NMFS' Responses to Public Comments Received on the Proposed Lake Ozette Sockeye Salmon Recovery Plan and the Draft Limiting Factors Analysis

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Northwest Regional Office
Salmon Recovery Division

CONTENTS

1 INTRODUCTION

On April 23, 2008, NOAA's National Marine Fisheries Service (NMFS) published a Federal Register Notice (73 FR 21913) soliciting comment on the proposed Lake Ozette Sockeye Salmon Recovery Plan (the Plan) and the Draft Lake Ozette Sockeye Limiting Factors Analysis (LFA) (Haggerty et al. 2008). The 60-day public comment period closed on June 23, 2008. To facilitate public participation, NMFS made the proposed Recovery Plan and LFA available for public comment on the NMFS website (http://www.nwr.noaa.gov/Salmon-Recovery-Planning/Recovery-Domains/Puget-Sound), or by request by CD. The following related documents were also posted on the NMFS website: two technical papers by the Puget Sound Technical Recovery Team (PSTRT): the draft description of the Lake Ozette sockeye population (Currens et al. 2006) and the proposed biological viability criteria for Lake Ozette sockeye (Rawson et al. 2008). NMFS conducted two public meetings to share the plan and answer questions from the public, May 15, 2008 in Port Angeles, WA and May 17, 2008, in Sekiu, WA.

NMFS received 20 public comments by mail, fax, or email on the proposed Recovery Plan, draft Limiting Factors Analysis, and draft PSTRT products from a variety of sources, including state and Federal government agencies, tribes, Ozette watershed landowners, interest groups, and interested individuals.

The PSTRT coordinated an independent peer review of the proposed Recovery Plan. Five peer reviewers submitted comments to the PSTRT, which forwarded the peer review comments to NMFS.

NMFS reviewed all comments received for substantive issues and new information. From the material submitted by the 20 public commenters and 5 peer reviewers, NMFS identified 219 separate points. These were grouped into categories of topics. To reduce repetition, similar comments were combined when it was possible to do so without sacrifice of substance. The proposed Recovery Plan and draft Limiting Factors Analysis were revised or edited in response to comments, as appropriate. Minor corrections or edits are not summarized here, but are visible in the redline/strikeout versions of the proposed Recovery Plan and Draft Limiting Factors Analysis that have been made available to members of the Lake Ozette Steering Committee before the final Plan, LFA, and response to comments are published in the Federal Register.

NMFS acknowledges the high quality of comments and the great care with which individuals and organizations responded to the Lake Ozette Sockeye Salmon Recovery Plan. Salmon are important to the people of the Pacific Northwest, and NMFS recognizes that public participation is essential to the task of protecting this precious natural resource. Most commenters offered praise and support for implementation of the Recovery Plan along with detailed and thoughtful critiques. This Recovery Plan is the product of many years of hard work on the part of the numerous state, Tribal, local, and Federal organizations and individuals throughout the Olympic Peninsula, supported by

funding from state, Tribal, Federal, local jurisdiction and private sources. As such, the Recovery Plan is a remarkable achievement, and NMFS intends to move forward with the long-term collaboration that will be necessary to implement it.

2 COMMENTS ON PROPOSED LAKE OZETTE SOCKEYE SALMON RECOVERY PLAN

2.1 General Document Comments

2.1.1 General Comment 1

Comment: Several commenters expressed overall appreciation for the proposed Lake Ozette Sockeye Salmon Recovery Plan (Plan) and pointed out successful elements in the Plan that impressed them. Those elements in the Plan that were recognized as working well include: the overall structure and vision statement, public involvement used to develop the Plan, the hypothesis approach, the emphasis on spatial distribution and diversity as well as abundance and productivity, the Plan's educational component, and flow of information used to develop the Plan.

Response: The National Marine Fisheries Service (NMFS) appreciates the hard work and dedication exhibited by the Lake Ozette Steering Committee members in the development of this Plan. It was NMFS' goal to ensure that local interests were represented in development of the Plan and to integrate local resources into the planning efforts. The Plan provides the opportunity for the public to be involved in partnership with resource managers to implement the Plan. NMFS also appreciates the work of the Northwest Fisheries Science Center Puget Sound Technical Recovery Team who developed the technical population and viability documents, and the economist who helped to develop the cost estimates used in the Plan.

2.1.2 General Comment 2

Comment: A few commenters, while supporting the overall Plan, also identified aspects of the Plan that could be strengthened, such as the adaptive management plan and reducing redundancy between chapters.

Response: NMFS agrees that the adaptive management plan needs more detail. This task, together with writing a detailed implementation plan, will be completed in 2009, after the Plan is adopted. NMFS has sought to reduce redundancy where possible in the final Plan without losing details necessary to fully understand the Plan.

2.1.3 General Comment 3

Comment: One commenter questioned NMFS' reliance on the Forest Practices Habitat Conservation Plan (FPHCP) as a key component for sockeye recovery.

Response: NMFS stands by its decision to include the FPHCP as a key component of the recovery plan. In 2006, the U.S. Fish and Wildlife Service and NMFS issued incidental take permits to the State of Washington that incorporated the terms of the FPHCP. In approving the incidental take permit, NMFS found implementation of the FPHCP "consistent with the long-term survival and recovery of covered species," including Lake Ozette sockeye salmon. NMFS' approval of the FPHCP includes an extensive record that describes how implementing the conservation measures will likely contribute to recovery of watershed processes that support salmon and trout statewide. NMFS believes that implementation of the FPHCP, *together with the other actions identified in the Plan,* will lead to recovery of Lake Ozette sockeye salmon.

2.1.4 General Comment 4

Comment: One commenter listed the policies and procedures used by the Washington Department of Natural Resources (WDNR) to manage the state's timber resources and reiterated WDNR's commitment to fully comply with the terms of its NMFS-approved Habitat Conservation Plan as part of the Plan to recover Lake Ozette sockeye.

Response: The Plan includes the actions in WDNR's Habitat Conservation Plan as part of the programmatic actions needed to recover Lake Ozette sockeye salmon. NMFS will continue to work with WDNR to identify opportunities and funding sources to potentially accelerate HCP actions in order to implement recovery actions as quickly as possible.

2.1.5 General Comment 5

Comment: One commenter found the document to be a thorough review of the factors limiting production of Lake Ozette sockeye and commended the authors on the concise introductory "Keys to Understanding," which allows the Plan to be understood by a wide audience not intimately involved in the recovery planning process.

Response: NMFS acknowledges the primary authors of the Limiting Factors Analysis for their thorough scientific work and hopes that the Keys to Understanding do serve their intended purpose, as stated by the commenter.

2.1.6 General Comment 6

Comment: One commenter stated that the Executive Summary or "Keys to Understanding" does not accurately summarize the recovery actions proposed in the Plan and requests that differences be reconciled.

Response: NMFS developed the "Keys to Understanding" in order to summarize the Plan for the general public. While this summary is condensed and general in nature, NMFS believes it accurately summarizes the Plan and its key components. The "Keys to Understanding" summary will be revised based on any changes made to the Plan in response to public comments.

2.1.7 General Comment 7

Comment: One commenter enthusiastically praised the limiting factors analysis and hatchery program assessments as technically sound and thorough. The commenter acknowledged the hard work and dedication of former and current Makah Tribal staff and questioned why the Plan does not explicitly acknowledge these contributions. Finally, the commenter stated that they remain pessimistic that the Plan will succeed, because of lack of cooperation between landowners.

Response: In the Acknowledgements section of the Plan, NMFS recognizes the hard work and dedication of all Steering Committee members, including past and current Makah Tribe staff. NMFS specifically names the Steering Committee members, Puget Sound Technical Recovery Team, and authors of the Limiting Factors Analysis. Future cooperation of landowners in the Ozette watershed is key to sockeye recovery. NMFS will strive to work with all parties and co-managers to implement recovery actions. The newly formed Washington Coast Sustainable Salmon Partnership and the new North Pacific Coast Lead Entity will also provide leadership to engage and be responsive to landowners.

2.1.8 General Comment 8

Comment: One commenter questioned what is meant by the "exclusive jurisdiction" of Olympic National Park and asked that the meaning of this term be clarified.

Response: NMFS has worked with Olympic National Park to describe its mandates and programs as they relate to managing its land in the Lake Ozette watershed. NMFS has added text to Section 1.7 to clarify the definition of the Park's exclusive jurisdiction authority.

2.1.9 General Comment 9

Comment: One commenter agreed that public education and outreach actions are critical for the recovery of salmon populations and recommended a web link to the education package developed for sockeye in Cultus Lake in Canada.

Response: NMFS reviewed the recommended web page and has added a reference to it as well as the web link:
http://www.cultuslake.bc.ca/documents/Caring_for_Cultus_Lake.pdf

2.1.10 General Comment 10

Comment: One commenter asked why Figures 4.5 and 4.7 do not include the entire life cycle as in Figure 4.3.

Response: The recovery plan is structured to provide limiting factors and strategies for recovery actions for (1) all populations, (2) beach spawners, and (3) tributary spawners. Figure 4.3 shows limiting factors that affect all Lake Ozette sockeye, while Figures 4.5

and 4.7 show limiting factors specific to spawning location. The latter two figures include only the aspects of the life cycle that are affected by spawning location.

2.1.11 General Comment 11

Comment: One commenter suggested that Section 2.6.2.3 be expanded to include a description of the Clallam County codes that guide development and any restrictions that may be imposed on private land within Olympic National Park.

Response: NMFS believes the descriptions of Clallam County zoning and land use in Section 7.2.1.3 and Clallam County road maintenance practices in Section 7.2.1.4 provide the information regarding County development codes that is relevant to sockeye recovery. Sections 1.7 and 7.2.1.5 describe the authorities of Olympic National Park. The recovery plan cannot anticipate future actions carried out by the Park.

2.1.12 General Comment 12

Comment: One commenter stated that Section 3.3.2 is either misplaced or incomplete, or both. It was recommended that this section be expanded to describe a basin-wide approach to monitoring and the adaptive management actions to be used. It should also refer to the adaptive management chapter in Section 8.1 and 8.2.

Response: NMFS agrees and has added more information about adaptive management and monitoring to Section 3.3.2, as well as a reference to Chapter 8.

2.1.13 General Comment 13

Comment: One commenter said that Section 3.3.3, factor D, Item 4 implies the need to assess the ability of Clallam County's codes to adequately protect sockeye habitat in the Ozette watershed.

Response: NMFS will consider whether inadequacy of regulations was a factor for decline taken into account in the listing decision, and, to inform future status reviews, will develop criteria to evaluate existing regulations. It will be important to consider whether land-use planning guides population growth and rural development in the Ozette watershed to ensure that terrestrial and nearshore habitat processes are protected.

2.2 Critical Habitat

2.2.1 Critical Habitat Comment 1

Comment: One commenter indicated that the designated critical habitat for Lake Ozette Sockeye salmon should not be included or referenced in the recovery plan because the commenter believes the process used to develop the critical habitat designation was flawed. As a result, the commenter states that the hypotheses and actions related to Coal Creek are outside the scope of delisting requirements and outside the scope of a recovery plan.

Response: The ESA requires NMFS to designate "critical habitat" for any species listed under the ESA – in this case, salmon and steelhead. Critical habitat is defined as specific areas on which are found physical or biological features essential to the conservation of the species and which may require special management considerations or protection. A critical habitat designation does not set up a preserve or refuge, and applies only when Federal funding, permits, or projects are involved. Critical habitat requirements do not apply to citizens engaged in activities on private land that do not involve a Federal agency.

NMFS stands by its critical habitat designation and the process used to determine critical habitat for Lake Ozette sockeye salmon. The recovery plan includes the adopted critical habitat designation. The recovery plan, however, will be updated to reflect any future changes in the critical habitat designation for Lake Ozette sockeye. NMFS published a final rule (70 FR 52630) designating critical habitat for Lake Ozette sockeye salmon on September 2, 2005, and the final rule took effect on January 2, 2006. The recovery plan uses the adopted critical habitat designation. Any potential future change in this designation would be made through a public process by NMFS' Protected Resources Division.

For the purposes of this recovery plan, NMFS uses the critical habitat designation as one of many factors used to identify subbasin priorities when implementing recovery strategies across the watershed.

2.2.2 Critical Habitat Comment 2

Comment: One commenter sought clarification about how the critical habitat designation applies to private landowners within the boundaries of Olympic National Park in the Lake Ozette watershed.

Response: (See Comment 1.2.1) A critical habitat designation applies only when Federal funding, permits, or projects are involved. Critical habitat requirements do not apply to citizens or private land owners engaged in activities on private land within the Lake Ozette watershed that do not involve a Federal agency. Under section 7 of the ESA, all Federal agencies must ensure that any actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of a listed species, or destroy or adversely modify its designated critical habitat.

2.3 Recovery Goals and Criteria

2.3.1 Recovery Goals Comment 1

Comment: Two commenters expressed concern about what they perceived as unrealistically high biological recovery goals that will be very difficult to achieve because of the scope of the action needed. They believe that intensive beach

supplementation programs are being discouraged by NMFS, and consequently future fishery opportunities on sockeye will be restricted.

Response: NMFS and the Puget Sound TRT agree that because of insufficient data for Lake Ozette sockeye salmon, there is high uncertainty regarding the proposed biological viability criteria developed by the TRT. Their viability document acknowledges this uncertainty. (See the population viability criteria document --- http://www.nwfsc.noaa.gov/trt/trt_documents/ozetteviability033108_review_draft.pdf.)

The TRT used three analyses in their decision frameworks to generate the planning ranges for viability. One of the analyses is an estimate of the historical capacity of the watershed to support sockeye. These estimates are used to set upper bounds on the viability model results for how many fish are needed to avoid extinction. Estimates of catch by the Makah Tribe in the 1940s suggest that population abundances were much larger than they are now. Increased abundance and productivity will be necessary before reinstating harvest. Significant habitat restoration will be needed to increase population abundance and productivity.

The great uncertainty in the current data being used to analyze viability contributes to the magnitude of the biological viability criteria. Viability analysis is based on risk analysis, which is highly influenced by the variability in the observed abundances. Monitoring can improve the precision of estimates of spawning abundance and sources of mortality, especially within the lake (i.e., after the weir count and prior to actual spawning). The resulting reduction in uncertainty can be expected to both refine the viability criteria and make it possible to quantify harvestable surplus opportunities. Improved habitat will also provide a more stable environment for the salmon, and further reduce the uncertainty in the risk analysis.

NMFS is not opposed to beach spawner supplementation if data indicate that hatchery intervention is needed to preserve either the beach aggregations or the population (the ESU) as a whole. The recovery plan includes proposed beach supplementation as a long-range hatchery action in Section 7.3.2.1.5.

2.3.2 Recovery Goals Comment 2

Comment: One commenter stated that the final plan should include an analysis of how the TRT's escapement targets for Lake Ozette sockeye would change under different levels of productivity (e.g. 1.5: 1, 2: 1, and 2.5: 1). They believe this approach would be more consistent with the guidance given by the TRT for other recovery regions, e.g. Puget Sound.

Response: The abundance and productivity targets developed by the TRT for Puget Sound Chinook were based on a combination of population viability analyses and habitat-based analyses, similar to what is presented here for Lake Ozette sockeye. However, the co-managers and the Shared Strategy developed target ranges for recovery, using only the habitat-based part of the analysis. The TRT subsequently determined that those target

ranges were within the viability ranges they developed using population viability analysis.

The Puget Sound Chinook habitat-based analysis used EDT, which includes a density dependent spawner-recruit relationship under restored conditions. No such analysis has been done for Lake Ozette, and the TRT used a different habitat-based approach to develop the viability ranges for Lake Ozette sockeye. The TRT explored the potential for a similar analysis for Lake Ozette and determined that adequate data to produce more informative guidance currently does not exist.

2.3.3 Recovery Goals Comment 3

Comment: One commenter expressed concern that one of the objectives of the plan is to allow a sustainable commercial sockeye salmon fishery in the Lake Ozette region. The commenter considers that achieving this goal will require too great a personal sacrifice and is against their personal best interests.

Response: The purpose and goal of this recovery plan is to identify the actions that will recover Lake Ozette sockeye salmon to a point that it no longer needs the protection of the ESA, i.e., the species can be delisted because it has been recovered. Any potential future fishery on this species will be based on a careful analysis of its viability by co-managers and NMFS through a public process before any determination is made about permitting any type of fishery for Lake Ozette sockeye salmon.

2.3.4 Recovery Goals Comment 4

Comment: One commenter recommended a viability abundance target of no less than 25,000 fish, with a conditional goal of 40,000. This is specific for meeting ESA delisting goals, the commenter said, and continued: 40,000 is conditional if a tributary spawner population is to remain in place, in order that a balanced number does not overly depend on the tributaries to be the provider of spatial structure. It would be desirable to have a target number of 35,000 as lake spawners alone if the recovery there is successful.

Response: At NMFS' request, the Recovery Implemention Technical Team (RITT), successor to the PSTRT,[1] is preparing guidance for more specific abundance and productivity criteria for delisting. As the amount of data increases and becomes more reliable for lake versus tributary spawners, the RITT may consider separate spawning goals for the two subpopulations.

[1] NMFS established the Puget Sound Technical Recovery Team (PSTRT) to develop technical products for recovery plans in the Puget Sound recovery domain, including the population descriptions and biological viability criteria used in the proposed Lake Ozette Sockeye Recovery Plan. As recovery plans were completed and the PSTRT products finalized, NMFS restructured the PSTRT into the Recovery Implementation Technical Team (RITT). The focus of the newly formed RITT is to provide technical guidance, analysis, and products related to implementation of recovery plans in the Puget Sound recovery domain.

2.3.5 Recovery Goals Comment 5

Comment: One commenter questioned how the Plan can propose such large abundance criteria when they are based on limited data with high uncertainty. Another commenter questioned how the lower limit abundance criteria were developed.

Response: The lower range is based on the current estimate of the variance of the density independent growth rate. The upper range is based on the recovered spawner capacity of the two beaches and three tributaries that currently support spawning. Limited data results in higher uncertainty, which will tend to increase viability criteria, all other things being equal. Increased precision in future population estimates will reduce uncertainty. This requires improved monitoring of the spawning aggregations.

2.3.6 Recovery Goals Comment 6

Comment: Two commenters suggested that historical abundance could be investigated by looking at lake sediment core samples.

Response: NMFS agrees that analyzing core samples can be helpful in determining historical abundance. However, recent sediment core samples taken from Lake Ozette indicate that this method may not be as useful here as in northern lakes where sediment cores have been used to estimate historical run size. Minimal variation was found in heavy nitrogen/marine derived nitrogen levels in Lake Ozette sediments. Nevertheless, this research action has been added to the list of proposed research, monitoring, and evaluation needs listed in Table 8.1 (see below).

RM&E ID	Affected Population Segment	Process or Condition to Investigate	Geographic Location	Description
RME#27	All Population Segments	Biological	All	Further investigate the potential use of $\delta^{15}N$ (heavy nitrogen/marine derived nitrogen) from lake sediment cores to estimate the size and variability in the historical sockeye salmon population.

2.3.7 Recovery Goals Comment 7

Comment: One commenter found the draft viability document very confusing and could not understand how the models worked or if the correct input data was used.

Response: NMFS has edited the viability report for clarity to make it more understandable for the general public. The amount of input data was extremely limited and thus restricted the types of analyses NMFS could use.

2.3.8 Recovery Goals Comment 8

Comment: One commenter questioned the lake capacity analyses conducted by Blum that are referenced in the viability document and asked for a better explanation of the capacity analysis. This commenter also questioned use of the little-known Plankton Acre Index, used by Blum.

Response: Although it has not been published, Blum's thesis provides us with one of several attempts to look at Lake Ozette capacity when we have little direct data. In the end it was not used. Blum's estimate of spawning capacity was larger than Haggerty's (2006), which NMFS used as the upper end of the viability range. The idea that lake capacity for rearing does not limit Lake Ozette sockeye is not disputed, and Blum's results support this, although they may not be numerically accurate.

2.3.9 Recovery Goals Comment 9

Comment: One commenter recommended NMFS use the Ozette River camera data to directly measure the hatchery fin-clipped ratio of the entire run.

Response: NMFS would be interested in looking at these data if they are available. The TRT's revised analyses use the new estimates of natural-origin recruit fraction that were provided during the review.

2.3.10 Recovery Goals Comment 10

Comment: One commenter questioned the TRT's calculation for the percent hatchery fish in the ESU.

Response: There were errors in the table relating to percent hatchery contribution in Appendix A of the TRT's viability paper. These errors have now been corrected.

2.3.11 Recovery Goals Comment 11

Comment: One commenter questioned the TRT's (now the RITT's) lake rearing capacity estimates.

Response: While the estimates this commenter provided differ slightly from the TRT's, the results are in the same general level of abundance. The spawners needed to produce the smolt capacity in the RITT's viability document are 54,000 to 121,000 fish. The upper end of the range is slightly less than, but in the ball park of, the 140,000 estimate the commenter gave based on the lake's area. The spawner capacity range from the RITT's report is 91,000 to 121,000.

2.3.12 Recovery Goals Comment 12

Comment: One commenter recommended compiling all available data for Lake Ozette and identifying data gaps and sampling needs. This information will be useful to calculate the lake rearing capacity.

Response: NMFS agrees that a high priority for Lake Ozette sockeye recovery is to improve the monitoring of the population (abundance, spawning distribution, changes in age structure, interaction between beach spawners and tributary spawners, etc.). Until this is done, preliminary viability criteria and capacity estimates are still needed. These estimates will probably be revised several times before the population reaches recovery, based on new/additional data. Viability analysis is risk analysis. Given that the data are imprecise and not complete (broken time series), the risk of losing the population is greater than it would be with more precise data and estimates, because of the chance of mismanagement based on biased data.

2.3.13 Recovery Goals Comment 13

Comment: One commenter recommended analyzing existing data, identifying data gaps and then selecting a model to understand lake rearing capacity.

Response: Capacity estimates given in the TRT viability document are for recovered conditions and give an idea of the maximum abundance we can expect for the lake. Capacity is a number that would ordinarily be higher than viability. The population viability analysis suggests that at the upper end of abundance the population would be limited by space for spawning rather than the capacity of the lake to rear juveniles. The RM&E section of the Plan addresses many of these issues, and the RM&E plan, to be developed after adoption of the Recovery Plan in 2009, will develop appropriate methods further.

2.4 Limiting Factors Hypotheses

2.4.1 Limiting Factors Comment 1:

Comment: One commenter stated that some limiting factors that were submitted during the drafting of the LFA were not considered or even captured for future consideration. These limiting factors included: 1) shoreline erosion due to high lake levels and related high wave energy; 2) rising tannin level and its effect on micro-invertebrate/zooplankton production, and its contribution to temperature increase/decrease in the lake water column, or as a component in tributary/Ozette River from adding decaying LWD; 3) the sediment plug at the outlet of the lake,;4) currents/flow patterns affecting nutrient distribution and sediment displacement; and 5) upland basin water storage capacity as an instream flow component of the tributaries and also its relationship to supplying the hyporheic zones around the shorelines.

Response: NMFS acknowledges that the limiting factor concepts identified by the commenter were presented at one or more Steering Committee meetings. Consistent with

our evaluation of all limiting factors proposed for inclusion in the LFA, the commenter was asked to provide written hypotheses supporting the validity of the potential limiting factors as they pertain to sockeye salmon recovery for NMFS consideration, but the written hypotheses were not submitted. Many of the issues and concepts included in the five proposed limiting factors provided by the commenter were addressed during the drafting of the LFA and the Recovery Plan, and most are encompassed by limiting factors hypotheses presented in the draft LFA and Recovery Plan. Others would best be addressed in the implementation phase of the recovery planning effort.

