predicted.

Based on the foregoing, we conclude that the new circumstances and information are within the scope of the 2008 EA, will not result in any impacts that are uncertain or are different from those we described in the 2008 EA, and therefore are not significant for purposes of the NEPA inquiry required in the CEQ regulations.

VI. Public Review and Participation

After considering the new information and circumstances, the changes to the proposed action, the prior public review and comment on this action, and this report, NMFS has concluded that additional public review and comment on its decision to authorize lethal removal of CSLs is not warranted. As discussed above, NMFS prepared a draft EA for the proposed action and released the EA for public review and comment on January 18, 2008. During the 30-day public comment period, NMFS received over 3,500 comments, including 16 substantive comments. NMFS considered and responded to these comments in the Final EA issued on March 18, 2008. Also discussed above, NMFS has determined through this report that the new information and

circumstances are not significant and the changes to the proposed action are minor and not substantial. Additional public review is therefore not warranted. Moreover, NMFS is facing a significant time constraint to issue a revised decision. In order for sea lion deterrence measures to be implemented during the 2011 season, NMFS must issue a revised decision by early- to mid-May. This is because spring Chinook and the CSLs that prey upon them have typically begun to arrive at Bonneville Dam in significant numbers by April 1; however in 2011 the run did not ramp up until April 25 and the opportunity to deter predation lasts only until May 31 when CSLs are expected to leave the area for the season. If additional public review and comment, and agency consideration and response to public comment, were required, it could delay implementation of the proposed action beyond the window of opportunity available for the 2011 season, which would result in lost opportunity to reduce the number of predatory CSLs already identified and continue the unchecked growth of sea lion predation on at-risk salmonids. Finally, this action is essentially the same as that evaluated and authorized in 2008, for which there was significant public involvement. Given this, plus the fact that much of the information we relied on to support the current action has been made available to the public in other fora, NMFS does not believe additional opportunity for public review will further inform our proposed action.

VIII. Conclusion

After considering the available new information and circumstances, and the changes to the proposed action, NMFS has determined that there is no need to supplement the 2008 EA and FONSI because: (1) the changes to the proposed action that are relevant to environmental considerations are not substantial; and (2) the new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts are not significant under NEPA. The changes to the proposed action and the new information and circumstances do not suggest the proposed action will result in significant or uncertain impacts, nor in impacts that were not considered in the 2008 EA and FONSI. Therefore, the 2008 EA and FONSI remain valid and NMFS will continue to rely on them to support the proposed action.

List of Preparers:

Brent Norberg, NWR Fisheries Biologist

Garth Griffin, NWR Fisheries Biologist

List of Reviewers:

Mark Hodor, Office of General Counsel

Approved by:

Donna Darm, NWR, Assistant Regional Administrator

References:

- Allen, B.M. and R.P. Angliss. 2010. Draft Alaska Marine Mammal Stock Assessments. (Available on the Internet: <http://www.nmfs.noaa.gov/pr/sars/draft.htm>)
- Brown, R., S. Jeffries, D. Hatch, B. Wright. 2008. Field Report: 2008 Pinniped Management Activities at Bonneville Dam, September 23, 2008. ODFW, WDFW, CRTFC Field Report. 8pp.
- Brown, R., S. Jeffries, D. Hatch, B. Wright, S. Jonker, J. Whiteaker. 2009. Field Report: 2009 Pinniped Management Activities at and Below Bonneville Dam, October 28, 2009. ODFW, WDFW, CRTFC Field Report. 32pp.
- Brown, R., S. Jeffries, D. Hatch, B. Wright, S. Jonker. 2010. Field Report: 2010 Pinniped Management Activities at and Below Bonneville Dam, October 18, 2010. ODFW, WDFW, CRTFC Field Report. 38pp.
- Carretta, J.V., et al. 2010. Draft U.S. Pacific Marine Mammal Stock Assessments: 2010. (Available on the Internet: <http://www.nmfs.noaa.gov/pr/sars/draft.htm>)
- Corps of Engineers, U.S. Bureau of Reclamation, Bonneville Power Administration. 2007. Biological Assessment for effects of Federal Columbia River Power System and mainstem effects of other tributary actions on anadromous salmonid species listed under the Endangered Species Act; Biological Assessment for Bureau of Reclamation operations and maintenance in the Snake River Basin above Brownlee Reservoir; and Comprehensive analysis of the Federal Columbia River Power System and mainstem effects of upper Snake and other tributary actions.
- Corps of Engineers. 2010. Proportions of clipped/non-clipped Chinook and steelhead passing through the counting station at Bonneville Dam 2002 – 2010. COE data from Bonneville Fish Count website, presented to Pinniped-Fishery Interaction Task Force, Oct. 25-26, 2010.
- Dornbusch, P. 2010. ESA recovery plans for Columbia Basin salmon & steelhead. NMFS, NWR presentation to the Pinniped-Fishery Interaction Task Force. Oct. 25-26, 2010
- National Marine Fisheries Service. 2008a. Final Environmental Assessment and FONSI – Reducing the impact on at-risk salmon and steelhead by California sea lions and the area downstream of Bonneville Dam on the Columbia River, Oregon and Washington. NMFS, Northwest Region, 7600 Sand Point Way N.E., Seattle, WA. 98115. 129pp.