(1) Shoreline erosion and lake wave energy

The first limiting factor proposed by the commenter addresses the potential contribution of high lake levels and related wave energy to shoreline erosion. Shoreline erosion does occur along the lake margins on the north end of the lake (LFA Section 4.3.6.1), and NMFS recognizes that shoreline erosion and its causes are of substantial concern to property owners within the Lake Ozette watershed. Shoreline erosion impacts on shoreline property and its relationship to potential sockeye-recovery directed actions identified in this Plan will be taken into account during the action implementation phase.

Shoreline erosion as a potential factor that contributes to deposition of fine sediment on the spawning beaches would be subsumed under Hypothesis 6 in Section 4.3.1.1 of the proposed Recovery Plan. Hypothesis 6 proposes that "reduced quality and quantity of beach spawning habitat in Lake Ozette have decreased egg-to-emergence survival, resulting in reduced fry production from the beach spawning aggregations." Increased fine sediment is identified as one of the factors that may limit egg-to-fry survival.

As noted in the proposed Recovery Plan (Section 2.4), current sediment production rates in the watershed are estimated to be more than three times greater than pre-disturbance production rates (Herrera 2006). The LFA describes the sources of fine sediment to beaches along Lake Ozette, finding that "sediment delivery from streams and slopes, combined with lateral lake shore transport, are the primary mechanisms for fine sediment delivery to sockeye spawning habitat." One process identified under Hypothesis 6 that affects the quantity and quality of beach spawning habitat in Lake Ozette is lake hydrology, and one activity identified as causing these effects is historical tributary and lake outlet LWD removal and resulting channel destabilization and altered lake levels. One sub-hypothesis is that alterations in lake level variability from removal of wood at the lake outlet and tributary-inflow hydrologic change, coupled with tributary sedimentation and wood removal, have altered hyporheic and groundwater hydraulics, hydrology, and inter-gravel flow along the lake shoreline. The description and rationale for Hypothesis 6 encompasses concepts and issues included in the commenter's proposed limiting factor. Responsive actions considering all likely sources and processes, and likely remedies, for deleterious fine sediment deposition on the spawning beaches will be developed during the recovery plan implementation phase.

(2) Effect of tannin level on micro-invertebrate/zooplankton production

The second limiting factor proposed by the commenter pertains to rising lake/tributary tannin levels, causes, and resultant effects on freshwater physical and biological

conditions for sockeye salmon. NMFS is unaware of data that indicate that tannin levels within the Lake Ozette watershed are increasing. Lake Ozette, like many Washington lowland coastal lakes with high vegetative loads, is naturally tea colored as the ambient condition, from a combination of fine sediment and algae. As noted in the LFA, high intensity storms that generate large floods and high suspended sediment levels can generate long duration turbidity events that change water clarity conditions in the lake. High turbidity levels of long duration in the lake are likely caused by abundant clay or very fine silt input from lake tributaries suspended in the water column, and transported by wind driven currents along the lake shoreline. For example, a flood in December 15, 1999 resulted in high turbidity levels throughout the entire lake, such that visibility in the lake approached zero. High turbidity conditions can affect water clarity and potentially plankton productivity, but any effects are likely short in duration. Meyer and Brenkman (2001) concluded that turbidity levels tend to be low in the lake with two exceptions: during May and June when plankton blooms are occurring, and after storm events. The highest turbidities recorded in the lake were made a few days after a storm event.

Studies of lake productivity indicate that zooplankton production in Lake Ozette is not a limiting factor for sockeye salmon (Beauchamp and LaRiviere 1993; Beauchamp et al., 1995). Meyer and Brenkman (2001) concluded that the water chemistry, nutrients, and zooplankton densities were within ranges documented for other sockeye lakes in Washington, British Columbia, and Alaska. Average emigrating sockeye smolt size continues to be among the highest observed for sockeye populations coast-wide, and it does not appear that water clarity limits sockeye productivity at current population levels. Regarding the premise that water clarity changes have affected temperatures in the lake, Jacobs et al. (1996) concluded that temperature conditions do not appear to be a threat to Ozette Lake sockeye salmon. In a more recent study of Lake Ozette conditions, Meyer and Brenkman (2001) concluded that water temperatures were well within the range preferred by sockeye salmon. Data presented in the draft LFA Section 4.3.5 indicate that average peak 7-day maximum temperatures in Ozette River have remained quite constant between 1993 and 2005. The commenter's interests in lake turbidity effects may be addressed through Hypothesis 8 in the proposed Recovery Plan (Section 4.3.2.1). Turbidity and suspended sediment concentration at Olsen's and Allen's beaches are thought to have a limited effect on sockeye salmon because of the substantial distance of these beach spawning areas from major sediment sources. However, at historical spawning sites near major tributary outfalls, such as Umbrella Beach, the effects of turbidity and suspended sediment concentration are hypothesized to be detrimental and similar to turbidity effects described for lake tributaries harboring sockeye.

(3) "Sediment plug" at lake outlet

The third proposed limiting factor brought forth by the commenter addresses what is referred to as the sediment plug at the lake outlet. This sediment in the upper Ozette River was evaluated for effects on lake level and sockeye habitat in the LFA and through the work conducted by Herrera Environmental.

Hydraulic modeling work indicates that currently the lake's hydraulic control during low lake level is associated with the sediment deposit located in the upper Ozette River, near

its confluence with Coal Creek. As noted in Section 4.3.6.1 of the LFA, shoreline erosion does occur along the lake margins on the north end of the lake. Deposition of sediment transported along the lake shore, forming a low sill or sand bar, has been observed near the outlet of the lake. The deposited fine sediment is episodically flushed out during high lake level periods. However, during low lake level periods the hydraulic control of the lake outlet into the Ozette River is not currently located at this low sill because of the topographic elevation of the lake outlet. The outlet of the lake is actually at a lower elevation than a riffle in the Ozette River downstream of the NPS gauge, downstream of the Ozette River bridge, and just upstream of Coal Creek.

A thorough discussion of sedimentation at the mouth of Coal Creek as the lake's current hydraulic control is presented in Section 4.3.6.1 of the draft LFA. The LFA also describes in detail the hydraulic modeling work conducted by Herrera Environmental. Herrera used the current inflow hydrology to model lake levels under different LWD loading scenarios. They concluded that historically, high lake level periods were controlled by LWD obstructions in the upper Ozette River, prior to extensive wood removal beginning in the 1950s.

Habitat protection, restoration and enhancement projects are proposed in proposed Recovery Plan Section 7.2.2 as a means to reduce sedimentation in the lake, its tributaries, and the Ozette River, and to restore properly functioning hydrologic processes required for sockeye salmon recovery.

(4) Lake currents/ flow patterns

The fourth limiting factor proposed by the commenter pertains to the effects of currents and flow patterns on nutrient distribution and sediment displacement. Section 4.2.3 of the LFA describes what is known about nutrient conditions and distribution in the lake. Nutrient data indicates that Lake Ozette is an oligotrophic to mesotrophic system (low to moderate levels of nutrients). Bortleson and Dion (1979) first examined water quality attributes in Lake Ozette, including nutrients. Other researchers later either collected water quality data or attempted to summarize data that was previously collected in Lake Ozette. Meyer and Brenkman (2001) and Beauchamp and LaRiviere (1993) both found that the lake begins to stratify in April and begins to mix in October. Meyer and Brenkman found that Kjeldahl-N, total dissolved phosphorus, orthophosphate-P, and ammonia-N did not demonstrate any consistent patterns in concentration with increased depth. They also found that concentrations of nitrate did not change with increased depth in January, but the lowest concentrations occurred near the lake surface in samples collected in May, July and August. However, available zooplankton sampling data and resultant projections regarding *O. nerka* smolt carrying capacity (e.g., Beauchamp and LaRiviere, 1993, and Beauchamp et al., 1995) indicate that nutrients are not currently limiting phytoplankton and zooplankton abundance and sockeye salmon productivity in Lake Ozette. It is therefore unclear how current and flow pattern effects on nutrient distribution in the lake could be argued to be a substantive limiting factor to recovery of the sockeye population. But in response to the need for further lake productivity information to assist long-term, effective decision making regarding Lake Ozette sockeye ESU recovery, Section 8.2 of the proposed Recovery Plan includes a research,

monitoring, and evaluation action directed at the issue of lake productivity effects on all sockeye population segments. RME #8 calls for implementation of limnological monitoring of temperature, water quality, photosynthetic rates, and zooplankton communities and sockeye salmon. This monitoring action could include also consideration of the effects of lake current and flow on the subject lake conditions

Regarding lake current/flow patterns affecting sediment displacement, the proposed Recovery Plan identifies the role of lake current flow patterns in maintaining beach spawning habitat quality (Section 2.5). Beach spawning sockeye require adequate flow for egg incubation within spawning gravel (Foerster 1968). However, there are no data available indicating the extent to which lake currents and flow patterns are affecting (positively or negatively) conditions on sockeye beaches. Also as noted in the proposed Recovery Plan, intra-gravel flow information is not available for these beaches. An understanding of natural lake current patterns would help determine the magnitude of effects on the spawning beaches from tributary and upland slope-derived turbidity and sedimentation, but again, information is needed to identify those flow patterns.

Hypothesis 6 (Section 4.3.1.1) suggests that reduced quantity and quality of spawning habitat is a key limiting factor affecting beach spawners. Hypothesis 8 suggests that turbidity and SSC at Olsen's and Allen's Beaches have a limited effect on sockeye salmon because of the distance of spawning habitat from major sediment sources. However, at historical spawning sites near major tributary outfalls, such as Umbrella Beach, the effects of turbidity and SSC would be expected to be an important limiting factor to egg incubation. Since both Hypotheses 6 and 8 identify lake current and flow effects as an important process affecting beach conditions. introduction of lake current and flow patterns as a new limiting factor as suggested by the commenter is not necessary. However, Section 8.2 of the Plan has been revised to emphasize the need for research to identify lake current and flow patterns. More information is needed about these patterns to more effectively direct restoration projects intended to remediate sediment and hydraulic limiting factors for beach spawning sockeye.

The description of RME #12 in Section 8.2 has been revised as follows (bolded language):
"Key questions include: Is there evidence of anthropogenic impacts on water quality in the lake? If so, to what extent have any changes affected beach spawning sockeye? **Quantify seasonal Lake Ozette current and flow patterns, and their likely role in intra-gravel flow and sediment transport at known spawning beaches. Given this information,** what are the seasonal patterns and concentrations of turbidity/SSC across the lake and along different beach habitats, **especially** during various storm events? What beaches/locations are more susceptible to habitat degradation caused by fine sediment deposition? Is water quality changing over time?"

(5) Upland basin water storage/instream flow

The final limiting factor proposed by the commenter is upland basin water storage capacity as an instream flow component of the tributaries, and its relationship to supplying the hyporheic zones around the shorelines. NMFS believes that the issues and

concepts addressed by this proposed hypothesis are incorporated within hypotheses that are already included in the proposed Recovery Plan.

Upland water storage capacity effects on Lake Ozette tributary instream flow is an issue that is addressed in Section 4.4.2 of the proposed Recovery Plan. In Section 4.4.2.4, stream flow is listed as a contributing limiting factor affecting tributary spawners. The responsive hypothesis for this contributing limiting factor (Hypothesis 15) proposes that "natural and anthropogenically influenced stream flow variability (magnitude, frequency, and timing of low and high flows) affects sockeye mortality in the tributaries." This hypothesis encompasses the concept that stream flow is affected by the condition of upland areas supplying the tributaries, including the status of upland water storage and run-off processes. Acknowledged is that the lack of long-term hydrologic datasets in the watershed prohibits the quantification of changes to hydrology and flow regimes relative to historical conditions resulting from high road densities in sockeye tributaries, clear-cutting, and lack of floodplain connectivity from channelization and wood removal. Although these activities have likely resulted in changes in hydrologic conditions in the tributaries of unknown magnitude, including changes in water storage capacity and yield from surrounding uplands, quantification of this potential limiting factor remains a data gap. Responding to this hypothesis and associated data gap is Recovery Strategy #27, which calls for the quantitative assessment of hydrologic impacts from land use and LWD removal activities and development of a distributed hydrologic model calibrated for each sockeye tributary. Actions needed to improve natural hydrologic processes in sockeye spawning streams will be prioritized based on modeling results. Also included as a responsive action in Section 8.2 of the proposed Plan is RME #20, which calls for the collection of long-term stream flow data to allow for an improved understanding of the impacts of stream flow on sockeye production in Lake Ozette tributaries. In particular, this RME action responds to the need to quantify natural and human-induced stream flow impacts on tributary sockeye egg-to-fry survival rates.

Upland water storage effects on hyporheic flow (from groundwater and seeps/springs) sustaining beach spawning sockeye redds, and the watershed activities affecting these zones, are considered in the proposed LFA and Recovery Plan. A key limiting factor affecting beach spawners is reduced quantity and quality of spawning habitat and effects on sockeye egg incubation. Section 4.3.1.1 of the proposed plan addresses this limiting factor through Hypothesis 6. One primary factor limiting egg survival is reduced intra-gravel flows. Processes hypothesized to be contributing to this condition are lake level variability from removal of wood at the lake outlet and tributary-inflow hydrologic change, coupled with tributary sedimentation and wood removal. These activities are thought to have altered hyporheic and groundwater hydraulics, hydrology, and intra-gravel flow along the lake shoreline. Several recovery strategies are proposed as means to address Hypothesis 6 (Section 6.5). The primary strategy that is responsive to the need to address upland water storage effects on beach hyporheic flow is Recovery Strategy #8, which calls for the quantitative assessment of hydrologic impacts from land use and LWD removal activities and development of a distributed hydrologic model calibrated for each sockeye tributary. Actions needed to improve natural hydrologic processes in sockeye spawning streams will be prioritized based on modeling results. Also addressing

this hypothesis and encompassing the concept that upland conditions affect groundwater flow at the spawning beaches is Recovery Strategy #25: "Develop a comprehensive understanding of the conditions, factors, and processes controlling egg-to fry survival on sockeye spawning beaches. Investigate several different methods of beach spawning habitat rehabilitation, including vegetation removal, gravel cleaning, LWD introduction, etc. Include sockeye egg survival studies with habitat manipulations." This recovery strategy is carried forth through research, monitoring and evaluation actions in Section 8.2 of the proposed plan ("RME #17" and "RME #18").

2.4.2 Limiting Factors Comment 2:

Comment: One commenter requested a list of the individuals who were on the limiting factors habitat work group described on page 1-6 of the recovery plan.

Response: In 1999, stakeholders from the Lake Ozette Steering Committee formed a habitat work group to study and discuss potential limiting factors affecting Lake Ozette sockeye salmon. From 1999 through 2002 the work group developed a ranked list of potential limiting factors, as well as a list of research priorities for Lake Ozette sockeye salmon. The habitat work group was an inclusive group, open to anyone who wanted to attend, but no list of all participants exists. A list server was used for distributing drafts to the participants. Those who directly contributed to the drafting of text and ranking of limiting factors were the following: Mike Crewson (former Makah Fisheries staff), Pat Gearin (NOAA), Mike Haggerty (former Makah Fisheries staff), Jeff Haymes (WDFW), John Meyer (retired ONP staff), Andy Ritchie (former Makah Fisheries staff), and Wendy Sammarco (former Merrill & Ring staff).

2.4.3 Limiting Factors Comment 3:

Comment: One commenter cited a section of the Plan describing the Lake Ozette Steering Committee and mentioning a decision-making process. The Plan states, "The Lake Ozette Steering Committee is made up of representatives from the Makah and Quileute Tribes, Olympic National Park (ONP), Clallam County, local land owners, Washington Governor's Salmon Recovery Office, Washington Department of Fish and Wildlife (WDFW), Washington Department of Natural Resources (WDNR), NMFS, U.S. Environmental Protection Agency (EPA), North Olympic Peninsula Lead Entity (NOPLE), private timber companies, and local citizens. Although it is not a formally sanctioned State of Washington recovery board, the Committee's diverse members have met consistently during plan development and agreed to a decision-making process with the help of a facilitator hired by NMFS." The commenter requested a more thorough description in the plan of the decision-making process, as well as when and how the Lake Ozette Steering Committee agreed to this process.

Response: NMFS hired a facilitator and neutral mediator to manage the Steering Committee meetings while NMFS was writing the proposed recovery plan, and to communicate with the Steering Committee between meetings. The facilitator emphasized to the Steering Committee that NMFS was responsible for producing the

recovery plan as required by the Endangered Species Act, and explained that NMFS would seek input, review, and comments from the Steering Committee participants on each draft of the recovery plan as it was written. Through this facilitated process, NMFS was interested in understanding which points the Steering Committee could agree on, but did not seek a consensus-based decision-making process with the Steering Committee regarding their input to the recovery plan. The sentence has been revised and "decision-making process" has been deleted.

Editing Change to Plan – page 1-6, Section 1.5.2: End the second sentence after the word "development" and delete the rest of the sentence. Add the following new sentence: "A facilitator was hired by NMFS to manage the Steering Committee meetings and communicate with the Steering Committee between meetings. NMFS sought input and review from Steering Committee members as the recovery plan was developed."

2.4.4 Limiting Factors Comment 4

Comment: One commenter cited a March 2008 Associated Press newspaper article that describes findings from scientists who were examining the widespread collapse of West Coast salmon returns during the fall of 2007. The commenter states that until adequate investigative research occurs on the ocean effects damaging this sockeye population, it is inappropriate to make any "drastic environmental changes" within the Ozette watershed, which will lead to no known benefit to the sockeye population. The commenter further states that the rating for marine survival should be increased to a highly significant key issue.

Response: The newspaper article cited by the commenter discussed specific marine survival issues affecting certain southern North American salmon stocks in 2007. Poor marine survival during the period mentioned in the article may have negatively affected Lake Ozette sockeye salmon; estimates of the adult sockeye salmon return for 2007 are not yet complete.

Marine survival in general did not, however, meet the Plan's definition of a key limiting factor. The Plan defined key limiting factors as "those with the greatest impact on the population's ability to reach its desired status. Key limiting factors directly result in decreased sockeye salmon viability, because of the degree of impact, frequency and persistence of impact, and/or scale of population affected. A key limiting factor required high ratings in both the degree of impact on sockeye and the relative mortality during at least one life history stage. In addition, conditions influencing the factor must have a significant linkage to anthropogenically influenced processes and inputs."

Although marine survival is a critical component in determining the ultimate (future) abundance of Lake Ozette sockeye, regional studies have not found that it had a large effect on the decline of Ozette sockeye. In addition, estimates of current and past marine survival for Lake Ozette sockeye are quite high. The Plan acknowledges that global and broad-scale regional degradation of the marine environment caused by pollution, fisheries, and climate change is likely to adversely affect future marine survival rates and

marine distribution of all Northeast Pacific-origin sockeye salmon populations. The Plan states that such "large-scale changes in marine conditions should be monitored."

2.4.5 Limiting Factors Comment 5:

Comment: One commenter agreed with the limiting factors identified and suggested that restoration of the beach spawning habitats is probably one of the most important recovery actions for Lake Ozette sockeye. The commenter noted that increases in fine sediment and loss of large woody debris were common throughout western Washington. The commenter suggested that loss of beach spawning area deserves being addressed more thoroughly in the Plan.

Response: NMFS believes the loss of beach spawning habitat quantity and quality is addressed thoroughly and adequately; it is extensively evaluated and highlighted throughout the LFA and the proposed Plan. LFA Section 2.4.1 includes over 15 pages of beach spawning habitat description. The LFA further describes limiting factors associated with loss in quantity and quality of beach spawning habitat in Sections 5.4.2, 5.4.2.1, 5.4.2.1.1, 5.4.2.1.2, 5.4.2.1.3, 5.4.2.2, 5.4.2.2.1, 5.4.2.2.2, and 5.4.2.2.3. In addition, the LFA analyses the limiting factors associated with egg incubation on Lake Ozette beaches in Sections 6.2.5.1, 6.2.5.2, 6.2.5.3, 6.2.5.4, and 6.2.5.5.

The proposed Recovery Plan includes a thorough discussion of reduced quantity and quality of beach spawning habitat (Section 4.3.1.1) and develops the following working hypothesis, "Reduced quality and quantity of beach spawning habitat in Lake Ozette has decreased egg-to-emergence survival, resulting in reduced fry production from the beach spawning aggregations." This hypothesis is one of the few key limiting factors hypotheses within the proposed Plan.

2.4.6 Limiting Factors Comment 6:

Comment: Three commenters mentioned recent studies that have found high and/or increasing mercury concentrations in Lake Ozette sediments and certain fish species. Two of these commenters suggested that increasing mercury concentrations may be an indicator of other heavy metals or other pollutants that could negatively affect Lake Ozette sockeye.

Response: These studies were largely incomplete during drafting of the LFA and therefore were not included in the LFA or the proposed Recovery Plan. The proposed Recovery Plan includes only one reference to these studies in Chapter 8, in the table listing research, monitoring, and evaluation needs for long-term decision making. Item 26 states, "Continue and expand upon investigative studies of mercury and other environmental toxins entering the Lake Ozette food web. Determine and monitor the levels of mercury and other environment toxins within Lake Ozette sockeye at all freshwater life history stages." A subsection (4.2.4) describing the newly available information has been added to Chapter 4 of the Recovery Plan.

2.5 Large Woody Debris and Lake Level

2.5.1 LWD and Lake Level Comment 1

Comment: Several comments were received concerning large woody debris (LWD) and Lake Ozette levels.

Several commenters stated that they were opposed to, and/or concerned that the Plan considers introducing LWD into the upper Ozette River. At least one commenter stated that LWD introduction should not be an option. Three commenters submitted pictures of private cabins around the lake and their proximity to the lake, emphasizing how vulnerable some of the structures are to high lake levels.

One commenter stated that NOAA should consider through an Environmental Impact Statement (EIS) the effect of LWD placement on landowners that have built in the flood zone of the lake after the natural hydrology of the lake was altered through whole-scale wood removal. (Comment 2.5.2)

One commenter stated that the hydraulics of Lake Ozette (the key habitat for sockeye in the watershed) are at the cornerstone of successful sockeye recovery. This commenter went on to say that it is essential that NOAA come to terms with the fact that at the same time sockeye were declining in the 1950s, wood was being removed from the Ozette River and humans were developing cabins around the lake under altered (lowered) mean lake level regimes. The commenter further stated that it seems that a very logical recovery option in the plan would be to pay landowners to move their small cabins up 3 to 6 feet out of the way of the historical lake inundation zone, in order to provide an endangered species with the space and habitat they need to succeed. This commenter wrote: "If I was a landowner, I might appreciate some help flood-proofing my beautiful property in the face of climate change and unpredictable flood heights."

Response: NMFS is not proposing to add LWD to the upper Ozette River or to the lake shore. NMFS recognizes the concerns of property owners around the lake. At the same time, based on the data available, NMFS believes that lake level may be important in maintaining and providing beach spawning habitat for Lake Ozette sockeye. The Plan recommends that additional comprehensive studies be conducted in order to address the social and economic concerns and also to verify and further substantiate the hypotheses concerning spawning habitat. These include: 1) identifying current flood hazards around the lake; 2) refining the hydrologic model for Lake Ozette and the Ozette River; 3) determining the effect of increased lake level on property and infrastructure; 4) identifying a range of options for LWD placement based on refined hydrologic models; and 5) identifying potential projects to be evaluated in the future. For all reviews, studies, and planning activities NMFS has suggested that there should be a holistic approach, such that the biological needs and benefits to sockeye are balanced with the social and economic effects on property owners around the lake. In addition, any plan to add LWD to the upper Ozette River needs to be integrated with projects that focus on beach habitat monitoring and restoration (see Section 7.2.2.3.1 of the plan, page 7-28).

Paying landowners to move their cabins out of the flood zone is a reasonable alternative that could be considered if, after the recommended studies, it appears that an LWD program would indeed be beneficial to the sockeye. This and other reasonable alternatives may be developed to protect private property as well as to provide proactive restoration and enhancement along the spawning beaches while allowing for natural wood recruitment processes to occur in the Ozette River. Because no action other than study is being proposed at this time, an EIS is not needed.

As stated in the introduction to Section 7, Recovery Program Actions, in the proposed Plan, the public will be involved in developing an Implementation Schedule and selecting future projects. In addition, each agency has public review, involvement and notification requirements to ensure the public is involved in project selection, design and review. Public input and involvement in recovery plan actions is important and will help ensure successful implementation of the recovery plan.

2.5.2 LWD and Lake Level Comment 2

Comment: One commenter stated that there is a long recorded history of rising water causing problems for property owners, but that it has no link to fish population success or failure, and cannot be considered as a benefit to the recovery of the salmon population. In fact, the commenter said, the opposite is more likely true for reasons of siltation alone.

Response: NMFS has reviewed the Lake Ozette lake level in great detail. There is little evidence to suggest that lake levels have significantly increased through time. In fact, three studies have been conducted that show that historical lake levels were significantly higher than those observed during the last 30 years. This work does suggest that log jams that have formed during the past few decades may affect lake levels during high water periods. However, Herrera (2006) estimated that current average winter-time lake levels are still 1.5 to 3 feet lower than they were before widespread removal of logjams. Extreme, short-term high lake levels like those observed during the winter of 1999/00 are best correlated with extreme precipitation events. NMFS is unaware of any studies or data that suggest that higher than current lake levels result in poor survival and/or siltation of spawning beaches.

2.5.3 LWD and Lake Level Comment 3

Comment: One commenter stated that they believe making alterations to a wilderness environment based on a computer-generated hydrology program is just wrong. This same commenter stated that without substantial safeguards in place to remove any LWD that has become problematic after placement, NOAA is basically ignoring possible risks by recommending risky actions that are already known to likely fail.

Response: NMFS is not recommending LWD placement without appropriate safeguards. The Plan states that LWD introduction in the upper Ozette River should only be considered after implementing several studies. The recommended studies are designed to identify flood hazard zones around the lake, as well as determine the potential effects of

increased lake level on property and infrastructure. NMFS is recommending that the potential risks be evaluated before implementing any project in the upper Ozette River that has the possibility to increase lake level.

2.5.4 LWD and Lake Level Comment 4

Comment: One commenter stated that the lake has been higher over the past 10 years than it was historically over the past 100 years, as evidenced by exposed root balls and fallen trees along Rocky Point. This same commenter asked how raising the lake level could re-create any condition that existed when the salmon runs were healthy and plentiful?

Response: The question of whether there is a trend in the level of Lake Ozette over past decades has been investigated and is discussed in detail in Section 4.2.5 of the Limiting Factors Analysis (Haggerty et al. 2008). The conclusion is that lake levels are best explained by precipitation patterns. During years of above average winter rainfall, lake levels are higher than for years with average or less than average rainfall. The trend in the relationship is very strongly positive and statistically significant ($p<0.001$).

Recent years show extreme variability in average wintertime lake level. The highest average monthly lake levels occurred in water year (WY) 1999, when the lake stage averaged 38.77 ft. This corresponded to the highest average monthly precipitation (20.68 in.; avg=12.26 in.). The lowest average monthly lake levels occurred in 2001, when stage averaged 33.98 ft and monthly precipitation averaged 6.85 inches. Lake Ozette lake level data indicate that four of the seven highest lake levels occurred before 1992, suggesting that a portion of the positive trend in the regression model is an artifact of the record precipitation and record average lake level in WY 1999.

Lake level data indicate that both extreme high and extreme low winter-time lake levels have been observed during the last 10 years. For example, the highest lake level for the period of record (1977 to present; no data for 1995-97; n=26) was observed on December 17, 1999, the date of the storm of record for the northwest tip of the Olympic Peninsula. In the adjacent Hoko River it was estimated that the flood recurrence interval was between 50 and 100 years. The lowest winter-time high lake level was observed on January 7, 2001.

In order to evaluate whether winter-time lake level has been increasing through time, monthly average lake level data were examined. Typically, the highest annual lake levels occur from November through March. Daily average lake stage data were averaged to generate a value for monthly average lake level for each month for the time series. Then monthly average values were averaged to generate an annual average winter lake level. Monthly precipitation values were averaged to generate an annual monthly average winter-time value for each year. The trend for average monthly precipitation is slightly positive but is not statistically significant ($p=0.470$). The trend for monthly average winter-time lake level is positive but this trend is not significant ($p=0.084$).

2.5.5 LWD and Lake Level Comment 5

Comment: One commenter stated that during the time when a large human population thrived on Lake Ozette (80-110 years ago) and the river was kept cleared for navigation, the sockeye salmon run was thriving and plentiful. LWD was removed from the Ozette River, but the last time it was done to any degree was 40 or more years ago by the Department of Fisheries.

Response: NMFS is unaware of any documentation that suggests that the river was kept clear of LWD for navigation. NMFS has reviewed past reports and historical photographs, which all suggest that the river was not historically cleared for navigation. Photographs from the early 1900s suggest that selective sawing of logs did occur in the upper river to allow passage of small boats. Logjam maps produced by Kramer (1952) indicate that significant logjams were present in the upper, middle, and lower Ozette River during the early 1950s. The majority of these jams were removed by the Department of Fisheries in the early 1950s.

2.5.6 LWD and Lake Level Comment 6

Comment: Several commenters asked why the "plug" at the outlet of the lake was not mentioned or considered by the proposed Plan as it relates to Hypothesis 3 in the Plan (Page 4-17), and why only the sediment deposit at Coal Creek was mentioned in the proposed Plan (Comment 2.5.6, 2.5.5, 2.5.8). One commenter stated that it is possible that clearing the sediment plug may greatly benefit Lake Ozette sockeye salmon, but this information was simply placed in Appendix C and is not mentioned in the plan as something to be researched, even though we were reassured at the landowner meeting by Rob Walton, NOAA, that it would be researched.

Response: The "sediment plug" at the outlet of the lake was evaluated in the LFA and in the work conducted by Herrera Environmental. In order to accurately model hydraulic controls on the Ozette River, a detailed survey of the river was conducted. This survey consisted of multiple cross-sections, as well as a longitudinal profile of the river bed and surface under different lake levels. The hydraulic modeling indicates that under current conditions, the sediment deposit located at the confluence with Coal Creek, not any upriver features, is the lake's hydraulic control during low lake level. LWD obstructions in the upper Ozette River form the lake's hydraulic control during high water periods. The LFA describes in detail the hydraulic modeling work conducted by Herrera Environmental. Additional surveying has been done since the Herrera modeling was conducted, and these results will be used to update the hydraulic model and the stage-discharge model.

Recommended change to Plan: To address the commenter's concern, the processes and inputs section of Hypothesis 3 (Section 4.2.2.2) will be modified as follows (revision noted in bold text):
Processes and inputs: Processes and inputs affecting streamflow in the Ozette River include: climate; lake and tributary hydrology; sediment input, routing, and storage in the

lake's outlet and upper half-mile of the Ozette River; and LWD recruitment and storage (in logjams) in the upper one mile of the Ozette River.

2.5.7 LWD and Lake Level Comment 7

Comment: Two commenters asked for an explanation about the following text from the plan, "Adding LWD in the upper 1.3 miles of Ozette River would help to restore natural flow patterns and maintain a natural range of lake levels in order to improve beach spawning habitat." The commenters asked what determined the distance, "upper 1.3 miles." The commenters also asked how it is known that current flow patterns are not "natural" and under the influence of present LWD.

Response: Herrera (2005) modeled 15 different wood loading scenarios in the Ozette River and determined that LWD in the upper 3,000 feet of the Ozette River exerts a major influence on the magnitude and duration of high water levels in Lake Ozette. LWD downstream of 1.3 miles (all of which was surveyed) is expected to have a negligible effect on lake level.

Herrera (2005) determined that LWD in the upper Ozette River affects low and moderate lake levels, but the greatest effect is on high lake levels (>35 ft). The potential effect of LWD logjams on low lake levels could, in turn, have a significant influence on vegetation colonization of the lake's shoreline. In addition, winter-time lake levels influenced by a wood-rich regime, combined with increased wave energy, could help remove or prevent vegetation from persisting through the winter.

2.5.8 LWD and Lake Level Comment 8

Comment: Two commenters stated that it was imperative that any action taken as a result of this plan does not increase the level of the lake, as this would constitute a federal "take" and is in violation of Presidential Order 12630.

Response: Adopting the Plan in itself does not require any action. Because the Plan is voluntary and does not require anything of anybody, its adoption does not constitute a "taking" and does not violate Presidential Order 12630. The Plan itself does not affect the legal uses of any property.

2.5.9 LWD and Lake Level Comment 9

Comment: One commenter stated that there is a hidden agenda that will necessitate careful monitoring by the local community to ensure that LWD is not slipped in under cover. The commenter further stated that this will create an economic impact on the community that is not considered in the plan and then stated further that the recommended extensive list of studies on property before proceeding creates an invasion of privacy and is not dependent on the landowner's agreement to participate.

Response: NMFS has heard very clearly the concerns of landowners regarding the protection of private property rights and the need to seek landowner permission before any study or action is taken on private property. NMFS respects the concerns and rights of private property owners and does not condone any action or study that would violate private property rights. NMSF recognizes and acknowledges all landowner property and privacy rights. Landowner agreement will be sought for any action or study on private property. NMFS seeks the support and participation from willing land owners, as well as the whole community, to carry out projects to recover sockeye salmon. It is only with community and property owner support that actions can be successfully carried out on private property.

2.5.10 LWD and Lake Level Comment 10

Comment: One commenter suggested that the text on page 15 of the Plan Summary should be changed. Currently the text in question states, "Identify and evaluate the effect of LWD placement on lake levels." The commenter states that this work has already been done, with little needed modification into the future. The commenter recommended changing the first bullet to "Following recommendations of existing Ozette River and Lake LWD studies (PWA 2002; Herrera 2005, Brummer et al. 2006), assess the potential flooding impacts of different LWD placement scenarios on properties surrounding the lake."

Response: NMFS has modified bullets one and two to clarify the need to determine the potential effects of lake levels using the LWD scenarios in the work conducted by Herrera in 2006.

Change recommended to Plan: Bullets one and two were modified to read as follows:

- Determine the effect of different wood loading scenarios on property and infrastructure. Identify a range of LWD placement options including no LWD placement and evaluate the effect of LWD placement on lake level.

2.5.11 LWD and Lake Level Comment 11

Comment: One commenter suggested that the wording on page 7-29 should be changed from "Preliminary Studies" to "Additional Studies." NMFS should acknowledge that the truly preliminary studies (PWA 2002; Herrera 2005; 2006; Brummer et al. 2006) have already been conducted and that the plan recommends additional studies, following the recommendations of these preliminary studies.

Response: NMFS agrees with the suggestion and has changed "preliminary" studies to "additional" studies on page 7-29, Section 7.2.2.3.1.

2.6 Water Quality

2.6.1 Water Quality Comment 1

Comment: One commenter recommended editing the first sentence, in the last paragraph of the rationale sub-section in Section 4.4.2.2 of the Plan with the following text: "Improper construction, maintenance and use of roads, increased channel instability, mass wasting events triggered by roads or harvest on unstable slopes, and other land use activities (e.g., agriculture) all contribute to elevated turbidity and SSC levels in tributaries."

Response: Suggestion accepted. The same sentence appeared in Section 6.4.3 and was also revised as suggested by the commenter.

2.6.2 Water Quality Comment 2

Comment: One commenter recommended that in Section 6.2.5 Thermal Inputs, Recovery goals (a) and (b), together with Recovery strategy 14, should all be deleted for lack of a cause-and-effect relationship and inability of the Lake Ozette Sockeye Recovery Plan to have any meaningful effects on global climate change.

Response: Recovery Goal (a) has been edited and (b) has been deleted. The Recovery Goal now reads: "Restore and protect thermal input processes in Lake Ozette and the Ozette River." Recovery Strategy 14 has been restated, as follows: "Develop a watershed mitigation plan to improve the capacity for Lake Ozette sockeye salmon to survive in a rapidly changing climate."

2.6.3 Water Quality Comment 3

Comment: One commenter recommended deleting the second sentence in Recovery Strategies 17, 18, 19, and 28, which refers to developing a program to eliminate and/or reduce land use-related sediment inputs to levels that create properly functioning conditions. The commenter recommended replacing this sentence with language that describes how the FPHCP refers to sediment in Lake Ozette streams and improvements to sediment inputs expected through implementation of the FPHCP.

Response: Recovery strategies 17, 18, 19 and 28 are intended to address a wide range of potential land use actions that may cause sediment to enter streams. The NMFS FPHCP Biological Opinion describes the role of the FPHCP in addressing forestry-related sediment inputs over time, and the FPHCP is included as a key habitat recovery action in the Plan. NMFS, however, does not want to limit these strategies to forestry-related land use activities by deleting the second sentence and replacing it with reference to the FPHCP. NMFS will edit the second sentence in each of these strategies by deleting the words "eliminate and/or" before the word "reduce" in order to add more flexibility to these strategies. For more information on the FPHCP, please see the referenced web pages.

2.6.4 Water Quality Comment 4

Comment: One commenter considered the statements in Chapter 4 regarding global climate change "well thought out and justified," except the assertion on pp 4-17,4-39, and 4-40 that global climate change is affecting specific water quality criteria (increased water temperature) in specific watersheds within the Lake Ozette Basin. The commenter stated that impacts at a regional scale are highly variable and cannot be linked to a specific response in a specific watershed.

Response: The Plan describes likely changes to water temperature in the Ozette River based on nearly 100 years of temperature monitoring data from a nearby weather station. The change in air temperature at the monitoring station is real; whether the change is due to global climate change or cyclical regional climate variability is unknown. By comparison, Shortreed (2007) found substantial warming in Cultus Lake surface waters during the last 70 years and concluded that the warming is likely due to climate change.

NMFS has reviewed the text and made the appropriate edits to clarify where uncertainty exists and to make sure that there is no overstatement of the facts. The following edits have been made.

Section 4.2.2.1, third paragraph of Rationale, last sentence, now reads, "Thus, the increase in average air temperature suggests an increase in average lake temperature since the early 1900s."

Section 4.2.2.1, fourth bullet under Activities affecting inputs/processes, now reads, "Increased carbon dioxide and other greenhouse gas emissions have altered and are altering greenhouse gas concentrations in the atmosphere. Increased greenhouse gases in the atmosphere have been linked to global climate change. Global climate change is likely resulting in warmer lake and river temperatures."

Section 6.2.5, second full paragraph, last sentence, now reads, "Thus, the increase in average air temperature suggests an increase in average lake temperature since the early 1900s."

2.6.5 Water Quality Comment 5

Comment: One commenter referred to Section 7.2.1.1.1, Protection Measures Contained in the FPHCP, in which sediment pollution from road use during wet weather (bulleted paragraph on p. 7-27) is to be assessed by visual inspection. The commenter states that this approach to assessing sediment impacts is unscientific and biased toward non-action and non-enforcement by DNR. Quantitative measurements should be used in addition to visual inspection.

Response: NMFS agrees.The following italicized language has been added to the bulleted paragraph on p. 7-17:

- Road Use During Wet Weather

Road use during wet weather is highly dependent on the location and surface condition of the road. Operations on roads should be stopped when there is a risk of discharge of sediment to a stream. This is generally interpreted by DNR inspectors as well as landowners as a visual increase in turbidity in the receiving water. *However, efforts should be made to arrive at acceptable quantitative methods for assessing sediment inputs to standardize enforcement and to help reduce sediment discharge during rain events*.

2.6.6 Water Quality Comment 6

Comment: One commenter questioned the actions of Clallam County road maintenance crews in the Ozette watershed and suggested that the consequences of these actions were not consistent with sockeye recovery.

Response: Regional Road Maintenance Endangered Species Act Program Guidelines as per ESA 4(d) Rule protections includes training requirements for all maintenance crew employees. NMFS expects County staff to be trained according to the law.

2.6.7 Water Quality Comment 7

Comment: One commenter noted that Cultus Lake sockeye migrate through 20+ degree water in Sweltzer Creek before entering the lake, and stated that there does not appear to be acute mortality from this passage, possibly because the transit time is short. This may also be the case for Ozette sockeye if the lake's hypolimnion is similarly cool.

Response: Commented noted. The LFA has a detailed discussion in Section 5.3.3.1.2. The following text was added to the Plan, at the end of the first paragraph in the rationale in Section 4.2.2.1. Gearin et al. (2002) reported that the mean transit time for adult sockeye from the estuary to lake entry in RY 2000 was 65.2 hours (range=17-154hrs). Sockeye may encounter excessive temperatures (>20ºC) in the Ozette River, but their exposure time appears to be short. The effects of 2- to 4-day exposure to temperatures between 18-24 °C is not well documented in the scientific literature. However, it is important to note that some individuals linger in the river longer; approximately 8 percent of sockeye reported by Gearin et al. (2002) spent 6 to 7 days between the estuary and the lake. High water temperatures in the Ozette River during adult migration are not known to result in significant direct en-route mortality. High temperatures likely make sockeye more susceptible to disease and infection. Elevated temperatures can promote fungal and bacterial infections, as well as secondary wound infection, making sockeye more susceptible to pre-spawning mortality.

2.6.8 Water Quality Comment 8

Comment: One commenter questioned whether water clarity in Lake Ozette has increased over time, and if so, that might partially explain the increase in macrophyte abundance.

Response: Comment noted. No proposed change to plan.

2.6.9 Water Quality Comment 9

Comment: One commenter noted that the hypothesis that climate change is the likely cause of Lake Ozette water temperature changes is supported by a recent assessment of Cultus Lake by Shortreed (2007). Shortreed noted that Cultus Lake has warmed substantially since the 1940s, and its productivity has likely increased as well. However, there were no other changes in Cultus Lake limnology over a 75-year period, indicating a high degree of stability in lake environments and suggesting that limnological change is unlikely to play a role in the collapse of sockeye populations.

Response: Comment noted. No proposed change to plan.

2.7 Large Woody Debris – Other

2.7.1 LWD – Other, Comment 1

Comment: One commenter stated that the answer to this question in the Plan Summary— Where would LWD be placed?—is inconsistent with the Proposed Recovery Plan. The commenter points out that the Plan, in numerous places, recommends placing LWD in a variety of locations in the Ozette watershed. The commenter is concerned that because of social, not scientific, opinion and unsupported conjecture, wood placement in the upper Ozette River and Big River has been largely pushed aside for political reasons, but that these are key areas of LWD replacement needed for true sockeye recovery.

Response: The text in the Plan Summary has been changed, as follows: *"The plan recommends placing LWD in a variety of creeks and rivers. In key sockeye habitat areas such as Umbrella Creek and the lower reach of the Ozette River, LWD can be placed relatively freely without significant constraints due to private property. In areas with more human constraints such as upper Ozette River and Big River, LWD projects need to be more carefully evaluated and engineered, to make sure that habitat benefits accrue while potential damages to local property are foreseen, prevented, or can be mitigated. As recommended in the two existing detailed LWD studies on the Ozette River, no LWD would be placed in the upper portion of the Ozette River without additional public input and scientific analysis of the potential direct and indirect impacts on lake properties."*

2.7.2 LWD – Other, Comment 2

Comment: One commenter stated that placement of LWD in the Big River in the past has caused wash-outs and erosion resulting in loss of land. This commenter urged careful consideration of well-researched methods with accountability and contingency plans developed before any such actions are taken.

Response: Comment noted. See response 1.7.1 above. Before an action such as placing LWD in any given location could be deemed appropriate, the Plan calls for the careful consideration of both the biological needs of sockeye salmon and the social and

economic needs of residents in the Ozette watershed, in coordination with Olympic National Park.

2.7.3 LWD – Other, Comment 3

Comment: One commenter suggested that the use of the term "…intensively monitored and measured…" on page 16 of the Plan Summary implies that the quantity meets the WDFW standard of Intensively Monitored Watersheds.

Response: There was no intention to compare the habitat data collected in Umbrella Creek to Washington State's Intensively Monitored Watershed Program. The text in the document was changed for clarification to read, "thoroughly monitored and measured." See also changes below in comment 1.7.4.

2.7.4 LWD – Other, Comment 4

Comment: One commenter suggested that the text in the first column on page 16 of the Plan Summary does not accurately reflect where habitat surveys occurred within the watershed and where LWD placements should be focused. Another commenter said that the text relating to LWD reintroduction in Lake Ozette tributaries focused almost exclusively on Umbrella Creek and recommended changing text to include Big River as a site for LWD placement.

Response: The commenter is correct that fish habitat and large wood conditions in Umbrella Creek, Big River, and Crooked Creek were monitored and measured in 1999 and 2000. The intent of the Plan was not to focus solely on Umbrella Creek. However, there are considerations of homes and infrastructure on Big River that need to be further studied before site-specific projects can be recommended. Site-Specific Riparian-Floodplain Actions 3, 4, and 5 in Section 7.2.2.4.2 pertain to Big River. The Summary was changed to read: "Fish and habitat conditions in the main Ozette tributaries (e.g., Umbrella, Big, Crooked) were thoroughly monitored and measured in 1999 and 2000. Researchers found that there are areas where there is not very much LWD, the stream channel is unstable, and there is little suitable spawning gravel. The plan recommends considering reintroducing LWD to key tributary channel segments of sockeye Critical Habitat with the intent to stabilize the channel and restore spawning gravels."

2.7.5 LWD – Other, Comment 5

Comment: One commenter gave examples of large wood placement projects that had failed and questioned why NMFS fails to recognize that large wood placement projects cause property loss and have failed in the past.

Response: Avoiding property damage or loss is a goal of any such project. NMFS recognizes that any proposed placement of large wood needs to be planned, designed, implemented, and monitored by technical experts with the engineering and construction skills to carry it out successfully. Entities implementing recovery actions should hire the

most skilled and experienced contractors to ensure that lessons learned from other projects will be applied to projects in the Ozette watershed. Restoration techniques are continually improving as practitioners monitor existing projects and improve future project designs. See also the response to Comments 1.7.1 and 1.16.32.

2.8 Fisheries

2.8.1 Fisheries Comment 1

Comment: Three commenters suggested that the LFA and the Recovery Plan dismiss the role of past fishery harvest as a factor for the decline of the Ozette Lake sockeye salmon population and its failure to recover. The commenters believe that this issue needs to be more fully addressed and emphasized in both documents.