- National Marine Fisheries Service. 2008b. Endangered Species Act Section 7(a)(2) Consultation Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation – Consultation on Remand for Operation of the Federal Columbia River Power System, 11 Bureau of Reclamation Projects in the Columbia Basin and ESA Section 10(a)(1)(A) Permit for Juvenile Fish Transportation Program (Revised and reissued pursuant to court order NWF v. NMFS, Civ. No. CV 01-640-RE (D. Oregon) NMFS Log Number: F/NWR/2005/05883. Issued May 5, 2008
- National Marine Fisheries Service. 2010. Endangered Species Act Section 7(a)(2) Consultation Supplemental Biological Opinion – Supplemental Consultation on Remand for Operation of the Federal Columbia River Power System, 11 Bureau of Reclamation Projects in the Columbia Basin and ESA Section 10(a)(1)(A) Permit for Juvenile Fish Transportation Program. NMFS Log Number: F/NWR/2010/02096. Issued May 20, 2010. 246pp.
- National Marine Fisheries Service. 2011. Columbia River Estuary ESA Recovery Plan Module for Salmon and Steelhead. NMFS Northwest Region. Portland, OR. January. Prepared for NMFS by the Lower Columbia River Estuary Partnership (contractor) and PC Trask & Associates, Inc., sub-contractor.
- Oregon Dept. of Fish & Wildlife / Washington Dept. of Fish & Wildlife. 2009. 2009 Joint Staff Report: Stock status and fisheries for spring Chinook, summer Chinook, sockeye, steelhead, and other species, and miscellaneous regulations. Joint Col. Riv. Mgmt. Staff Rpt. January 26, 2009. <<http://wdfw.wa.gov/fishing/crc/>>. 82pp.
- Oregon Dept. of Fish & Wildlife / Washington Dept. of Fish & Wildlife. 2010. 2010 Joint Staff Report: Stock status and fisheries for spring Chinook, summer Chinook, sockeye, steelhead, and other species, and miscellaneous regulations. Joint Col. Riv. Mgmt. Staff Rpt. February 2, 2010. <<http://wdfw.wa.gov/fishing/crc/>>. 89pp.
- Oregon Dept. of Fish & Wildlife / Washington Dept. of Fish & Wildlife. 2011. 2011 Joint Staff Report: Stock status and fisheries for spring Chinook, summer Chinook, sockeye, steelhead, and other species, and miscellaneous regulations. Joint Col. Riv. Mgmt. Staff Rpt. January 27, 2011. <<http://wdfw.wa.gov/fishing/crc/>>. 86pp.
- Peterson, W.T., C.A. Morgan, E. Casillas, J.L. Fisher, J.W. Ferguson. 2010. Ocean ecosystem indicators of salmon marine survival in the northern California current. http://www.nwfsc.noaa.gov/research/divisions/fed/oeip/documents/peterson_etal_2010.pdf. 71pp.

- Rub, M., L. McComus, L. Gilbreath, D. Teel, B. Sandford, G. Matthews, J. Ferguson, L. Charlton, G. Roberts. 2010. A study to evaluate sampling and tagging methods for estimating survival of adult Chinook salmon through the estuary and lower Columbia River. NWFSC presentation to the Pinniped-Fishery Interaction Task Force. Oct. 25-26, 2010.
- Rumsey, S. 2010. Columbia River salmonids listed under the Endangered Species Act – Updated status and trends. NMFS Pow. Pt. presentation to the Pinniped-Fishery Interaction Task Force, October 25-26, 2010.
- Sanderson, B.L., K.A. Barnas, and M.W. Rub. 2009. Nonindigenous species of the Pacific Northwest: An overlooked risk to endangered salmon?. *Bioscience* Vol. 59, No. 3., March 2009. p245-256.
- Stansell, R..Project Leader, Fisheries Field Unit, U.S. Army Corps of Engineers, Bonneville Dam, Cascade Locks, OR. Personal communication with B. Norberg, NOAA Fisheries NWR/PRD. January 26, 2011. Email response re. Salmonid injury by hazing.
- Stansell, R.J., K.M. Gibbons, W.T. Nagy. 2010. Evaluation of Pinniped Predation on Adult Salmonids and other Fish in the Bonneville Dam Tailrace, 2008-2010. U.S. ACE, Portland Dist., Fish. Field Unit. Rpt. October 14, 2010, Bonneville Lock and Dam, Cascade Locks, OR 97014. 45pp.
- Stansell, R.J., S. Tackley, W.T. Nagy, K. Gibbons. 2009. 2009 Field Report: Evaluation of Pinniped Predation on Adult Salmonids and other Fish in the Bonneville Dam Tailrace. U.S. ACE, Portland Dist., Fish. Field Unit. Rpt. October 30, 2009, Bonneville Lock and Dam, Cascade Locks, OR 97014. 37pp.
- Pinniped-Fishery Interaction Task Force. 2010. Final report and recommendations of the Marine Mammal Protection Act, Section 120 Pinniped- Fishery Interaction Task Force: Columbia River 3-year review and evaluation. Rpt. Of the Task Force to NMFS, December 17, 2010. DS Consulting, Portland OR.. 16pp.
- Wright, B., M.J. Tennis, R.F. Brown. 2010. Movements of male California sea lions captured in the Columbia River. *NW Science*, Vol. 84, No. 1, 2010. p 60-72.
- Wright, B. Oregon Dept. of Fish & Wildlife. Personal communication with Pinniped-Fishery Interaction Task Force regarding Bioenergetic estimate of salmon saved. October 27, 2010. DS Consulting <<http://www.mediate.com/DSConsulting/docs/TF%20-%20salmon%20saved%20v%202010-27-10.pdf>>