Response: As noted in the proposed Recovery Plan, it is important to distinguish between factors responsible for the decline of the population (factors for decline), and factors that currently limit sockeye abundance and productivity (limiting factors), as they are not necessarily one and the same. The proposed Recovery Plan identifies past overexploitation in fisheries as a factor for decline of the sockeye population, citing three NOAA Fisheries status review documents that were assembled to consider the ESA listing status of the ESU (Sections 2.5.1.1, 2.5.1.2, and 2.5.1.3 and 4). A Pacific Coast Salmon Recovery Fund report to Congress prepared by NMFS in 2006 is also cited in the sections as supportive information. More detailed treatment of the role of past fisheries overexploitation is complicated by the paucity of documented harvest information from the historical record. The level of detail in the Plan regarding past overexploitation is consistent with available information.

Because fisheries that may harvest Lake Ozette sockeye have been curtailed since 1982, past fisheries overexploitation is not addressed in the Limiting Factors Analysis. The LFA addresses only those actions and conditions that currently limit sockeye recovery. Certain activities that contributed to the decline of Lake Ozette sockeye, such as commercial fishery sockeye harvest, no longer operate to limit abundance or productivity and are therefore not considered limiting factors for the recovery of the ESU to a viable status.

2.8.2 Fisheries Comment 2

Comment: One commenter expressed appreciation that the proposed Recovery Plan stated the intention of Olympic National Park to receive input in its fishery regulation decision-making as it pertains to reduction of fish predation risks to Ozette Lake sockeye salmon. The commenter noted that Washington Department of Fish and Wildlife has a role in addressing this issue because of possible legal and socio-economic effects.

Response: The comment is acknowledged. The Washington Department of Fish and Wildlife's role as co-manager of salmon resources within the Ozette Lake sockeye salmon ESU boundary is noted throughout the proposed Recovery Plan.

2.8.3 Fisheries Comment 3

Comment: One commenter lauded the short- and long-term fisheries management approaches specified in the proposed plan. This commenter considered it appropriate for managing expectations and conserving the species to establish a precautionary approach for managing fisheries from the outset.

Response: The proposed Recovery Plan was developed considering the need to strike an appropriate balance between the ESA conservation needs of the listed sockeye population and treaty rights stewardship and sustainable fisheries objectives that are part of NOAA Fisheries' agency mandates, as well as important to the tribes and citizens of the Olympic Peninsula region. Under the short-term approach specified in the proposed Recovery Plan, commercial and recreational fishery impacts on sockeye salmon will be strictly limited to assist in rebuilding spawner abundance. The longer term objective is to rebuild the sockeye salmon population to a level where it no longer requires protection under the ESA, and will support sustainable fisheries important to the Olympic Peninsula Tribes and citizens of Washington State.

2.9 Predation (General)

2.9.1 Predation Comment 1

Comment: Several commenters indicated that the threat posed to Ozette Lake sockeye salmon recovery by sea lion and harbor seal (pinniped) predation, and remedies for addressing predation by these species, are minimized relative to other limiting factors identified in the LFA and proposed Recovery Plan. The commenters believe that predation by these species on sockeye adults in the watershed is well documented, is a primary limiting factor for sockeye recovery, and should be used as a basis for the removal of offending marine mammals. Two commenters stated that more active pinniped and river otter control measures, including eradication and relocation, should be included as actions in the plan to reduce the predation threat to sockeye. The commenters argued that these predation issues need to be more fully addressed in both documents.

Response: The threats posed by harbor seal and sea lion predation, and predation by river otters, to the recovery of the listed sockeye ESU are extensively evaluated and highlighted throughout the LFA and proposed Recovery Plan. The LFA evaluates the standing of pinniped and river otter predation as a limiting factor in each section covering Lake Ozette sockeye life phases. Pinniped and river otter predation threats are evaluated in LFA Sections 5.2.2.1 (Estuary and Nearshore life phase); 5.3.4.1.1 (River Entry phase); 5.4.5.1.1 (Lake holding and spawning phase) and 5.5.5.1.1 (Lake tributary phase). Based on the data and findings presented in these sections, hypotheses about the standing of predation by these species as limiting factors for recovery are included for each life phase, and the likely level of impact on the listed sockeye ESU associated with predation is indicated. Predation by these mammal species is found to have a moderate level of impact on sockeye recovery as the adult fish enter the river and lake (Section 6.1.1.1 - Hypothesis 1); a low level of impact for adult sockeye staging in the lake prior to spawning (Section 6.1.3.1 – Hypothesis 10); and a high level of impact for adult sockeye spawning on lake beaches (Section 6.1.4.1 – Hypothesis 11). The proposed Recovery

Plan (page 3-8) identifies predation on adult sockeye by river otters and harbor seals as one of the major factors limiting sockeye population recovery. Predation, including predation by harbor seals and sea lions, is identified in Section 4.6.1 of the plan as a key limiting factor to ESU recovery, and the only key limiting factor identified that affects all population segments.

NMFS concludes the proposed Recovery Plan with a section describing several predation-related recovery actions that could be taken to reduce the effects of pinniped and river otter predation (Section 7.4). Further study of pinniped and river otter predation effects and the potential for implementation of active control measures are included as actions. One recommended action is to "analyze the impacts of seals and sea lions on sockeye salmon and identify options to minimize these impacts, including reinstating ceremonial and subsistence hunting of seals and sea lions in Tribal Usual and Accustomed hunting and fishing areas." In addition, Section 120 of the Marine Mammal Protection Act allows for lethal removal of harbor seals and sea lions that have been demonstrated to be having a substantial adverse effect on ESA-listed fish. As noted by one commenter, in 2008 NOAA Fisheries authorized the lethal removal, under this section of the Act, of California sea lions that were identified as adversely affecting listed salmon and steelhead in the lower Columbia River.

Predation by marine mammals and river otters is treated as an important limiting factor for several sockeye life history phases in the LFA and proposed Recovery Plan. The issue is covered in appropriate detail relative to threats posed by other potential limiting factors in both documents. Potential responsive actions to study and reduce pinniped and river otter predation identified in the proposed Recovery Plan are also appropriate, given the current state of scientific knowledge regarding the effects of predation, and considering management options that are already available for controlling pinnipeds and river otters that are protected under State and Federal laws, including the Marine Mammal Protection Act, within a National Park.

2.9.2 Predation Comment 2

Comment: One commenter indicated that fish predation is not an important limiting factor for sockeye salmon recovery, and that predation by non-native fish as a limiting factor is over-emphasized. The commenter states that only largemouth bass eradication is mentioned as a means to reduce fish predation, but yellow perch are also present, abundant, and should be controlled. Another commenter proposed that consumption rates for potential sockeye predators need to be identified to evaluate predation effects.

Response: Fish predation is considered a key limiting factor because changes in relative predator-prey abundances in the Ozette River and Lake Ozette have likely increased the proportion of juvenile sockeye consumed by fish predators, resulting in decreased freshwater survival, and a subsequent decrease in the number of adult sockeye returning to spawn. For beach spawners, these changes in relative abundances are hypothesized as leading to an increased proportion of eggs and newly emerged fry consumed by predators, resulting in decreased freshwater fry-to-smolt survival.

As identified in the LFA, largemouth bass are a non-native species that were introduced into Lake Ozette at an unknown date. The predation risk currently posed by this species is of concern because small numbers of sockeye beach spawners and poor egg-to-fry survival on the beaches may make juvenile sockeye vulnerable to the depensatory effects of predation at reduced abundance.

There have been no studies identifying the abundance of non-native fish populations or the extent to which largemouth bass and the other four non-native fish species present in Lake Ozette prey on sockeye salmon juveniles. However, largemouth bass are known fish predators, and a study from Washington's Lake Sammamish cited in the LFA indicates that largemouth bass feed extensively on fish, with 42% of their diet composed of salmonids (Wydoski and Whitney 2003). A study of the Lake Ozette watershed by Beauchamp and LaRiviere (1993) concluded that largemouth bass and juvenile sockeye were spatially segregated during the sockeye growing season, but a combination of conditions in spring could draw the bass nearshore earlier while fry and smolts pass through the littoral zone, making juvenile sockeye susceptible to predation by largemouth bass.

In Section 6.1.6.2 of the LFA, NMFS acknowledges that largemouth predator interactions with juvenile sockeye remain a data gap, but notes that it is possible that significant levels of predation occur in the vicinity of the spawning beaches. In an examination of spatial and temporal patterns of feeding distribution and relative abundance of O. *nerka* predators to determine factors limiting sockeye smolt production, Beauchamp et al., (1995) concluded that sufficiently large piscivore populations in the lake could adversely affect sockeye smolt survival. The researchers also concluded that relative sockeye and fish predator abundance, spatiotemporal distribution, and diet composition of potential predators in the lake required assessment before total sockeye predation loss estimates could be derived to help determine if fish predation is significantly influencing sockeye production.

Predation by introduced non-native fish on juvenile salmonids in other watersheds in the Pacific Northwest (e.g., smallmouth bass predation on emigrating Chinook salmon in the lower Snake River) appears to be a significant and growing problem, negatively affecting natural population viability. Although the current largemouth bass population size in Lake Ozette is thought to be relatively low, the species may increase in abundance if conditions in the lake change to become more suitable for the species survival and productivity (e.g., as a result of lake warming associated with climate change).

Considering the effects of other identified limiting factors and actions proposed to address them, NMFS believes that it is appropriate to also call for the removal of non-native species such as largemouth bass that pose as yet unknown but potentially substantial risks to sockeye recovery. In Section 7.4, fishery removal is proposed as a potential measure (with other actions) to reduce piscivorous fish predation risks to juvenile sockeye salmon rearing in Lake Ozette. Removal is proposed through Olympic National Park and WDFW adjustment of current recreational fishery regulations to promote eradication of non-native fish species in Lake Ozette, including largemouth bass.

This proposed management action is supported by substantial predation on juvenile salmonids by largemouth bass and sympatric fish-eating species (such as walleye and smallmouth bass) observed in other regions, and the likelihood that the species' short and long term effects on ESA-listed juvenile Lake Ozette sockeye salmon, although as yet unquantified, are negative. The proposed Recovery Plan also calls for future studies to specifically monitor predation on juvenile sockeye by all fish species in the lake.

2.9.3 Predation Comment 3

Comment: Three commenters indicated that northern pikeminnow and/or cutthroat trout control should be emphasized in the plan as measures to reduce fish predation risks, as those species are the main fish predators of Lake Ozette sockeye salmon juveniles. One of the commenters identified the need to develop biomass estimates for sockeye, northern pikeminnow, and cutthroat trout in lake areas where the species co-occur. The commenters also believe that a northern pikeminnow population control program, similar to the program underway in the Columbia River Basin, should be included as a predation reduction measure in the proposed Recovery Plan. One commenter believes that the National Park Service is in error regarding the need to protect these natural fish populations in Lake Ozette, as there is nothing natural about the current habitat conditions.

Response: Cutthroat trout management is discussed in the LFA and proposed Recovery Plan as a potential measure to reduce predation risks to juvenile sockeye salmon. Section 5.3.4.2.6 in the LFA identifies changes in lake and fisheries management as potentially increasing the abundance of predators known to prey on sockeye salmon. Included as a concern is the recent implementation by the National Park Service of fishing regulations requiring release of coastal cutthroat trout, potentially leading to decreased fishing mortality and an increased abundance of cutthroat trout in Ozette Lake relative to recent year levels. To address this potential risk, the Plan proposes, as a short-term action, re-examination of the regulation change by the National Park Service to determine whether non-retention of cutthroat trout in fisheries is warranted and outweighs hazards the non-retention regulation may pose to sockeye recovery (Section 7.1.3.1). If the National Park Service determines that the increased cutthroat trout population biomass resulting from the non-retention regulation is likely to substantially decrease juvenile sockeye salmon abundance levels through predation, or that the abundance status of the cutthroat population is not at risk or is trending upward, the Plan proposes that the cutthroat trout non-retention regulation be revised or rescinded.

Northern pikeminnow are a native species in Lake Ozette and available data indicate that they are abundant in lake zones where sockeye juveniles at a size vulnerable to predation rear. The larger members of this species are identified in the LFA as a potentially significant predator of sockeye juveniles in the limnetic portion of Lake Ozette and at the river outlet to the lake, based on juvenile out-migrant trapping observations (Section 5.3.4.1.3 of the LFA). As noted by one commenter, a biomass estimate for the northern pikeminnow population is lacking, and such an estimate is needed to quantify estimates of the species' predation impacts on juvenile sockeye salmon. However, as noted in a

previous comment by the same commenter (comment 2.9.1), evidence of good fry-to-adult return survival rates for hatchery-origin sockeye surviving to the smolt stage after 1+ years of lake rearing suggests that *fish* predation, including predation by northern pikeminnow, is not currently a key limiting factor when detached from pinniped and river otter predation effects.

The standing of northern pikeminnow as a native species in Lake Ozette warrants a cautious approach to implementation of any control actions such as "eradication" as a means to address predation effects of this species. Considering information in the Plan, a northern pikeminnow control program in the Lake Ozette watershed should only be considered if the species is shown through scientific analysis to have a substantive, adverse effect on fry-to-smolt survival rates for the sockeye salmon population.

Based on the best information currently available (as described in Sections 2.2.9 and 5.3.4.1.3 of the LFA), cutthroat trout are considered to be a significant fish predator relative to other fish species that may potentially affect sockeye salmon juveniles in the Lake Ozette watershed. The status of the northern pikeminnow population, and its relative standing as a substantial predator of sockeye salmon juveniles is unknown, but certain information reported in the proposed LFA suggests that further consideration of the effects of this species may be warranted.

Collection of cutthroat trout biomass data is included as a proposed action in proposed Recovery Plan Section 7.1.3.1 to help quantify potential predation enhancement effects of fishery non-retention requirements for the species. NMFS concurs with one commenter that an estimate of current northern pikeminnow biomass estimate is also needed as a basis to quantify potential predation effects of the species on co-occurring juvenile sockeye salmon. Derivation of meaningful predation estimates for both predator species will also require the collection of information regarding the abundance of O. *nerka* juveniles rearing in Lake Ozette that may be susceptible to predation by northern pikeminnow and cutthroat trout. Development and implementation of any management measures to address predation effects of northern pikeminnow on sockeye salmon will be based on findings regarding the degree to which the current abundance of pikeminnow may affect relative juvenile O. *nerka* abundance in the lake, the abundance of sockeye smolts emigrating from the lake, and adult sockeye adult production, derived from estimated sockeye fry and smolt losses from pikeminnow predation factored by average sockeye fry or smolt to adult survival rates.

To respond to these comments, Section 7.4 of the Recovery Plan (the section entitled "Other Predation-Related Recovery Actions") should be augmented with the following paragraphs, inserted as the third and fourth bullets in this section. The new text qualifies the action described in the existing second bullet:

- Working in coordination with the National Park Service and the Co-managers, collect data regarding juvenile sockeye salmon and northern pikeminnow abundance in Lake Ozette (including the upper Ozette River), the species' spatiotemporal distribution by lake life stage, and northern pikeminnow diet composition. Use these data to help determine if northern pikeminnow predation is significantly influencing sockeye

production, considering annual reductions in the number of sockeye fry and smolts potentially caused by northern pikeminnow predation, and the adult equivalent reduction in sockeye spawner returns to the lake attributable to pikeminnow predation on juvenile fish.

- Identify management options to reduce northern pikeminnow predation impacts if the sockeye predation levels or rates are determined to be substantial considering currently depressed total juvenile and adult sockeye abundances (e.g., if pikeminnow predation is estimated to reduce annual juvenile sockeye population abundance by 10-20 percent). Potential management responses, if deemed necessary based on prior impact evaluations, may include allowances by the National Park Service and the Co-managers for culling of the northern pikeminnow population using traps, existing weirs, or hook and line methods in lake and river areas where sockeye juveniles may be most vulnerable to predation (e.g., the lake outlet during the sockeye smolt emigration period). The standing of the northern pikeminnow population as a native species in the lake Ozette watershed, and the need to maintain the viability of this native fish population, must be factored in any plan calling for the species' removal as a sockeye predator control action.

NMFS acknowledges that derivation of predation estimates for cutthroat trout also requires collection of current information regarding the abundance of O. *nerka* juveniles rearing in Lake Ozette that may be vulnerable to predation by cutthroat trout. NMFS expectts that the recommended National Park Service re-examination of cutthroat trout fishery non-retention requirements to determine the effects of any regulatory change on sockeye salmon population survival and productivity (Section 7.1.3.1 of the Recovery Plan) will include an evaluation of cutthroat trout and juvenile O. *nerka* population abundance in Lake Ozette, the species' spatiotemporal distribution by lake life stage, and cutthroat trout diet composition.

Recommended edit to Plan: Research on predation by pikeminnows has been added to RME#14.

2.9.4 Predation Comment 4

Comment: Two commenters proposed that alternative fish enumeration methods should be investigated as a means to reduce harbor seal and river otter predation of sockeye adult salmon at the current upper Ozette River fish counting weir. The commenters believe that the weir likely improves the predation efficiency of these mammal species, to the detriment of sockeye salmon recovery, and weir impacts should be considered a key or at least a contributing limiting factor.

Response: Section 5.3.4.2.7 of the LFA document notes that adult sockeye migrating into the lake are especially susceptible to predators as they transit the adult fish counting weir in the upper Ozette River. Harbor seals and river otters appear to use the weir as an aide in hunting and capturing sockeye salmon reaching the weir. Following on the information reported in this section, a sub-hypothesis included in Section 6.1.1.1 of the LFA (Hypothesis 1F) proposes that operation of the adult sockeye counting weir and

smolt trap acts as a bottleneck for migrating adult sockeye, increasing their susceptibility to predation. An additional hypothesis in Section 6.2.1.8 of the LFA suggests that the counting weir may be increasing predator efficiency.

NMFS agrees that alternative fish enumeration methods should be investigated. This is included as a recommended action in Section 7.4 of the proposed Recovery Plan. NMFS is assisting the Makah Tribe in an investigation of alternative adult sockeye enumeration methods that would not involve placement of a full river-spanning weir to entrain upstream migrating fish. One possibility under consideration is a DIDSON (dual frequency indicator sonar) system.

2.9.5 Predation Comment 5

Comment: One commenter states that plan measures supporting reducing the population of river otters in the watershed are inappropriate. Instead, actions should be taken to reduce the predation efficiency of otters (e.g., through modification of the adult weir, or by increasing prey abundance). The commenter suggests that the proposed Recovery Plan be modified to clearly distinguish between predation rates associated with an under-abundance of sockeye and total mortality associated with heightened efficiency of predators.

Response: The current state of knowledge regarding Lake Ozette sockeye salmon population abundance by life stage, and the lack of quantitative information regarding abundance and predation effects of species including river otters, confounds the ability to derive metrics such as predation rates expressed as a percent of the annual arriving population or total predation mortality estimates. For example, although river otter predation on sockeye adults has been documented by several researchers (e.g., see LFA Section 5.4.5), no river otter population estimates exist and no population trend data for the species are available. Additionally, their preferred nocturnal predation behavior makes it extremely difficult to accurately quantify the number of sockeye consumed by river otters in the Ozette River and Lake Ozette.

What is known is that the Lake Ozette sockeye population is presently at very low abundance. The best available scientific information indicates that predation by pinnipeds, river otters, and piscivorous fish species poses a moderate to high risk to the listed sockeye salmon population at several key life history phases.

Observations of river otter predation (or predation likely attributable to the species) are described in the LFA (e.g., LFA sections 5.2.2.1.3, 5.3.4, 5.3.4.1.2, and 5.4.5). From data presented in Figure 164 and Section 5.4.5 of the LFA, observations of river otter activity and predation at two critical locations in the watershed (the lake entry point for migrating adult sockeye and the known spawning beaches for the population) indicate that the species is taking a substantial number of adult sockeye from the estimated total run, and from the core beach spawning aggregation in recent years. Therefore, predation, including predation by river otters, is proposed by NMFS as a key limiting factor to the

sockeye population as a whole, and to the core beach-spawning sockeye aggregation in particular.

The proposed Recovery Plan recommends further study of predation impacts by marine mammals and river otters, particularly on the beach spawning sockeye aggregation (Section 8.2). For example, RM&E Action #13 is data collection to determine the percent of beach spawning sockeye salmon consumed by river otters or harbor seals before spawning. The Plan also proposes addressing substantial predation impacts identified in the studies through a variety of predator control measures currently being tested and applied in the NMFS Northwest Region.

Consistent with NMFS's approach for addressing marine mammal predation problems in other Pacific Northwest regions, severe control measures, including river otter removal and culling, should be applied as a last resort in the watershed. Measures to reduce predator efficiency, such as finding alternatives to using a river-spanning weir for counting sockeye adults, and measures to increase prey abundance should be implemented first.

NMFS encourages the commenter to participate in the upcoming development of the recovery action implementation plan, where proposed recovery actions will be prioritized.

2.9.6 Predation Comment 6

Comment: One commenter indicates that any predator control activities proposed within Olympic National Park's boundaries will require approval of the park's superintendent.

Response: NMFS concurs with the comment. To address the commenter's concern, the fifth bulletized paragraph in Section 7.4 of the proposed Recovery Plan will be modified as follows (revision noted in bold text):

"Work with NMFS, ONP, WDFW, and the Tribes to study impacts of marine mammals and river otters on sockeye salmon, particularly on beach spawning grounds. Based on this information, develop a NMFS-sanctioned plan to address these impacts through a variety of predator control measures being tested and used in the NMFS Northwest Region. **Any predator control activities proposed within the boundaries of Olympic National Park will require approval by the Park's Superintendent.**

2.9.7 Predation Comment 7

Comment: One commenter requested inclusion of sea lions as an identified predator of sockeye salmon in proposed Recovery Plan Section 4.2.1.1 addressing predation in the Ozette River and Ozette Lake during the sockeye adult migration, adult holding, juvenile rearing, and juvenile emigration life stages.

Response: As described in the LFA, harbor seal and river otter predation on adult sockeye salmon has been identified in the Ozette River and Lake Ozette. Indications of sea lion predation (scarring patterns on migrating sockeye in the Ozette River) have also been documented, but sea lion attacks on sockeye are thought to occur in marine waters during the seawater rearing and adult migration phases for the sockeye population (LFA Sections 5.2.2.1.1and 5.2.2.2.1). There is no documented evidence that has been presented to NMFS for the assembly of the LFA and proposed Recovery Plan indicating that sea lions are present in the Ozette River and Ozette Lake during the sockeye freshwater life history phases that are the subject of Section 4.2.1.1. In recognition of the potential risks posed by sea lions to sockeye in marine areas, Section 7.4 of the proposed Recovery Plan includes as a proposed recovery action analysis of the impacts of sea lions on sockeye salmon and identification of options to minimize impacts, including reinstatement of ceremonial and subsistence hunting of sea lions in Tribal Usual and Accustomed hunting and fishing areas.

NMFS welcomes any new information regarding sea lion presence and predation effects on sockeye salmon in freshwater areas within the Lake Ozette watershed. If such information is provided, the Plan section will be revised accordingly.

2.9.8 Predation Comment 8

Comment: One commenter indicated that a potential remedy for sea lion predation should include placement of some type of grate or selective barrier at or near the mouth of the Ozette River that allows sockeye salmon upstream passage, but prevents upstream passage by sea lions. The commenter notes that the potential placement of a marine mammal exclusion grate was discussed at Lake Ozette Sockeye Steering Committee meetings but the action was not included in the proposed Recovery Plan

Response: NMFS agrees that the Steering Committee discussed potential placement of grate or fence near the mouth of the Ozette River to potentially exclude harbor seals but pass sockeye, excluding the normally marine area predators from the river where sockeye are extremely vulnerable to predation. Logistics involved with placement and maintenance of such a barrier in this remote lower river location were also discussed. In Section 7.4 of the proposed Recovery Plan, the identification of options to minimize harbor seal and sea lion predation effects is included under the category of predation-related recovery actions. Following on this proposed action, NMFS concurs that an option that should be specifically identified as a recovery action is evaluation of the feasibility of mechanically excluding harbor seals, and sea lions (if that species is identified as a lower river predator of sockeye), from the Ozette River and potentially from Lake Ozette. Any methods implemented would have to avoid impeding upstream migration of sockeye salmon and enhancement of predation efficiency for the pinniped species. Development and implementation of a mechanical pinniped exclusion structure in the lower Ozette River would be based on the findings of the feasibility study.

Section 7.4 of the proposed Recovery Plan will be augmented in response to the comment through the addition of the following text, to be inserted as the new sixth bullet in this section:

- "An option that will be investigated as a potential means to reduce harbor seal (and potentially sea lion) predation on sockeye salmon in the Lake Ozette watershed is placement and maintenance of a grated barrier within the lowest portion of the Ozette River, near where the river enters marine waters. The barrier will be designed to exclude pinnipeds from entering and transiting the river, while allowing for the unobstructed upstream passage of sockeye salmon. This recovery action will initially include completion of a feasibility study to identify permitting requirements, potential designs, site location options, logistical requirements (including operation timing and duration), and risks and benefits of barrier placement and operation to listed sockeye salmon recovery. Potential follow-up actions to develop, place and operate the barrier will be based on results of the feasibility study, and decisions made during the Recovery Plan implementation planning phase."

2.9.9 Predation Comment 9

Comment: One commenter suggested that proposed plan adjustments to fishing regulations are inappropriately limited to non-native fish species, decreasing prospects for addressing predation by the entire array of fish species that prey on sockeye in the watershed as a limiting factor. The commenter indicated that an enhanced focus in the plan on cutthroat and possibly rainbow trout control measures is warranted, including evaluation of cutthroat trout population status in the lake, and allowances for directed fisheries.

Response: Section 7.1.3.1 of the proposed Recovery Plan describes actions needed to address potential coastal cutthroat trout predation risks to sockeye salmon recovery. This cutthroat trout-focused section is currently written as follows:
"Federal law (CFR Title 36, Ch. I, Part 7, Sec. 7.28) requires the Park to issue its fishing regulations "in conformance" with applicable state regulations and "after consultation with the State and any affected Indian tribe." The regulations are worked out during the annual Pacific Fishery Management Council (PFMC) sessions. As noted in the LFA document (Section 5.3.4.2.6), changes in lake and fisheries management have the potential to increase the abundance of certain predators known to consume sockeye salmon. ONP's recent implementation of fishing regulations requiring release of coastal cutthroat trout may have the effect of increasing the abundance of cutthroat trout in Lake Ozette, potentially to a point where juvenile sockeye salmon mortality is substantially increased from current levels. As a short-term harvest management action, this regulation change will be reexamined by ONP to determine whether protecting cutthroat trout is warranted and outweighs hazards the change may pose to the recovery of sockeye. If a determination is made by ONP, after consultation with WDFW and the Tribes, that the increased cutthroat trout population resulting from the non-retention regulation is likely to substantially impact juvenile sockeye salmon abundance levels (for example, through life cycle analysis computations showing that cutthroat predation is a

significant factor impeding recovery), ONP will revise or rescind the cutthroat trout non-retention regulation. ONP may make a similar decision to allow cutthroat retention if stock status evaluations in Lake Ozette show that the abundance status of the cutthroat population is not at risk or is trending upward."

The proposed management approach for addressing cutthroat trout predation risks for sockeye salmon is to first evaluate the status and potential predation effects of this native population. The results of the evaluation will be used as a basis for a management decision to control the cutthroat tout population and reduce its size if appropriate through an allowance for fishery retention. This paragraph highlighting the need to address potential cutthroat trout population predation risks is followed by a proposed action to change current fisheries regulations to enhance removal of non-native fish predator species that are likely to have a negative effect on sockeye salmon population viability. In contrast to the section addressing potential cutthroat trout predation risks, no evaluation of non-native predator fish population status is called for prior to implementation of proposed fishery removal actions. This difference in management approaches is appropriate, considering National Park Service and NMFS interests in prioritizing the needs of native fish and other species from an ecosystem management perspective above non-native species. This prioritization approach is carried forth in the proposed Recovery Plan.

In summary, the management of fisheries to address predation risks is not limited to non-native fish species in the proposed Recovery Plan. The role of native fish predators as a potential limiting factor is proposed to be investigated, and responsive fisheries regulatory actions will be implemented if determined to be appropriate. This approach for evaluating and potentially acting on native fish predator impacts has been extended to include northern pikeminnow (see Response to Predation Comment 3 above).

The commenter raises the possible need for an enhanced focus in the plan on rainbow trout control measures. As discussed in Section 5.4.5.1.6 of the LFA, native steelhead/rainbow trout likely prey to some extent on juvenile sockeye in Lake Ozette. Fish distribution research conducted in the watershed indicates that rearing of the species and its two races is limited primarily to the lake tributaries, where juvenile sockeye that may be vulnerable to predation spend little time. Juvenile steelhead/rainbow trout have been shown to feed primarily on aquatic insects, amphipods, aquatic worms, and fish eggs, and only occasionally on small fish. These diet preferences and the identified lack of spatial overlap between the species in the lake habitat area primarily utilized by juvenile sockeye for rearing limit the likelihood that steelhead/rainbow trout predation on juvenile sockeye is substantial.

2.9.10 Predation Comment 10

Comment: One commenter indicated that the inadequacy of the Marine Mammal Protection Act in the allowance for responses to marine mammal predation on a listed species needs to be noted in the proposed Recovery Plan section addressing the inadequacy of existing regulatory mechanisms.

Response: NMFS maintains the authority under the Marine Mammal Protection Act (MMPA) to authorize application of specific control measures to reduce or control adverse impacts caused by protected marine mammals. The MMPA generally prohibits the harassment, hunting, capturing, or killing of marine mammals, or any attempt to engage in such activities. However, the law does contain exceptions authorizing certain people under certain circumstances to deter marine mammals that are damaging private property (including fishing gear), if the methods used do not result in the death or serious injury of an animal. In addition, Section 120 of the MMPA permits lethal taking of seals and sea lions that are having a significant negative impact on the decline or recovery of salmon and steelhead listed under the ESA. In 2006, several Pacific Northwest States applied to the Secretary of Commerce for authorization under Section 120 to lethally remove California Sea Lions that are having significant predation effects on ESA-listed fish in the Columbia River Basin. After completion of an evaluation of the effects of the removal actions, and following completion by NMFS of an Environmental Assessment reviewed by the public, the States received approval form NMFS to lethally remove offending sea lions in March, 2008.

NMFS's opinion is that the MMPA has adequate regulatory mechanisms in place to allow for deterrence and lethal removal, if appropriate and necessary, of pinnipeds that have been shown to be adversely affecting prospects for the recovery of the listed Ozette Lake sockeye salmon ESU. An example of the processes and evaluations required under the Act to allow for the legal implementation of actions to deter or remove harbor seals or sea lions that adversely affect the sockeye salmon population through predation can be found on the NOAA Fisheries web-site at: http://www.nwr.noaa.gov/Marine-Mammals/Seals-and-Sea-Lions/States-MMPA-Request.cfm

Included on this website is the aforementioned State's MMPA Section 120 permit application requesting allowance for the lethal removal of California sea lions in the Columbia River.

2.9.11 Predation Comment 11

Comment: One commenter asked if there had been any changes in sockeye salmon age at smoltification percentages that might indicate whether selective pressures such as predation in the lake were persistently high.

Response: No changes in the age at smoltification for Lake Ozette sockeye are evident. As reported in Section 3.1.9 of the proposed LFA, researchers studying the Lake Ozette sockeye population in the 1980s and 1990s reported that the fish emigrate seaward predominately as age 1+ smolts (LaRiviere 1990; Jacobs et al. 1996). This prevailing smolt life history trajectory was verified as continuing in brood years sampled in the early 2000s. From the LFA, recently collected otolith analysis data sampled from brood year 2000, 2001, and 2002 adult returns indicate that less than 1% of sockeye emigrate as Age 2+ smolts (n=981; MFM, unpublished otolith age data). The LFA notes that age 1+

smolt emigration is a common life history strategy for sockeye salmon populations originating from within the southern range of the species.

2.9.12 Predation Comment 12

Comment: One commenter requested clarification regarding an apparent discrepancy in proposed Recovery Plan text describing the lake habitat preferences and migratory behavior of sockeye salmon fry.

Response: The current understanding of juvenile sockeye salmon behavior in Lake Ozette is that fry emerging from the known beaches or entering the lake from the tributaries spend very little time in littoral areas, moving to the limnetic zone of the lake after only a few days. The proposed LFA, citing Jacobs et al. (1996), reports that juvenile Lake Ozette sockeye salmon on the spawning beaches are thought to rapidly migrate to the pelagic zone of the lake upon emergence, although the exact timing and rate of movement from the shoreline spawning sites have not been documented (Jacobs et al., 1996). Beauchamp et al. (1995) found that Lake Ozette sockeye salmon utilized the lake nearshore environment only during fry and smolt migrations.

The reference identified by the commenter (Quinn 2005) addresses sockeye population behavior in general, and is not specific for lake entry and migratory strategies that may be employed by the sockeye population in Lake Ozette. As noted in the above response to Predation Comment 3, Section 7.4 of the proposed Recovery Plan will be modified to include language calling for the collection of specific spatial and temporal distribution data for sockeye salmon juveniles and potential fish predators in the lake to help identify risks to sockeye recovery posed by sockeye predators. The collection of this information will also improve scientific understanding of the rearing and migratory behavior and habitat preferences of sockeye juveniles in Lake Ozette.

2.9.13 Predation Comment 13

Comment: One commenter requested information regarding predators of sockeye salmon on the lake beaches. The same commenter asked what is different about the predator guild between beaches and the lake tributaries that would cause higher mortality of adults (and eggs) on the beaches relative to the tributaries.

Response: The predators affecting the beach spawning sockeye aggregations and their effects are described in Section 5.4.5 of the proposed LFA. Identified predators affecting various beach spawning sockeye life stages include harbor seals, river otters, northern pikeminnow, cutthroat trout, sculpins, other native and non-native fishes, and various species of birds. The primary difference in predation effects between the beach and tributary spawning sockeye aggregations is that sockeye spawning on the beaches are extremely vulnerable to predation by harbor seals and river otters relative to fish spawning in the tributaries. Sockeye spawners are more vulnerable to mammal predation along the beaches because they are in shallow water and often pre-occupied by the act of spawning or redd defense. The beaches are also physically more accessible to the

predators than the tributaries, and there is little to no complex habitat that might offer the sockeye refuge from the predators in the beach spawning areas. The comparative vulnerability of beach spawning adults leads to increased predator attraction to spawning areas and likely greater predator efficiency.

2.9.14 Predation Comment 14

Comment: One commenter asked whether lake populations are less robust to changes [compared to tributary spawning sockeye] and, if so, whether they need greater precaution?

Response: The Puget Sound TRT reviewed geographical, migration, genetic, life history, demographic, and habitat characteristics of anadromous sockeye salmon in Lake Ozette and concluded that extant spawning aggregations in Lake Ozette are different subpopulations within a single population (PSTRT 2008). The Lake Ozette sockeye ESU is made up of only one population, therefore it is not possible to compare the robustness of beach versus tributary spawning populations. However, the beach spawning aggregations do need greater precaution than tributary spawning aggregations. The PSTRT's viability criteria for spatial distribution recommends that "a viable sockeye population in Lake Ozette includes multiple, spatially distinct and persistent spawning aggregations throughout the historical range of the population. Therefore, a viable population contains multiple spawning aggregations along the lake beaches, which are the known historical spawning areas. The certainty that the population achieves a viable condition would be further increased if spawning aggregations in one or more tributaries to the lake were also established."

2.10 Habitat Conditions

2.10.1 Habitat comment 1

Comment: Two commenters questioned why Section 6.2.6 Riparian-Floodplain Processes section singled out the development and maintenance of ONP facilities as the main activity affecting riparian processes in the Ozette River, whereas, the commenter says, past logging and LWD removal should be the activities cited as affecting these processes.

Response: NMFS believes this is a misreading of Section 6.2.6. The proposed Plan states that this section addresses the riparian and floodplain processes only within the scope of the Ozette River, which is in excellent condition throughout most of the river corridor. Within this limited scope, the primary activity that contributes to degraded riparian conditions, where they exist to a limited extent, is the development and maintenance of ONP facilities. Other portions of the Plan address the impacts of land uses and removal of LWD on natural processes within the watershed.

2.10.2 Habitat Comment 2

Comment: One commenter stated strong agreement with Recovery Strategies 29 (protection of riparian areas) and 32 (reconnecting floodplains to channels by adding LWD). However, they questioned whether non-native plants are really a problem on the spawning beaches because they assert that encroachment is actually due to native willows and sedges, rather than non-native species.

Response: NMFS agrees that recovery strategies 29 and 32 are important for sockeye recovery. Regarding the impact of native versus non-native plants on lake shore colonization, Recovery Strategies 20 and 21 specifically address the lake shore habitat and call for implementing actions to restore hydrologic and sediment processes to maintain and protect the lake's riparian forest. Section 6.3.3 notes that vegetation colonization of spawning habitat has also been identified as a factor affecting beach spawning habitat. This can include both native and non-native vegetation.

2.10.3 Habitat Comment 3

Comment: One commenter suggested edits to Section 4.4.2.5 regarding the activities that affect the holding pool habitats and recommended deleting reference to "present" logging and road maintenance actions because these riparian logging in fish streams is prohibited by the Forest Practices Rules.

Response: The section simply lists all activities that may or do affect riparian areas.

2.10.4 Habitat Comment 4

Comment: One commenter suggested that the reduction in lake levels below historic levels could have had a dramatic and potentially irreversible impact on available lake beach spawning habitat. The commenter questioned if there was any follow-up on this point.

Response: The recovery plan's Section 6.3 proposes a series of recovery goals and recovery strategies to restore processes and conditions affecting beach spawners, as well as a series of recovery actions to carry out these goals and strategies.

2.10.5 Habitat Comment 5

Comment: One commenter asked if it is feasible to assume that spawning gravel could be "cleaned' before the summer spawning season.

Response: Section 7.3.2 Long-Term Actions for Hatchery Supplementation Action in the Plan describes numerous potential methods to enhance viability status of beach spawners, including mechanical improvement of spawning gravels in known beach spawning areas. However, this is a long-term action that may be undertaken after current short-term actions are implemented.

2.10.6 Habitat Comment 6

Comment: One commenter expressed concern about the general lack of coordination and cooperation within the Ozette watershed, together with lack of enforcement of forest practices, which will increase the impact of the main limiting factor which is the loss of quality and quantity of spawning and incubation habitat.

Response: NMFS continues to strive to bring together all parties to cooperate and collaborate on actions to recover Lake Ozette sockeye salmon. Collaborative action is essential for recovery. Enforcement of forest practices specified in the FPHCP is also key to sockeye recovery, and is the responsibility of the Forest Practices Board and the WDNR. In the recovery plan, Section 7.2.1.1.2 contains the following statement on Compliance Monitoring and Reporting: A required Compliance Monitoring Program is outlined in WAC 222-08-160. Compliance monitoring ensures that the rules in place are being put into practice on the ground as they were intended. WDNR is required to conduct compliance audits and submit monitoring reports to the Forest Practices Board every two years. WDNR is also required to maintain an infrastructure to support adequate compliance, monitoring, enforcement, training, education, and budget. In addition to the mandated compliance monitoring program, WDNR field foresters conduct reviews and inspections before, during, and after Forest Practices activities.

Section 7.2.1.1.3 of the plan acknowledges that WDNR needs adequate staff to monitor and enforce compliance, recommends that WDNR provide adequate staff and submit annual reports to NMFS regarding compliance, and recommends that funding be sought for these functions.

2.11 Hydrology (General)

2.11.1 General Hydrology Comment 1

Comment: One commenter quoted Section 6.4.2 of the Plan: "Tributary hydrology is largely controlled by climate…" and stated: "While this is not totally untrue, the amazingly dense network of poorly drained roads throughout the watershed, clear cutting, and removal of LWD, lead to massive runoff affecting tributary hydrology. I think they should not only be mentioned here, but probably before climate. While I totally agree with the goal above Strategy 27, the strategy itself proposes more studying of the problem and then only prioritization of the actions instead of implementing the actions needed to remedy it now, and as stated earlier, this is likely a result of the timber companies' desperate and never ending efforts to hijack this entire process. This is repeated again in Strategy 28."

Response: The rationale in Section 6.4.2 presents activities thought to affect stream hydrology within Lake Ozette tributaries. The strategy is designed to first quantify the degree or range of impacts that may be occurring as a result of various activities. Understanding and quantifying the degree of impacts is needed in order to develop a meaningful plan to restore natural processes, if needed. Also note that RMAP

implementation will be occurring concurrently with any future studies that address tributary hydrology.

2.11.2 General Hydrology Comment 2

Comment: One commenter stated that incubation habitat, particularly on the lake beaches, is currently severely degraded. This commenter believes that the timber industry has shown unwillingness to comply with voluntary recovery actions, that existing laws are not being enforced, and that consequently recovery is not likely to occur. The commenter detailed examples of poor water quality that they have observed.

Response: NMFS believes that compliance with the rules designed to protect Lake Ozette sockeye habitat is essential to the recovery of sockeye salmon within the watershed. Protection and recovery of degraded habitat within the watershed is the foundation of the Recovery Plan strategy.

2.11.3 General Hydrology Comment 3

Comment: One commenter stated that Sections 2.4, 4.2.2 and 4.3.1.1, which address lake hydrology, are inadequate and rely heavily on the assumption that the reader will also read the LFA. More of the key information contained in the LFA should also be included in the recovery plan. Specifically, the Plan should include a more detailed summary of Section 4.2.5 of the LFA and in particular, Figures 4.14 through 4.18 and Table 4.3.

Response: The entire Plan is written as only a brief summary of limiting factors and habitat conditions. Adding several pages to the plan that only discuss hydrology or lake hydrology would be inconsistent with the format of the Plan. Many of the background details are included in the LFA. A detailed understanding of the limiting factors addressed in the Plan requires reading and developing a comprehensive understanding of the LFA.

2.11.4 General Hydrology Comment 4

Comment: One commenter recommended that Section 4.3.2.2. of the plan be changed. Currently the Plan reads, "The high road densities in sockeye tributaries (averaging >6.0 mi/mi^2), extensive clear-cutting (>95 percent of sockeye watersheds clear-cut at least once), and lack of floodplain connectivity (because of channelization and wood removal) cumulatively lead to the hypothesis that hydrologic change has occurred in Ozette tributaries, but with an unknown magnitude." The commenter suggested that the language be changed to read, "Improper construction, maintenance and use of roads, increased channel instability, mass wasting events triggered by roads or harvest on unstable slopes, and lack of floodplain connectivity (because of channelization and wood removal) cumulatively lead to the hypothesis that hydrologic change has occurred in Ozette tributaries, but with an unknown magnitude." The commenter further stated that the following text should also be inserted, "Current Forest Practices Rules and the associated Habitat Conservation Plan comply with Endangered Species Act requirements

and are recognized as sufficient to meet recovery plan goals." The commenter also stated that the above comments also apply to Section 4.4.2.4 of the Plan.

Response: NMFS believes that proposed edit (for sections 4.3.2.2 and 4.4.2.4) would be inconsistent with the actual rationale that was used to develop the hypothesis, as it excludes the potential effects of clear-cut timber harvest on water yield. The forest practice rules and HCP are discussed in various parts of the Plan, adding this language to the hypothesis rationale would be inconsistent with the Plan format.

2.11.5 General Hydrology Comment 5

Comment: One commenter recommended that Section 4.3.2.2, Activities affecting inputs/processes should be changed. Currently the Plan reads, "Activities affecting seasonal lake level changes beyond natural climate variability are those that affect watershed hydrology and lake hydro-period, i.e., historical LWD removal from the Ozette River, sedimentation in the Ozette River, current and past logging and road building, agriculture, and floodplain alterations." The commenter thinks that the word current should be deleted and that additional text should be added, "Current Forest Practices Rules and the associated Habitat Conservation Plan comply with Endangered Species Act requirements and are recognized as sufficient to meet recovery plan goals." The commenter stated that the same edit should be included in Section 4.4.1.1., 4.4.2.1, 4.2.2.2, 4.4.2.5, and other locations within the Draft Recovery Plan where references are made to past activities that are now prohibited by the Forest Practices Rules and HCP.

Response: Comment noted. It is true that current Forest Practices Rules and associated HCP provide a statewide incidental take permit for commercial timber harvest. This is discussed in Section 7.2.1.1 of the plan. However, past, current, and future forestry operations still have the potential to affect stream and lake hydrology.

2.11.6 General Hydrology Comment 6

Comment: One commenter recommended deleting the last paragraph on page 4-39 (Section 4.4.2.4) that begins, "Lack of long-term hydrologic datasets…" The paragraph is contradictory, claiming no data exist to support the hypothesis or its potential magnitude.

Response: The paragraph states, "Lack of long-term hydrologic datasets in the Ozette Watershed prohibit the exact quantification of any potential changes to hydrology and flow regimes from land use and channel modifications." The Plan provides rationale for the hypothesis that hydrologic change has occurred but states the magnitude of the change is unknown. In addition, the plan states that quantification of this potential limiting factors remains a data gap. The Plan simply acknowledges that some change may have occurred and that this change may affect Lake Ozette sockeye. This paragraph was not deleted from the plan.

2.11.7 General Hydrology Comment 7

Comment: One commenter recommended deleting a portion of a sentence on page 7-27. Currently the plan states, "Based on modeling results, restore or improve permanent vegetative hydrologic maturity (>25 or 40 years old) throughout watershed." The commenter wants "or 40 years" deleted. The commenter states that 25 years is consistent with the FPHCP and the physical characteristics of productive Westside forests.

Response: All reference to age was removed. Before the release of the Proposed Plan, NMFS received comments suggesting a wide range of forest ages should be considered for meeting the definition of hydrologic maturity for the purpose of describing and modeling water yield.

2.11.8 General Hydrology Comment 8

Comment: One commenter stated that they would like to see a stance taken and documented in this plan against future significant water draws from Lake Ozette, for outside of area municipal water needs or for the town of Neah Bay, for example. These actions, which are pending, just cannot be compatible with sockeye recovery, the commenter said.

Response: NMFS is unaware of any significant pending water withdrawal applications or proposals for the Lake Ozette watershed. Large water withdrawals from the basin would be inconsistent with the Plan's strategy to restore hydrologic processes within the watershed. Strategies 8 through 11 and 27 describe the strategies to restore hydrologic function within the watershed. Water withdrawals from ONP would also likely be in conflict with the 2006 National Park Service Management Policies. The policy states, "The Service will perpetuate surface waters and groundwaters as integral components of park aquatic and terrestrial ecosystems." NMFS is also aware of the fact that the Water Resource Inventory Area 20 watershed planning group is currently developing recommendations for instream flows for the planning area, which includes the Lake Ozette watershed.

2.11.9 General Hydrology Comment 9

Comment: One commenter stated that it is not clear how actual measures of streamflow variability limit the three life stages described in Table S-1 on page 8 of the Plan Summary. The first would seem affected by high flows whereas the second and third would seem most influenced by low flows. What specifically about "variability" is it that affects these fish?

Response: Within the context of the table, streamflow variability is described as magnitude, frequency, and timing of high and low flows. The text in the box is from Hypothesis 15 in Section 4.4.2.4. The rationale explains the hypothesized relationship between streamflow variability and the three sockeye salmon life stages. Tributary hydrology is discussed in sections 4.4.1.6, 4.4.2.6, and 4.4.3.6 of the LFA. Streamflow and sockeye salmon survival are discussed in detail in Section 5.5.1.3 of the LFA. The

LFA also includes Individual life-stage tributary streamflow hypotheses (see sections 6.2.7.3, 6.2.8.4, 6.2.9.3, and 6.2.10.2)

2.12 Forestry

Comment: Numerous commenters described the detrimental impacts to riparian areas as a result of removal of large wood, road building and past logging practices. Some questioned the forestry standards negotiated in the Forest and Fish Agreement and attributed higher lake levels due to siltation as a result of forestry practices. Others suggested the need for intensive monitoring in the Ozette watershed to document the effectiveness of the FPHCP prescriptions. Another commenter recommended a thorough analysis of potential land conversions under the Clallam County Critical Areas code. Another recommended monitoring the effectiveness of the Forest Practices Rules and regulations, another commenter requested that the Plan acknowledge which Tribes were or were not signatory to the Forest and Fish Report. Another commenter questioned whether the FPHCP will help recover sockeye. Another commenter questioned the adequacy of the FPHCP compliance monitoring and rule enforcement in the Ozette watershed. Other commenters questioned why the Plan does not acknowledge the contribution of improved forestry practices under the Forest Practices HCP. Another commenter questioned why the FPHCP is not more integrated into the Plan. A commenter requested that past logging practices be distinguished from current practices allowed under the FPHCP.

Response: While commenters have different views of the role of forestry HCPs for protection and recovery of watershed processes that support salmonid habitats, NMFS stands by the descriptions in the LOSRP. The need for effectiveness monitoring of forestry practices in the Ozette Lake watershed will be examined over time as results of effectiveness monitoring are reported for other watersheds and all monitoring needs are refined for Ozette. The scope of potential conversion of forest lands to development is speculative and will be appropriately addressed by future analyses by Clallam County.

2.13 Recovery Strategies

2.13.1 Recovery Strategies Comment 1

Comment: One commenter questioned the text on page 11 of the Plan Summary, which states, "…ceasing to remove large woody debris from sections of the lower Ozette River…" The commenter stated this is not what is suggested in the plan; the plan recommends adding LWD to the lower river and not just ceasing to remove it.

Response: The paragraph incorrectly describes the processes addressed within this tier. The Plan summary has been edited to read, "Third is restoring sediment, hydrological, riparian/floodplain, and biological processes. This includes a wide range of potential actions, for example: restoring natural predator prey balance by improving egg-to-fry survival and/ or reducing non-native fish species by means of selective fishing; **restoring**

riparian forests along streams and rivers; and assessing sources of sediment and reducing sediment production and delivery to streams."

2.13.2 Recovery Strategies Comment 2

Comment: Several commenters recommended that NMFS add more specific text and information to the strategy section of the Plan about RMAPs and the FPHCP protection measures.

Response: NMFS agrees with the commenters in that the text they suggest is consistent with the descriptions of RMAPs and FPHCP referenced in the Plan. The proposed text is part of the description of programmatic actions, and they are the actions that would be taken as part of Recovery Strategy #26. Additional references to RMAPs have been added to Recovery Strategies 12, 17, 18, 19, 26, and 28. NMFS refers readers wanting more information on these topics to the web links provided in the Plan.

2.14 Restoration Project Priorities

2.14.1 Restoration Project Priorities Comment 1

Comment: One commenter suggested that the habitat protection, restoration, and enhancement actions in Section 7.2 are absolutely essential, but they are phrased in generic language for general, voluntary actions seemingly borrowed from other forest practices documents, HCPs, etc. Considering their importance, it is very sad that they have basically very little chance of being implemented. Specific habitat restoration actions can and should be implemented immediately and can have immediate benefits to recovery.

Response: Section 7.2 of the Plan contains programmatic, site specific, and broad-scale recovery actions. NMFS will work with the Washington Coast Sustainable Salmon Partnership, NPCLE, the co-managers, and landowners to implement actions in the plan.

2.14.2 Restoration Project Priorities Comment 2

Comment: One commenter was concerned about the order of actions listed in Table 7.1. While the commenter believes that all of the fishery management actions and the first three habitat protection, restoration, and enhancement projects are either irrelevant or basically a waste of time, the last three are important. Furthermore, spawning habitat restoration and enhancement projects are sadly lacking in this table, and should be added at the top, with much more emphasis on spawning gravel cleaning and plant eradication. Also in this section of Table 7.1, the last action cites the long-term hatchery enhancement projects as Section 7.3.2.1.1. This is, I hope, a typo and should read Section 7.3.2.1, which includes the entire suite of long-term enhancement actions instead of just the termination or continuation evaluation in Section 7.3.2.1.1.

Response: The actions included in the table are in the order that they appear in document. They are not prioritized by importance. Setting project priorities will be part of the development of the implementation plan. The reference to Section 7.3.2.1.1 was a typo and has been changed to read 7.3.2.1.

2.14.3 Restoration Project Priorities Comment 3

Comment: One commenter raised concern about fish predation control actions, stating that northern pikeminnow control should be a top priority, well after pinniped control, which should be emphasized well after habitat restoration. The commenter further expressed concern that the disorganization in the plan is a byproduct of the intense lobbying and conflict generated by the timber companies throughout this process, and by ONP's focus on "natural conditions." The commenter also stated that too much emphasis is placed on non-native fish and plants, as it is clear that native fish (northern pikeminnow and cutthroat trout) are the main piscine predators and native willow and sedge are the main plant species that interact with fine sediment to limit the quality and quantity of beach spawning habitat, which is by far the primary limiting factor for the lake spawning aggregations. The commenter further stated there is nothing natural about the current habitat conditions and predator-control balance in the Ozette basin to "protect."

Response: The Plan does not attempt to prioritize one native species over another with respect to the actions recommended. Recovery actions will be prioritized during the development of the implementation plan. NMFS recognizes that in many cases native species play an important role in limiting the survival of Lake Ozette sockeye salmon. However, eradication of non-native species is an important aspect of restoring the Lake Ozette ecosystem.

2.14.4 Restoration Project Priorities Comment 4

Comment: One commenter was concerned about the prioritization of actions aimed at spawning habitat restoration. The commenter stated that the first bullet in Section 7.2.2.5 discusses restoring the Umbrella Creek delta; although this is critical for increasing viability throughout the historical range of the species, it should not have more priority than restoring the extant spawning beaches. The commenter also stated that the Plan suggests that no supplementation should occur until the beach is fully restored. What is needed is intensive actions that restore habitat and address limiting factors in conjunction with simultaneous comprehensive research, monitoring, and adaptive management that utilize experimental supplementation.

Response: The Plan does not prioritize the activities in this section. NMFS agrees with the commenter. It was not intended to imply that the Umbrella Creek delta has to be fully restored before attempting sockeye salmon supplementation. The Plan will be edited to read, "After improving habitat conditions on the delta, implement an experimental sockeye re-introduction program." The Plan attempts to balance risk by not promoting radical, unproven restoration and supplementation techniques on the two remaining

spawning beaches, and lays out a framework that recommends developing a shoreline restoration plan that includes vegetation removal, gravel cleaning or enhancement, etc.

Recommended change to Plan: Change bullet one, second sentence, Section 7.2.2.5, to read, "After improving habitat conditions on the delta, implement an experimental sockeye re-introduction program."

2.14.5 Restoration Project Priorities Comment 5

Comment: One commenter stated that habitat degradation was the number one limiting factor and that logging, road building, and LWD removal are the primary cause of habitat degradation. The commenter stated that they do not think recovery will happen unless the negative effects from these activities are greatly reduced. The commenter stated that fishing prohibitions are strongly regulated by NOAA, but have nothing to do with factors limiting recovery. The recovery goals are too steep, and totally depend on huge areas of spawning habitat being fully restored. The commenter further questioned the equality of the plan, stating the fish resource and the Makah Tribe stand to lose the most.

Response: It may take decades or more time for habitat to recover from degraded conditions where they exist. Most habitat degradation occurred from past practices (e.g., LWD removal) that no longer occur. Forestry practice standards have steadily improved over the last few decades. Currently almost all forestry activities conducted within the watershed are conducted under approved HCPs. In 2006, the U.S. Fish and Wildlife Service and NMFS issued incidental take permits to the State of Washington that incorporated the terms of the Forest Practices Habitat Conservation Plan (FPHCP), which covers State Forest Practice Rules. In approving the incidental take permit, NMFS found implementation of the FPHCP "consistent with the long-term survival and recovery of covered species," including Lake Ozette sockeye salmon. NMFS' approval of the FPHCP includes an extensive record that describes how implementing the conservation measures will likely contribute to recovery of watershed processes that support salmon and trout statewide. NMFS believes that the FPHCP, together with the other actions identified in the Plan, will lead to recovery of Lake Ozette sockeye salmon.

2.14.6 Restoration Project Priorities Comment 6

Comment: One commenter raised concern that the plan includes examples of threats like the historical removal of LWD from streams, road building, logging, and rural development that do not apply today. The commenter suggests that the plan should elaborate on significant gains on placement of LWD, riparian buffers for stream banks, and water temperature stability under the Forest Practices HCP. These new regulations, technological advances in logging equipment, and state of the art road building have dramatically lessened timber harvest impacts and the document does not give enough acknowledgement to these efforts. The commenter suggests that the new rules have come at a significant cost to timberland owners and without any acknowledgement. The commenter then states that the recovery plan spends effort discussing the impacts of

timber harvest and timber roads, while failing to adequately address over-exploitation, predation, and ocean conditions.

Response: NMFS acknowledges the general importance of reduced impacts from logging and road operations that follow current Forest Practice Rules, compared to impacts in previous decades. It is important to remember that the Plan is not intended to be a review of timber harvest methods through time or an evaluation of past, present, or future timber harvest methods within the watershed. The Plan objectively details the history of timber harvest and forest practices within the watershed (see Sections 2.6.2.2.1 through 2.6.2.2.3), and details timber harvest-related conservation efforts (see Chapter 5). The Plan also details the specific efforts included in the forestry HCPs to improve habitat and water quality. NMFS believes that fisheries, predation, and ocean conditions are all fairly and adequately addressed in the plan.

2.14.7 Restoration Project Priorities Comment 7

Comment: One commenter recommended a specific strategy and action to address sediment inputs and routing processes to Lake Ozette, which they say contribute to shoreline erosion. The commenter recommended removing the center section of major large wood spanning channels to redirect the river channel and reduce the potential for mass wasting along shorelines.

Response: The above strategy is at least partially incorporated in Recovery Strategy 19, which states, "Within priority II and III subbasins, quantitatively assess sediment impacts from logging (gully creation, debris flows, landslides), road building, LWD removal, channel instability, and floodplain connectivity. Develop program to reduce land use-related sediment inputs that have the potential to deliver sediment to lakeshore spawning habitats or areas identified as potential habitat." Although it was not incorporated word for word, the submission was not ignored. The action recommended by the commenter would fall into the broad-scale sediment reduction project portion of the Plan. It is unclear how the action mentioned above differs significantly from the actions outlined in Section 7.2.2.1 of the Plan.

The commenter also mentioned a landslide contributing sediment to a tributary stream. This was not included as a site-specific action because the linkage of this slide to sockeye habitat was not obvious. The slide was documented and will be included in the recovery actions outlined in Section 7.2.2.1, which states, "Quantitatively assess sediment production impacts from logging (gully creation, debris flows, landslides), road building, LWD removal, and other land use activities in Priority Subbasins I, II, and III. Develop program to reduce land use-related sediment inputs. Implement rigorous sediment reduction and retention program designed to reduce coarse and fine sediment delivery to the Ozette River (see Sediment Processes). Use the results of subbasin-scale sediment budgets (see Broad-Scale Actions) to define the relative contribution of different sediment sources and target specific sites for restoration activities."

2.14.8 Restoration Project Priorities Comment 8

Comment: One commenter raised concern that a proposal was submitted as strategies and actions appropriate for Section 7 of the Plan but was not included in the Plan. The commenter further stated that there appears to be a bias as to what is considered or what is allowed to be incorporated in the plan.

Response: This proposal submitted to NMFS stated, "Using a solar/wind array installed on upland DNR lands that have had recent harvest, generate electricity to pump water from the Lake back above the potential shoreline sites that have a beach spawning potential." It was unclear to NMFS how this proposal would restore hydrologic processes within the Ozette watershed or what exactly was being proposed. This idea can be brought forward during the plan implementation phase and considered as a potential project at that time.

2.14.9 Restoration Project Priorities Comment 9

Comment: One commenter suggested that the coastal processes section of the Plan could be expanded to include studies to determine the impacts of nearshore issues such as bio-toxins, competition with other salmonids, etc., on juvenile and adult sockeye in the nearshore area adjacent to the Ozette River mouth.

Response: NMFS agrees this is an important research suggestion, which most directly relates to marine survival or predation studies rather than coastal processes. NMFS will add this suggestion to the research, monitoring and evaluation section for marine survival as a research recommendation.

Recommended change to Plan: Add a new RM&E topic for the marine geographic location: "Study the survival of juveniles and adults in the nearshore area adjacent to the mouth of the Ozette River."

2.14.10 Restoration Project Priorities Comment 10

Comment: One commenter was concerned that the Plan gave extensive focus to spawning habitat at the Umbrella Creek delta, including assessments, and that the Plan recommends extensive habitat restoration at and/or near the delta. The commenter was concerned that NMFS has given permission for the project to be funded and implemented. The commenter states that they own the entire delta area and will not give permission for any work to be conducted there. The commenter further stated that they thought it was extremely inappropriate to focus restoration efforts on their private property while never discussing the project. The commenter was also concerned that they brought up the point at one of the Lake Ozette Steering Committee meetings and were ignored. The commenter requests all references to the projects at the mouth of Umbrella Creek removed from the Plan.

Response: NMFS did not give permission or funding for work to be conducted at the Umbrella Creek delta; the Plan only recommends that the work be conducted. NMFS

maintains the position the all activities on private property are voluntary and require the permission of the landowner to proceed. Recovery efforts focused on the Umbrella Creek delta have been discussed in detail over the last two years during the development of the plan. NMFS conducted a review of landownership and has determined that all of the primary area of interest is owned by Olympic National Park (ONP) and is under the exclusive jurisdiction of ONP. NMFS believes that recovery of beach spawning habitat at the Umbrella Creek delta is critical to the recovery of Lake Ozette sockeye and will keep all recommendations to restore this habitat in the Plan.

2.14.11 Restoration Project Priorities Comment 11

Comment: One commenter suggested that watershed restoration projects are sensible, but questioned whether they might benefit coho and steelhead more than sockeye. The commenter then stated that LWD introduction in the upper Ozette River should raise level, increase beach spawning area, and provide cover from predation but cautioned that there may need to be extensive work.

Response: NMFS acknowledges that some tributary restoration efforts could benefit other species more than sockeye. However, other projects that are directly focused on sockeye only spawning habitat (e.g., spawning beaches) will primarily benefit sockeye salmon. NMFS agrees that LWD introduction in the upper Ozette River should raise level, increase beach spawning area, and provide cover from predation. NMFS also recognizes that restoration of beach spawning habitat is complex and the work needed may be extensive.

2.14.12 Restoration Project Priorities Comment 12

Comment: One commenter stated that the reduction in lake levels by as much as 3.3 feet below historic levels could have had a dramatic and irreversible impact on available lake beach spawning habitat. The commenter asked if there had been any consideration of constructing a lake outlet weir to restore the lake to its natural level.

Response: Yes, a weir and/or control was considered. However, restoration of the natural hydraulic controls through LWD placement or natural recruitment of LWD are the preferred alternatives to restoring lake level.

2.14.13 Restoration Project Priorities Comment 13

Comment: One commenter suggested that the restoration of beach spawning habitats is the single most critical element in the recovery of this population and that the rehabilitation of such habitats is also something with which we have the least experience. The commenter then cautioned that restoration of beach spawning habitat is a much more complex task than river habitat restoration given the interactions between substrate type, upwelling water, prevailing winds and the lake's water circulation patterns.

Response: NMFS agrees that restoration of beach spawning habitats is likely the single most critical element in the recovery of the Lake Ozette sockeye salmon population. NMFS also acknowledges that this effort is very complex and little restoration of this type has taken place elsewhere, making the task even more challenging since there are no proven techniques that can be readily employed.

2.15 Implementation and Costs

2.15.1 Implementation and Costs Comment 1

Comment: One commenter stated that the Plan's recovery cost estimates should also include costs for citizen participant's involvement in Plan implementation.

Response: NMFS recognizes the importance of the time and commitment citizens make for sockeye recovery. In many cases, projects may include the cost of public involvement. These details can be determined when specific projects are identified and budgets are estimated.

2.15.2 Implementation and Costs Comment 2

Comment: One commenter noted that recovery plans are only valuable when they are implemented and that successful implementation must include all relevant parties, citizens, and Tribes working together to recover Lake Ozette sockeye.

Response: NMFS agrees that implementation of recovery actions is essential to recovering Lake Ozette sockeye. NMFS has sought to involve all relevant parties in developing the recovery plan so that there is wide support, local ownership, and coordination to implement recovery actions.

2.15.3 Implementation and Costs Comment 3

Comment: One commenter emphasized that an entity needs to be defined or formed that will implement the recovery plan.

Response: NMFS agrees that it is crucial to identify how the Plan will be implemented and what entity or organization will be responsible for coordinating implementation. The Implementation chapter identifies a range of options for implementing the recovery plan and the Steering Committee will continue to discuss this topic at future meetings. NMFS will continue to work with the Washington Governor's Salmon Recovery Office and the Steering Committee to define leadership to coordinate and track Plan implementation.

This will be a topic for future Steering Committee meetings. The issue may not be resolved by the time NMFS adopts the final Plan.

2.16 Miscellaneous Plan Policy Questions

2.16.1 Miscellaneous Plan Policy Comment 1

Comment: One commenter contended that NMFS did not adequately coordinate with landowners during writing of the Plan and questioned that if the Plan is voluntary, what accountability is there to assure that implementation of the Plan does not result in negative impacts to landowners? The commenter called for an environmental impact evaluation before recovery actions are implemented.

Response: Over the three years of developing the Plan, NMFS has conducted an extensive public involvement component in order to involve diverse stakeholders in developing and reviewing the Plan. NMFS worked with the existing Lake Ozette Steering Committee and added members to ensure that diverse stakeholder interests were represented on the Committee. Several Ozette watershed landowners regularly participated in Steering Committee meetings. A facilitator was hired to manage and communicate with the Steering Committee, using an extensive mailing list to share information will all interested parties, including many landowners and interested citizens. The Steering Committee met regularly for over two years as the Plan was developed. NMFS staff also made numerous presentations to elected County officials, Tribal staff, Olympic National Park Superintendent and resource managers, and participated in an Ozette landowner meeting. As a result of this intense communication and public participation process, NMFS is confident it has effectively involved the public in this recovery planning process.

The commenter is correct that the plan is voluntary. Recovery actions will be implemented as part of each entities' or organizations' authority and public process to carry out its programs. It is NMFS' goal that an implementation process is established that will coordinate and communicate recovery actions to interested citizens. National Environmental Policy Act (NEPA) environmental impact analyses are required for federal actions and these NEPA requirements will be carried out by each individual agency when federal actions are proposed.

2.16.2 Miscellaneous Plan Policy Comment 2

Comment: One commenter stated support for the Plan's recovery strategy, particularly the emphasis on habitat protection. Additionally, the commenter requested accountability for implementation of recovery actions and urged good communication between NMFS and implementing agencies.

Response: NMFS agrees that the Plan's recovery strategy is an important framework for the recovery actions identified in the Plan. NMFS also agrees that communication between all parties implementing recovery actions is crucial to sockeye recovery.

2.16.3 Miscellaneous Plan Policy Comment 3

Comment: One commenter contended that Olympic National Park has inadequately responded to landowner property issues, particularly with regard to rising lake water levels. The commenter continued by questioning how voluntary recovery actions can be effective when so little is known about the marine environment.

Response: NMFS encourages landowners to continue to communicate with Olympic National Park staff in order to address landowner concerns. These landowner issues are outside the scope of this Plan. NMFS agrees that more needs to be learned about marine conditions and how the marine environment affects sockeye survival. Humans, however, have no control over the marine environment. This highlights the importance of protecting and restoring watershed and lake habitats so that numerous sockeye life history traits can be maintained to enable sockeye salmon to survive changes in the marine environment.

2.16.4 Miscellaneous Plan Policy Comment 4

Comment: One commenter requested an independent peer review of the Plan as well as a request for a more concise explanation of recovery costs, what the dollars will be spent on and where the funds will come from.

Response: The NMFS Northwest Fisheries Science Center coordinated the independent peer review of the proposed Recovery Plan and associated draft Limiting Factors Analysis. The peer review comments are available for public review on the NMFS website along with this response to public comments and the final Recovery Plan. Peer review comments were incorporated into the proposed Recovery Plan and final Limiting Factors Analysis.

The proposed recovery costs are estimates at this time because more exact costs cannot be developed until a specific project is identified and detailed project plans are developed. Specific recovery costs will be refined as individual actions are implemented. The proposed Recovery Plan identifies the actions needed to recover sockeye salmon, but does not require that these actions be implemented. NMFS will work with the parties implementing the Recovery Plan to refine recovery actions and develop more specific recovery costs. More detail cannot be provided at this time. The funds for recovery actions will come from many different sources (state, Federal, and private). There is no dedicated source of funds to implement recovery actions.

2.16.5 Miscellaneous Plan Policy Comment 5

Comment: One commenter urged NMFS to more accurately describe Olympic National Park's authorities and role as required under the Organic Act and other guidance in reviewing proposed recovery actions, such as review and approval of any marine mammal control activities, or reviewing and authorizing hatchery supplementation activities in the park. In addition, the commenter requested that Figure 9.1 be revised to

include identification of the Park's role as a key natural resource manager. See also comment 1.16.8.

Response: NMFS agrees with this comment and seeks to fully accurately and fully describe the important roles and authorities of Olympic National Park, particularly with regard to sockeye recovery. Olympic National Park has fully participated in development of this Recovery Plan and the Park's role is key to future implementation of the Plan. NMFS will edit the plan based on these comments.

Recommended change to Plan:
Page 17 of Summary: Predator-Related Actions: in second bullet added Olympic National Park wherever NMFS is mentioned, to recognize ONP's role and authority to approve marine mammal actions.
Table 7.1: page 7-4, Section 7.4: Predator Control: 4th bullet: add Olympic National Park wherever NMFS is mentioned, to recognize ONP's role and authority for marine mammal decisions.
In Table 7.1: in Section 7.4: add the section numbers for each of the predator control actions.
Page 7-51: Fourth bullet: Olympic National Park added in the first and second sentence of this bullet.
Figure 9.1 Revised first two bullets in the box for Olympic National Park. (1) "Approve recovery actions in Park consistent with its authorities," and (2) "Work cooperatively with others in Ozette watershed to protect Park resources."

2.16.6 Miscellaneous Plan Policy Comment 6

Comment: One commenter suggested that Section 5 is incomplete without an analysis of whether the actions listed in this section provide meaningful protection for Ozette sockeye.

Response: The purpose of Section 5 is to identify activities that have taken place in the watershed over the last 25 years that may have in some way benefited sockeye salmon. The list is not meant to be exhaustive and it is intended to give the reader some context about the varied activities that have been carried out by numerous entities. The purpose of the Plan is to identify recovery actions to recover Ozette sockeye. It is not the purpose of the Plan to evaluate past actions or analyze their contribution to salmon conservation. NMFS does not have the time or resources to carry out such an analysis. NMFS believes scarce resources are better spent implementing the recovery actions recommended in this Plan.

2.16.7 Miscellaneous Plan Policy Comment 7

Comment: One commenter recommended that NMFS review the evaluation of Clallam County's Critical Areas Ordinance made by the S'Klallam Tribe in order to identify how the County's codes can be strengthened.

Response: NMFS agrees that this review would be relevant. An action to review the evaluation of Clallam County's Critical Areas Ordinance should be included in the detailed Implementation Plan that will be developed after the adoption of the Recovery Plan.

2.16.8 Miscellaneous Plan Policy Comment 8

Comment: One commenter suggested that Figure 9.1 needs to be revised (1) to include the full authorities and role of Olympic National Park, and (2) that the Washington Department of Fish and Wildlife (WDFW) needs to be added. WDFW's roles include regulating non-tribal fisheries in the ocean and areas of the Ozette watershed outside the Park's boundaries, as well as governing land use in aquatic/riparian areas through issuance of hydraulic permits and regulating fisheries research.

Response: NMFS agrees with the recommendations and has revised Figure 9.1 to the extent possible within the limitations of the single page format. WDFW is identified in the figure as having a regulatory role; however, space limitations preclude listing all regulatory functions. See Section 7.2.1.7 for description of WDFW Hydraulic Code.

2.16.9 Miscellaneous Plan Policy Comment 9

Comment: One commenter suggested two edits to the Summary: (1) under Proposed Actions for Recovery, in addition to identifying the need to coordinate implementation of recovery actions with Olympic National Park, that additional responsible entities should be specifically identified and included; and (2) under the list of proposed actions, the Tribes should be included with Olympic National Park when considering the biological and social, economic needs of residents.

Response: NMFS agrees and has made suggested edits.

2.16.10 Miscellaneous Plan Policy Comment 10

Comment: One commenter expressed concern that the introduction to the Recovery Goals over-emphasizes the role of Olympic National Park without identifying other parties, Tribes and land owners who will also be needed to implement recovery actions in order to achieve recovery goals.

Response: NMFS agrees and will add additional entities, co-managers and landowners to emphasize the need for broad participation of all parties in recovery plan implementation.

2.16.11 Miscellaneous Plan Policy Comment 11

Comment: One commenter recommended adding language to the introduction to Section 7.2, Habitat-Related Actions, that would identify the range of agencies, Tribes, landowners and other parties that will play an important role in carrying out habitat-related recovery actions and this section should not be limited to coordination of actions with Olympic National Park.

Response: NMFS agrees and will add language to this section to identify the range of entities, citizens and parties that will be needed to implement recovery actions.

2.16.12 Miscellaneous Plan Policy Comment 12

Comment: One commenter stated that the language regarding potential land conversion development in the proposed actions for Clallam County Zoning and Land Use and the Olympic National Park Management Plan is confusing and needs clarification. In addition, concern was expressed that this proposed action not in any way limit tribal treaty rights access to public lands.

Response: The intent of the proposed action in Sections 7.2.1.3 and 7.2.1.5 is to be proactive and better understand the potential impact of future land use changes by analyzing potential land conversion scenarios that could occur in the Ozette watershed and that may negatively impact Ozette sockeye. Based on the results of these studies, protective measures could potentially be taken to protect sockeye habitat. This study will not affect any existing authorities or tribal treaty rights. Both sections have been edited to clarify the purpose of the proposed study and explicitly state that it would not affect any tribal treaty rights.

2.16.13 Miscellaneous Plan Policy Comment 13

Comment: Several commenters expressed concern that the Forest Practices Habitat Conservation Plan is not fully integrated into the Plan and Limiting Factors Analysis, and that the Plan ignores the scientific record of the Forest Practices Habitat Conservation Plan. The commenters suggested that the comments regarding the LFA submitted in behalf of the timber industry have been largely ignored or dismissed by the LFA authors. In addition, the commenter asserts that forest practices are unfairly burdened in the proposed recovery actions by having greater responsibility for sockeye recovery, and that the peer review process is flawed because it proposes to use authors of the proposed documents as peer reviewers.

Response: NMFS has made a strong commitment to work with the timber companies and the Washington Forest Protection Association to ensure that the Forest Practices Habitat Conservation Plan, which NMFS and the U.S Fish and Wildlife Service approved, is accurately described in the Plan and that the actions in the Habitat Conservation Plan are essential recovery actions for sockeye salmon. This Plan describes the limiting factors in all the sockeye life stages and therefore identifies recovery actions to address the full range of limiting factors. All threats and limiting factors are dealt with equitably so that no one sector of society has an undue burden to recover sockeye salmon. NMFS believes the liming factors and threats have been accurately described and reasonable actions identified to address them.

NMFS has carefully reviewed all comments submitted by Steering Committee members, including the technical papers submitted on behalf of the timber companies. In the summer of 2007 the authors of the LFA developed a 48-page response to the comments submitted in behalf of the timber industry. This response addresses each issue raised;

where edits to the LFA were warranted, the response describes actions to be taken. The Plan and Limiting Factors Analysis have been revised in part based on these comments. For example, many portions of hydrology sections of the LFA have had major revisions based on the comments submitted. A new section was added to Section 5.3.2.2 (Low Flows). Section 5.3.2.2.1 (Factors Affecting Low Flows) contains five new subsections: climate; stage-discharge relationship; hyporheic flow; shoreline vegetation and evapotranspiration; and tributary baseflow inputs. The rationale for Hypothesis 3 was expanded upon based on a request for clarification as to what percentage of the run was potentially affected by elevated suspended sediment concentration events (see Section 6.2.1.3).

The peer review process for the Plan and draft Limiting Factors Analysis was coordinated by NMFS' Northwest Fisheries Science Center and its Recovery Implementation Technical Team. Independent expert peer reviewers submitted comments on the Plan and draft Limiting Factors Analysis. None of the peer reviewers were involved in the sockeye recovery planning process, nor were they associated with any of the recovery products, Plan, or Limiting Factors Analysis.

2.16.14 Miscellaneous Plan Policy Comment 14

Comment: One commenter questioned why 50 years was chosen as the time period for this recovery plan.

Response: The 50-year time frame is used in other recovery plans in the Northwest, as well. It is considered a reasonable amount of time for watershed processes to improve, salmonid populations to respond, and trends to become visible. As described in Section 9.2 for time and cost to recovery, NMFS estimates that recovery of Lake Ozette sockeye salmon could take 50 to 100 years. However, given the complex interrelationships between salmon and their environment, there are many uncertainties involved in predicting the course of recovery, and the time to recovery will need to be reevaluated as recovery actions are implemented.

2.16.15 Miscellaneous Plan Policy Comment 15

Comment: One commenter questioned why NMFS was in charge of developing a recovery plan for sockeye salmon which spends a portion of its life cycle in fresh water, rather than the U.S. Fish and Wildlife Service or the National Park Service.

Response: NMFS shares responsibility for implementing the Endangered Species Act with the U.S. Fish and Wildlife Service. NMFS manages all aspects of the Endangered Species Act for marine and anadromous species (species which begin life in fresh water, travel to the ocean for part of its life cycle and return to fresh water to spawn), while the U.S. Fish and Wildlife Service manages fresh water and terrestrial threatened and endangered species.

2.16.16 Miscellaneous Plan Policy Comment 16

Comment: One commenter asked who are the co-managers for this recovery plan.

Response: For the purpose of the Recovery Plan, the co-managers are the Makah and Quileute Tribes, Washington Department of Fish and Wildlife, NMFS, USFWS, and Olympic National Park.

2.16.17 Miscellaneous Plan Policy Comment 17

Comment: One commenter questioned whether NMFS has had individual meeting with co-managers, especially Washington Department of Fish and Wildlife. And if NMFS met with the Washington Department of Fish and Wildlife, what were the topics of these meetings.

Response: NMFS has worked with the Lake Ozette Steering Committee which is made of up broad representation of those parties and individuals interested and responsible for sockeye recovery. The Steering Committee meetings, therefore, were NMFS' primary vehicle for communicating with interested parties. In addition to Steering Committee meetings, NMFS has met periodically with technical staff from the Makah and Quileute Tribes, as well as briefing the Superintendent of Olympic National Park. NMFS has not met separately with staff from the Washington Department of Fish and Wildlife.

2.16.18 Miscellaneous Plan Policy Comment 18

Comment: One commenter questioned why NMFS has not conducted site visits with landowners to identify issues directly?

Response: NMFS worked with interested timber landowners to carry out a one-day field trip for Steering Committee members to visit restoration sites, forestry activities and fishery projects in the Ozette watershed. That field trip also included a visit to a site where knotweed is being eradicated through local efforts. NMFS welcomes invitations from landowners to visit local sites; however, NMFS' first responsibility is to use its resources to produce a recovery plan.

2.16.19 Miscellaneous Plan Policy Comment 19

Comment: One commenter asked whether NMFS will commit itself to an open and transparent recovery planning process particularly as it relates to Ozette landowner communication.

Response: NMFS' Ozette recovery planning process reflects NMFS' strong commitment to open and transparent communication. The diverse Steering Committee is made up of all interest groups in the watershed, and this Committee met regularly throughout the process. Meetings were facilitated by a neutral third party. In November 2007, NMFS participated in a meeting coordinated by Ozette landowners. As a follow-up to that meeting, NMFS has included these landowners in all subsequent recovery planning

communication. NMFS also held two public workshops to share the proposed Plan with the public, including a meeting in Sekiu, Washington (on a Saturday afternoon) so that it would be easily accessible to Ozette watershed residents.

2.16.20 Miscellaneous Plan Policy Comment 20

Comment: Two commenters asked how the recovery plan will protect the cultural and historic resources of the Ozette watershed.

Response: The goal of the recovery plan is to identify actions that will recover Lake Ozette sockeye salmon. Implementation of all recovery actions, however, will need to be consistent with existing authorities, zoning, rules, and tribal treaty rights. Therefore any proposed projects will be subject to review, evaluation, and permitting in the context of other societal goals, such as protection of cultural and historic resources. It is not NMFS' intent to have sockeye recovery actions negatively impact any cultural or historic resource. Because the Plan is voluntary and does not require anything of anyone, it will not affect historic structures.

2.16.21 Miscellaneous Plan Policy Comment 21

Comment: One commenter asked whether the Plan has considered the historical significance of the Hoko-Ozette road and implications for moving this road.

Response: The proposed recovery action to move a portion of the Hoko-Ozette road out of the floodplain to improve riparian and floodplain conditions has not been investigated in any detail. If this action were to be considered further, additional studies and consideration of the implications of moving the road would be necessary.

2.16.22 Miscellaneous Plan Policy Comment 22

Comment: One commenter asked how NMFS will address the resulting legal issues from this recovery plan.

Response: NMFS will address legal issues if they are raised and cannot speculate on legal issues that are unknown at this time.

2.16.23 Miscellaneous Plan Policy Comment 23

Comment: One commenter questioned why the proposed Plan does not mitigate the "take" clause of the US Constitution's Fifth Amendment.

Response: NMFS believes this question relates to private property owners' fear that the presence of an ESA-listed species, the designation of critical habitat on their land, or implementation of recovery actions will result in restrictions of current or future activities on their land and subsequent loss of all or some of their property or its value. Because the Plan is voluntary and does not require any action of anyone, and because it will not affect

the legal uses of property, its adoption cannot constitute a Fifth Amendment taking. In addition, the Plan states that proposed actions will be evaluated with regard to social and economic impacts to landowners. NMFS seeks the full involvement of landowners to implement this recovery plan and therefore seeks the support of landowners to implement actions rather than trying to promote actions that do not have community support.

2.16.24 Miscellaneous Plan Policy Comment 24

Comment: One commenter asked if there were any legislative actions or changes to the law needed to implement an action in this Plan.

Response: At this time, NMFS is not aware of any changes to laws or legislative action needed to implement actions in this Plan. In the future, if such changes become evident they will be addressed as needed.

2.16.25 Miscellaneous Plan Policy Comment 25

Comment: One commenter asked how the Plan will balance Tribal treaty rights that conflict with citizens' U.S. Constitutional rights.

Response: NMFS will uphold all laws, judgments, decisions, and treaties related to tribal treaty rights and citizen Constitutional rights. In Section 1.6, the Plan clearly identifies and describes the tribal trust and treaty responsibilities NMFS and the Tribes have regarding ESA requirements for listed species. Under Federal trust responsibility, Federal agencies, including NMFS, have a legal obligation to support the Tribes in efforts to preserve and rebuild Treaty salmon fisheries in their usual and accustomed fishing areas. This unique relationship provides the Constitutional basis for legislation, Treaties, and Executive Orders that recognize unique rights and privileges to Native Americans to protect their property and their way of life.

2.16.26 Miscellaneous Plan Policy Comment 26

Comment: One commenter questions whether it was appropriate to carry out ESA recovery plan actions that may result in future commercial profits for any group that may require disproportionate sacrifice from others in the community.

Response: The goal of the recovery plan is to recover Lake Ozette sockeye salmon to a point where the protections of the ESA are no longer needed. In addition to delisting sockeye, the Plan articulates broad sense recovery goals that may enable societal goals to be achieved, such as future recreational or commercial harvest of sockeye. Future benefits from viable sockeye salmon will be evaluated, and it is anticipated that all sectors of society will benefit from a healthy sockeye population.

2.16.27 Miscellaneous Plan Policy Comment 27

Comment: One commenter asked what safeguards the Plan provides if recovery actions fail and potentially cause harm to private landowners.

Response: If an action in the Plan is funded and implemented, the required project planning, permitting, public review, and monitoring will be carried out by the implementing party. Each project will be designed and evaluated to provide for public safety. While no absolute assurance can be given that unforeseen circumstances may not occur, all protective measures will be taken and contingencies will be dealt with for each project.

2.16.28 Miscellaneous Plan Policy Comment 28

Comment: One commenter asked how identified flaws in the recovery plan can be fixed.

Response: NMFS is responding to all substantive public comments and revising the Plan as appropriate. Not all requests for changes to the Plan can be made, however, and NMFS will provide justifications for not making requested changes.

2.16.29 Miscellaneous Plan Policy Comment 29

Comment: One commenter asked why the Plan does not reflect the wishes of the Lake Ozette Steering Committee to assess the implications of different lake levels.

Response: NMFS has proposed investigating the implications of lake levels as a direct result of Steering Committee and landowner comments. Section 7.2.2 was changed from previous proposed actions in response to earlier input and comments.

2.16.30 Miscellaneous Plan Policy Comment 30

Comment: One commenter asked if the Plan provides a way to evaluate whether the recovery actions are successful in improving sockeye recovery.

Response: Yes, the recovery plan identifies a framework for monitoring, evaluation and adaptive management and will enable the Plan implementers to understand how recovery actions are affecting sockeye viability and adjust recovery actions accordingly. A detailed adaptive management plan still needs to be produced and this will be done after the final Plan is adopted.

2.16.31 Miscellaneous Plan Policy Comment 31

Comment: One commenter asked whether the Plan will include solutions to new problems created during project implementation.

Response: Entities implementing recovery actions should hire the most skilled and experienced contractors to ensure that lessons learned from other projects will be applied

to projects in the Ozette watershed. Restoration techniques are continually improving as practitioners monitor existing projects and improve future project designs.

2.16.32 Miscellaneous Plan Policy Comment 32

Comment: One commenter asked if the Plan's recommended large wood projects would affect current or future water rights.

Response: Each recovery project will need to be evaluated on a case-by-case basis regarding the consequences of implementing the project. Future implications for water rights cannot be evaluated at this time.

2.16.33 Miscellaneous Plan Policy Comment 33

Comment: One commenter questioned why non-peer-reviewed information and references are used in the Plan.

Response: NMFS seeks to produce a Plan based on the best available information. This information can be from multiple sources such as peer-reviewed journals, as well as local non-peer-reviewed sources, personal communication, and historical records. The important point is that the information is accurate, credible, and provides the best information for a recovery plan.

2.16.34 Miscellaneous Plan Policy Comment 34

Comment: One commenter asked why some actions were discussed but not included in the Plan.

Response: NMFS included the recovery actions that addressed the limiting factors and threats and that were consistent with the recovery strategy.

2.16.35 Miscellaneous Plan Policy Comment 35

Comment: One commenter asked: If, over time, the tributary spawners diverge genetically from the lake spawners, then will the tributary spawners at some point become a separate ESU and no longer afford protection for the Lake Ozette sockeye? And if so, will the plan take a dramatic change in how/what population it is obligated to recover?

Response: Lake Ozette sockeye salmon spawning aggregations are currently one population. Although they may be expected to diverge slightly over many generations as a result of slightly different selective factors, they will still be part of the same population. The importance of the beach spawners is emphasized because the Puget Sound TRT noted that the current, limited distribution of sockeye spawners puts the ESU at high risk for spatial structure and diversity. It is recommended that a viable population should include multiple, spatially distinct and persistent spawning aggregations

throughout the historical range of the population. That is why both beach and tributary spawners are important to the long-term viability of the Lake Ozette sockeye ESU, which contains only the one population.

2.16.36 Miscellaneous Plan Policy Comment 36

Comment: One commenter noted that the Plan should consider toxic runoff into salmon habitats, as has been documented in NOAA studies elsewhere.

Response: The Plan does recognize the need to monitor potential contaminants and pollutant impacts on Lake Ozette. The recovery actions can be revised or new ones proposed as more information on toxics becomes available. One advantage sockeye have in the Ozette watershed, compared to urbanized watersheds elsewhere, is that the watershed is relatively undeveloped, with minimal impervious surfaces, which cause water quality and stream flow impacts. Other pollutant pathways should also be studied, however, to reduce potential impacts.

2.16.37 Miscellaneous Plan Policy Comment 37

Comment: One commenter asked whether specific time frames can be identified for conservation easements and acquisitions.

Response: If land acquisitions or easements related to sockeye recovery can be negotiated with willing landowners, these would occur on a case-by-case basis using existing legal requirements and frameworks. NMFS recommends that interested landowners seek additional information from land trusts or other entities.

2.16.38 Miscellaneous Plan Policy Comment 38

Comment: One commenter recommended the Plan include language that stipulates that the Plan's voluntary actions are not meant to suggest or require regulations, unless specifically identified in the Plan.

Response: The Plan contains voluntary, proposed actions. The Plan does not, and cannot require that these actions be implemented. Each entity, jurisdiction, land owner, and tribe will decide what actions it will or will not take to address sockeye recovery. NMFS cannot anticipate or stipulate what actions will be implemented or what future regulations may or may not be implemented.

2.16.39 Miscellaneous Plan Policy Comment 39

Comment: One commenter questioned whether NMFS must write the Implementation Plan or if it would be written by the local community.

Response: NMFS's 2004 Interim Recovery Planning Guidance requires NMFS to produce an Implementation Schedule that identifies the actions, who will implement the

actions, estimated cost, and timing. NMFS will develop the proposed Implementation Plan will the Lake Ozette Steering Committee, and seeks input from anyone interested.

2.16.40 Miscellaneous Plan Policy Comment 40

Comment: One commenter suggested that language be added to explain why there is not a state-designated recovery board for this recovery plan.

Response: The commenter is correct; there is no state-designated salmon recovery organization coordinating development of this recovery plan. A recovery organization for Lake Ozette sockeye was not established because there was no request from a local salmon recovery lead entity to the State of Washington Governor's Salmon Recovery Office to establish a salmon recovery organization for the Lake Ozette area. However, in the last year a regional salmon recovery organization has been established that can support recovery planning and implementation within the Washington Coast Region, including Lake Ozette. This information has been added to Section 1.5.2.

2.16.41 Miscellaneous Plan Policy Comment 41

Comment: One commenter clarified the intent of the 1988 Washington Park Wilderness Act.

Response: Comment acknowledged. Information on the 1988 Washington Park Wilderness Act is included in Section 1.7 of the Plan.

2.16.42 Miscellaneous Plan Policy Comment 42

Comment: One commenter urged that NMFS seek input from the local stakeholder group prior to making any addendums to the Plan. Active input and comment should be sought before any modifications are made.

Response: NMFS agrees. Section 3.5 of the Plan states that NMFS will seek input from local stakeholders prior to making any updates to the Plan. “Revisions” to the Plan require a public comment period. “Minor addendums” to the Plan can be made by the Regional Administrator. However, NMFS agrees with the commenter that it would also be helpful to share any minor addendums with local stakeholders. NMFS will work with the local stakeholder group to seek input before Plan updates or minor addendums are made. Public comment will be sought for Plan revisions or significant addendums.

Recommended change to Plan: Page 3-14, fifth paragraph: NMFS will seek input from stakeholders on minor addendums to the Plan.

2.16.43 Miscellaneous Plan Policy Comment 43

Comment: One commenter expressed concern that the Plan and Limiting Factors Analysis be based on sound science because the Plan may result in direct impacts on

landowners in the Ozette watershed. For example, the Plan will be cited in other documents that may be used to justify taking private timberlands or changes in land use policy.

Response: NMFS agrees with the commenter that the Plan and Limiting Factors Analysis need to be based on sound science. NMFS has worked hard to ensure that the best available science is being used in the Plan, together with independent peer review of the science. NMFS believes the Plan and Limiting Factors Analysis meet this goal. It is also true that while the Plan is voluntary, it may be cited by other agencies and used as a resource for future recovery implementation actions. This is also one of NMFS' goals, so that the Plan remains a living document and resource for natural resource management actions in the future to recover sockeye salmon.

2.16.44 Miscellaneous Plan Policy Comment 44

Comment: Two commenters questioned why NMFS has included the November 2007 landowner meeting summary as part of the Plan. NMFS has not included summaries of other stakeholder meetings.

Response: Landowners participating in the November 2007 meeting specifically requested that NMFS include the meeting summary in the Plan, and NMFS management at the meeting agreed to do so. NMFS recognizes that sockeye recovery depends on willing participation, trust, and cooperation from landowners if recovery actions are to be implemented in the watershed. By including the meeting summary, NMFS is trying to ensure that landowners know that their viewpoint was expressed and NMFS has heard their issues. NMFS is not condoning or sanctioning the views expressed in the summary, but wants to build a bridge to landowners that will hopefully result in support of recovery actions on the ground.

2.16.45 Miscellaneous Plan Policy Comment 45

Comment: One commenter expressed strong support for the Plan, calling it a well-thought-out, comprehensive roadmap for recovery of Lake Ozette sockeye salmon. Two commenters noted that the key to successful implementation will be involvement and support from private citizens, timber companies, state and Federal agencies, and local Tribes.

Response: NMFS agrees and will seek to ensure that all parties work together to implement this Plan.

2.16.46 Miscellaneous Plan Policy Comment 46

Comment: One commenter noted that successful implementation of the Plan's recovery actions is essential to ultimately recover Lake Ozette sockeye.

Response: NMFS agrees and will work with all stakeholders to implement the Plan.

2.16.47 Miscellaneous Plan Policy Comment 47

Comment: One commenter strongly criticized NMFS for not genuinely wanting to involve, or in any meaningful way involving, landowners in the Ozette watershed. The commenter questions how NMFS can state that the Plan was developed with landowner involvement or that their opinions were listened to.

Response: NMFS respectfully disagrees with this comment. Over the three-year period of writing the Plan, NMFS actively and consistently sought to involve, inform, engage, and listen to all citizens, including landowners. The ESA does not require NMFS to involve the public in developing a recovery plan. However, NMFS knows that for a recovery plan to be successful, it should be accepted by local citizens. NMFS therefore actively sought to work with the existing Lake Ozette Steering Committee and expand the committee membership to include the broadest array of representatives possible. NMFS hired a professional facilitator/mediator to manage the regular meetings, which included maintaining an extensive email communication list to share all products with the Steering Committee and interested parties.

Several landowners and local citizens actively participated on the Steering Committee, in addition to others who received the email communication. In addition, NMFS consistently asked Steering Committee members how it could best share the Plan information with citizens. NMFS made many presentations on the Plan to County Commissioners, Park staff, and Tribal staff, and worked with the local lead entity to share information with the community. NMFS responded to any request for meetings or presentations. Finally, when the proposed Plan was noticed for public comment, NMFS held two public meetings in Port Angeles and Sekiu (on a Saturday) so that members of the public could easily attend the meetings and express their viewpoints. NMFS has carried out one of the most extensive public involvement efforts during this recovery planning process and continues to welcome participation from all citizens.

2.16.48 Miscellaneous Plan Policy Comment 48

Comment: One commenter expressed concern that the Plan does not put in place safeguards for private property to be protected when recovery projects are being implemented and stated that permission is needed from a landowner for projects to be carried out on private property.

Response: NMFS agrees that private property rights need to be respected at all times and that projects can be carried out on private property only with the willing permission of the landowner. The Plan is voluntary; any issues regarding projects proposed to be implemented on private property will have to be dealt with on a case-by-case basis.

2.16.49 Miscellaneous Plan Policy Comment 49

Comment: One commenter questioned how liability issues related to implementing recovery projects, particularly if they fail, will be addressed.

Response: Because the Plan is voluntary, NMFS cannot anticipate which projects will be proposed, funded, permitted, and implemented. The issues of liability will need to be addressed with each individual project and dealt with according to current state, Federal, and other legal requirements.

2.16.50 Miscellaneous Plan Policy Comment 50

Comment: One commenter concluded that the proposed recovery plan had been pushed through without cooperation from the landowners, without adequate research-based recommendations, and without documentation of legal issues the Plan produces regarding private land ownership.

Response: NMFS has worked for several years with the diverse Lake Ozette Steering Committee to develop several draft recovery plans before issuing the proposed Plan for public review and comment. This extensive public process has produced a recovery plan NMFS believes is based on the best available science, identifies realistic recovery actions based on limiting factors and threats, and proposes an adaptive management and research strategy to revise actions as needed over time. The public will continue to be involved in recovery plan implementation. Regarding legal issues for private landowners, the Plan is voluntary and does not require landowners to do anything and therefore has no legal implications for landowners. NMFS will continue to strive to communicate and work with all interested parties to implement the plan and recover Lake Ozette sockeye salmon.

2.16.51 Miscellaneous Plan Policy Comment 51

Comment: One commenter proposed language regarding the legal transactions for conservation easement and land acquisition.

Response: The Plan identifies the recovery action of carrying out conservation easements and land acquisition with willing landowners as one of many potential actions that can protect and conserve sockeye habitat. The legal framework and basis for any future action with willing landowners will be guided by existing laws and legal requirements. The Plan, however, does not have the authority nor does NMFS have the ability to impose legal requirements for any future voluntary legal transactions. The Plan can identify future actions but it has no authority to impose conditions on any future transactions. These will be dealt with on a case-by-case basis between the willing parties using the laws and conditions that guide such transactions.

2.16.52 Miscellaneous Plan Policy Comment 52

Comment: One commenter strongly suggested that the recovery plan is flawed because NMFS is unwilling to make the difficult social, political and economic decisions about

how land use is managed in the watershed. Based on this reluctance to face these difficult decisions, the commenter concludes the Plan will most likely fail.

Response: NMFS appreciates the candor and strong perspective represented by this comment. There have been strong advocates on all sides of the Ozette sockeye recovery process and NMFS thanks all participants for their dedication to their perspectives. NMFS' goal is to bring together and describe the best science on Ozette sockeye and identify the actions that can lead to recovery. NMFS is committed to supporting these actions and working with all parties to strive for future recovery. The Plan provides this roadmap to recovery; all actions need to be monitored, evaluated, and modified as necessary based on monitoring results. Recovery will not happen quickly or easily, and continued dedication will be needed to improve and recover Ozette sockeye salmon.

2.16.53 Miscellaneous Plan Policy Comment 53

Comment: Several commenters questioned NMFS' characterization of tribal co-management in the Ozette watershed.

Response: Throughout the recovery planning process, NMFS has actively worked with the tribal technical staff and Tribal Council members to fully understand the perspectives of each tribe and work with staff to develop the best, scientifically sound recovery plan for Lake Ozette sockeye salmon. NMFS, however, recognizes that each tribe has its perspective on this issue and that outstanding issues between the tribes may need to be resolved or negotiated outside the framework of the recovery planning process. The Plan will use the tribal treaty language and designations of usual and accustomed areas, while leaving other longstanding tribal issues to be resolved in other forums.

2.17 Research, Monitoring, Evaluation, and Adaptive Management

2.17.1 RM&E and Adaptive Management Comment 1

Comment: One commenter raised concern regarding the linkage between adaptive management and research and monitoring. The commenter suggested that in the current version of the Plan they do not appear interrelated. The commenter suggested that Table 8.1 be modified to identify the RME projects based on the type of monitoring: implementation and compliance; status and trend; or effectiveness monitoring. The commenter further stated that the adaptive management section of the Plan is generic and should include a few examples of the types of adaptive management actions that may be suggested in the future.

Response: Upon finalizing the Recovery Plan, NMFS will begin development of the implementation plan. This plan will include RME and adaptive management sections. NMFS agrees that there needs to be a clear linkage between adaptive management and research and monitoring. NMFS will consider modifying Table 8.1 as described by the commenter during the development of the implementation plan.

2.17.2 RM&E and Adaptive Management Comment 2

Comment: One commenter interpreted RME #22, "Develop and implement several projects that examine the effectiveness of HCP prescriptions and 'rules' at restoring watershed processes and habitat conditions," to imply study of the entire west side of Washington rather than specifically the Ozette watershed. The commenter suggested that FPHCP effectiveness monitoring must be done at a more intensive scale than what may be prescribed under the FPHCP.

Response: The intent of RM&E #22 is to ensure that effectiveness monitoring is conducted within the Lake Ozette sockeye ESU and that effectiveness is evaluated at the ESU level. The item has been edited to read: "within the Ozette watershed."

2.17.3 RM&E and Adaptive Management Comment 3

Comment: One commenter stated that it is important to understand the impacts various actions may have on the ecosystem of Lake Ozette sockeye and that they look forward to the future development of research, monitoring, and evaluation programs, and their incorporation into an adaptive management framework.

Response: The comment is acknowledged.

2.17.4 RM&E and Adaptive Management Comment 4

Comment: One commenter stated that the Plan is a reasonable plan but that it lacks an adaptive management plan, which will be necessary for successful implementation. The commenter further stated that they thought that the writing of the Recovery Plan and the Implementation Plan and RM&E plans should have been developed in parallel.

Response: Upon finalizing the Recovery Plan NMFS will begin development of the Implementation Plan. The Implementation Plan will include RME, as well as adaptive management sections.

2.17.5 RM&E and Adaptive Management Comment 5

Comment: One commenter stated that sockeye distribution, habitat quality, predator abundance and impact need to be studied more and that a detailed research plan is needed. The commenter suggested that with so many uncertainties, a good adaptive management approach is needed and questioned who will develop this plan.

Response: Many of the above the research and monitoring topics described by the commenter are currently included in Table 8.1. Upon finalizing the Recovery Plan NMFS will begin development of the Implementation Plan. The Implementation Plan will include RME, as well as adaptive management sections.

2.17.6 RM&E and Adaptive Management Comment 6

Comment: One commenter stated that lake limnological data collection should be a routine part of the research, monitoring, and evaluation plan.

Response: RME #8 detailed limnological monitoring tasks. A clarifying phrase has been added so that RME #8 now reads: "Routinely collect standard limnological data. Include limnological monitoring focused on temperature, water quality, photosynthetic rates, and zooplankton communities and sockeye salmon."

2.17.7 RM&E and Adaptive Management Comment 7

Comment: Juvenile sockeye fry are easy to enumerate during their lake residence with hydroacoustics. This would be quite useful when combined with smolt trapping.

Response: This suggestion has been added to the research and monitoring section of the plan (8.2).

Recommended change to Plan: Added collection of lake hydroacoustic data to help enumerate juvenile sockeye during their lake residence to the RM&E table, as RME#28.

2.17.8 RM&E and Adaptive Management Comment 8

Comment: One commenter expressed frustration that although all recovery/monitoring plans should require that all raw data be maintained in a database complete with necessary metadata, this is rarely the case.

Response: In this case, nearly all of the raw data collected for Lake Ozette sockeye still exists as "raw data." RME item # 25 states, "Develop Internet-based database containing all datasets specific to Ozette sockeye and sockeye recovery efforts (e.g., streamflow, sockeye counts, water temperature)."

2.18 Hatchery Actions

2.18.1 Hatchery Actions Comment 1

Comment: One commenter stated that hatchery supplementation should not be emphasized over the most important spawning habitat restoration and enhancement actions, that these latter actions need to occur concurrently, and the actions should be greatly increased.

Response: The ongoing hatchery supplementation program is not emphasized in the proposed Recovery Plan over other actions important to the viability of the sockeye population. The hatchery supplementation program was authorized by NMFS under the ESA in 2003 because the agency determined that the program was appropriately limited in scope and scale, adequately minimizing the risks of adverse hatchery impacts on

natural-origin sockeye salmon produced in the watershed, and promoting species conservation. The ESA-approved hatchery program was developed within the context of current biological and physical processes in the watershed. As described in the NMFS Environmental Assessment prepared to meet NEPA requirements for its ESA determination for the hatchery resource management plan, recovery of a self-sustaining, natural-origin sockeye population is dependent upon their continued productivity in the natural environment. To achieve recovery, meaningful, commensurate improvements in the condition of habitat are needed to sustain sockeye salmon in the Lake Ozette Lake Basin.

The understanding that hatchery supplementation alone will not lead to recovery of the ESU is carried forth in the proposed Recovery Plan's integrated approach. Throughout the plan, the importance of an integrated strategy that describes the types of habitat, harvest, and hatcheries measures that will lead to recovery is emphasized. The plan describes an integrated set of specific habitat, harvest, and hatchery actions that are hypothesized to result in achieving the sockeye salmon population objectives defined in the plan. Also proposed is an integrated adaptive management approach that includes monitoring, evaluation, and research programs implemented to assess the potential impacts of hatchery, habitat, and harvest management actions, and to determine whether actions implemented are appropriate in scale. NMFS concurs with the approach described in Section 2.6.2 of the proposed Recovery Plan pertaining to the role of hatchery supplementation and other proposed recovery actions:

"The HGMP clearly states that the HGMP alone will not result in recovery of Lake Ozette sockeye, and that a comprehensive approach to habitat protection, habitat assessment, and habitat protection and restoration is needed so that hatchery and habitat components can work in concert with one another to promote species recovery."

2.18.2 Hatchery Actions Comment 2

Comment: One commenter believes that continuation of the current tributary-focused hatchery supplementation approach as described in the proposed Recovery Plan will lead to extinction of the beach spawning component that is the core population in the ESU and the main focus of the ESA listing. The commenter indicates that the beach spawning population is currently at high risk of extirpation and will not be able to sustain itself or meet NMFS viability targets without hatchery intervention. In making these statements, the commenter assumes that the beach spawning aggregations are at high extinction risk and that the plan will not substantively address habitat limiting factors for the beach aggregations. Two commenters believe that supplementation of the beaches should be supported in the plan. One commenter argued that beach supplementation should begin now, because the beach aggregations have already been shown to be not self-sustaining. The commenter also states that the duration of the current tributary supplementation program should not be limited to 12 years, as specified in NMFS's ESA approval for the hatchery program, and that it should be allowed to continue longer as a means to prevent extirpation of the ESU.

Response: The short-term hatchery supplementation approach described in the plan is consistent with the hatchery actions specified in the Makah Tribe's Lake Ozette Sockeye Salmon Hatchery and Genetic Management Plan (HGMP) (MFM 2000), and in the NMFS 2003 ESA 4 (d) Limit 6 approval of the hatchery plan (NMFS 2003). The hatchery sockeye salmon program authorized by NMFS confines hatchery supplementation to the two north-lake tributaries. The program is designed to isolate tributary artificial propagation efforts and effects from the beach spawning sockeye salmon aggregations that are considered the core aggregations for ESU recovery. This tributary-only approach allows for the collection of improved information regarding the viability status of the beach spawning population, with the expectation that other on-going and new habitat-related measures, including improved forest practice actions consistent with the approved forest HCPs, will improve the status of the naturally spawning aggregation and the condition of the beach habitat sustaining the aggregation. As specified in Section 7.3.1.5 of the proposed Recovery Plan, in the event that the beach spawning aggregations are identified through the collection of improved viability status data as declining, or if it appears that habitat-focused recovery actions are not leading to their recovery, long term enhancement measures, including beach spawning population supplementation (Section 7.3.2.1.5) and mechanical improvement of spawning beaches (Section 7.3.2.1.3), are described as potential recovery actions. Although the plan identifies supplementation and mechanical improvement as long-term actions (post 12 years), the parties involved in assembling the implementation plan for this Recovery Plan could accelerate implementation of the actions if new data indicates that the status of the beach spawning population warrants intervention sooner.

Regarding the duration of the tributary supplementation effort, the proposed Recovery Plan carries forth allowances provided in the NMFS 2003 ESA determination for specific components of the program to continue beyond 12 years, if the program is meeting performance standards and is expected to achieve, but has not yet fully accomplished, program goals (NMFS 2003). NMFS expects that discussions regarding the continuation of the tributary hatchery program beyond 12 years (as described in the long term enhancement section of proposed Recovery Plan Section 7.3.2.1) will be initiated during the implementation plan development phase of the recovery effort.

2.18.3 Hatchery Actions Comment 3

Comment: One commenter proposed that the NMFS conclusions regarding potential contributions of the sockeye salmon supplementation program were in error, and that, contrary to the NMFS findings, the program also benefits ESU diversity and beach spawning aggregation viability.

Response: As summarized in Section 7.3.1 of the proposed Recovery Plan, in its ESA 4(d) Rule determination for the hatchery program, NMFS concluded that ESU diversity had benefited from hatchery program creation of genetic reserves through establishment of tributary spawning aggregations originally derived from the beach-spawning population. NMFS also concluded that the program likely benefits ESU abundance and spatial structure. Regarding specific hatchery program effects on viability parameters for

the beach spawning aggregation, NMFS concluded that program contribution to the abundance of natural-origin fish produced in beach-spawning areas was unlikely, and it was also unlikely to benefit or affect natural beach-spawning sockeye salmon productivity or spatial structure. NMFS also concluded that genetic diversity of the beach spawning aggregation was not being affected by the hatchery actions, as the program was designed to safeguard beach spawners from hatchery effects coincident with application of appropriate, ESA-approved hatchery protocols. NMFS concurs with the commenter that improved information regarding the status of the beach spawning sockeye aggregation collected as a result of the implementation of research, monitoring and evaluation actions associated with the approved hatchery program has helped guide implementation of other actions that benefit beach spawning aggregation viability.

2.18.4 Hatchery Actions Comment 4

Comment: One commenter stated that the on-going sockeye hatchery supplementation program has greatly increased all aspects of ESU viability, and it has had no negative impact on the ESU to the point where the program would appreciably reduce the likelihood of its survival and recovery.

Response: NMFS determinations regarding the effects of the current hatchery supplementation on ESU viability are summarized in Section 7.3.1 of the proposed Recovery Plan. As noted by the commenter, NMFS determined through its ESA evaluation and determination process completed in 2003 that the current hatchery program, continuing through the present day, was not likely to jeopardize the continued existence of Ozette Lake sockeye salmon ESU.

2.18.5 Hatchery Actions Comment 5

Comment: One commenter commented that the implementation of the Makah Tribe's sockeye resource management plan had led to dramatic improvements in the total abundance of sockeye salmon returning to the watershed and in the accuracy of stock status estimates through implementation of improved monitoring methodologies.

Response: NMFS concurs with the commenter that the hatchery supplementation program and associated research, monitoring and evaluation programs have benefited the abundance of sockeye returning to the ESU and scientific understanding regarding the status of the affected sockeye salmon population. The supplementation and research, monitoring and evaluation components of the resource management plan have been carried forth as short-term actions in the proposed Recovery Plan.

2.18.6 Hatchery Actions Comment 6

Comment: One commenter was concerned that there was no mention made in the proposed Recovery Plan of the lack of evidence regarding straying of supplementation program origin sockeye into beach spawning areas, hybridization between sockeye and kokanee, or any other negative effects previously raised as potential risks associated with

the hatchery supplementation program. The commenter believes that NMFS and Olympic National Park should respond to the apparent lack of adverse effects from the hatchery program by acknowledging the "no adverse effect" outcomes and allowing for less stringent management of hatchery-related actions directed at recovery.

Response: NMFS concurs that the hatchery supplementation effort as approved by NMFS under the ESA has had no apparent adverse effect on the sockeye salmon ESU. This evidence (documented in the LFA providing scientific support for recovery plan actions) is used as rationale for carrying forth the supplementation program intact as the short-term supplementation approach in the proposed Recovery Plan. For example, Section 5.4.7 of the LFA includes the most recent information regarding the lack of observed straying of hatchery sockeye to beach spawning areas as support for Recovery Plan assumptions that genetic diversity risk posed by the hatchery program are low, and that the supplementation program should continue to be implemented.. As noted in previous responses to comments, and as documented throughout Lake Ozette resource management plan, within NMFS ESA and NEPA review documents, and in the NMFS-approved the hatchery plan and its associated research, monitoring and evaluation components, the expectation is that the hatchery-related actions implemented by the Makah Tribe would do no harm and be beneficial to the listed ESU. The past and on-going work conducted by the Makah Tribe in implementing the approved resource management plan to help recover the sockeye population is acknowledged as valuable.

The proposed Recovery Plan approach is to implement effective short-term actions to assist in sockeye recovery, and to collect new information that can be used to adapt plan actions accordingly. As specified in Section 7.3.2 of the proposed Recovery Plan, and in the NMFS 2003 ESA authorization for the Makah Tribe's resource management plan, new information regarding the status of the sockeye salmon population and its component aggregations, and data on hatchery program effects, will be considered to determine whether certain long-term supplementation and stock enhancement actions will be implemented. NMFS expects that implementation of the specified long-term actions will be accelerated in the event that beach spawner abundances are found to have declined since the time of listing. Potential responsive long term actions are expansions in the use of hatchery supplementation to include existing spawning beaches and presently unused beaches with good habitat, and continuation of the tributary hatchery programs beyond currently approved program durations.

2.18.7 Hatchery Actions Comment 7

Comment: One commenter recommended that more options for hatchery fry and fingerling release locations within the Umbrella Creek and Big River watersheds (beyond those specified in the approved hatchery resource plan) should be considered as a means to improve sockeye survival and adult return and homing to the tributary spawning areas.

Response: NMFS has worked with the Makah Tribe since the sockeye hatchery program was authorized under the ESA to allow for the adaptive management of the program as new information becomes available. Tribal staff have contacted NMFS during the

rearing and release seasons to discuss implementation of various hatchery management options within the Umbrella Creek and Big River watersheds that will improve prospects for the program to meet its objectives, while staying within the bounds of the ESA approval for the program. Adaptive management-based actions such as varying Umbrella Creek and Big River sockeye fry and fingerling release locations and timings, life stage at release strategies, and fish marking approaches within the tributaries to improve the performance of the program consistent with its stated objectives do not rise to a level that represents a substantial change from the existing ESA approved hatchery plan.

2.18.8 Hatchery Actions Comment 8

Comment: One commenter proposes short term implementation of mechanical cleaning coupled with an evaluation of beach cleaning effects for existing sockeye spawning beaches. The commenter acknowledges that the proposed Recovery Plan already includes a description of this action and the process involved in the "long term" enhancement section, but requests more specificity in the plan regarding the action to ensure that cleaning is effective. The commenter presents results of beach habitat evaluations as support for the need to initiate mechanical cleaning of the beaches now, believing the Olympic National Park is also supportive of this action.

Response: NMFS concurs that mechanical cleaning of spawning beaches known to be used by sockeye is a potentially viable means to improve spawning and incubation conditions for the beach spawning aggregation. Mechanical beach cleaning is included in the proposed Recovery Plan as a potential recovery action that could be implemented in the long term (Section 7.3.2.1.3). As specified in this section of the plan, long term actions such as mechanical cleaning of beaches will be implemented if there are no improvements in the viability status of the beach spawning sockeye aggregations identified through stock status monitoring. NMFS expects that actions such as mechanical cleaning of beach spawning gravel could be implemented on an accelerated schedule (i.e., sooner than 12 years) if stock status assessment indicates that the beach spawning population has consistently declined in abundance and distribution since the time of ESA listing.

Finalization of the Recovery Plan will be followed by the assembly of an implementation plan, prioritizing recovery actions for funding and implementation. The status of the beach spawning sockeye aggregation will be a key consideration when the implementation plan is assembled. If considered to be of critical importance to the recovery of beach spawners, mechanical cleaning of the known beach spawning areas, and specific plans for implementing and monitoring the action (as suggested by the commenter), should be developed and prioritized for implementation sooner than the 12 year horizon specified for long term projects. Acceleration of the implementation of this action, if recently collected data indicates that the beach spawning aggregation is imperiled, is consistent with the adaptive management intent of the Recovery Plan.

2.18.9 Hatchery Actions Comment 9

Comment: One commenter makes numerous suggestions directed at modification and improvement of beach egg survival studies and long term plans to seed unused spawning beaches with sockeye eggs as an enhancement option.

Response: The submitted suggestions for modifying and improving beach egg survival studies and the approach for seeding unused beaches with sockeye eggs as a potential long term enhancement technique are acknowledged. The beach egg survival studies identified by the commenter are carried forth in the proposed Recovery Plan from a research action specified in the Makah Tribe's hatchery resource management plan approved under the ESA by NMFS in 2003. Because the commenter's suggestions for improvement are so specific in nature, they are best applied to the subject study, and to any egg seeding initiative proposed for the spawning beaches, when the actions are proposed for implementation during the plan implementation phase, rather than including the suggestions in the proposed Recovery Plan.

2.18.10 Hatchery Actions Comment 10

Comment: One commenter believes that enough actions are already being implemented to census beach spawning sockeye aggregation abundance, and enough is already known about where sockeye spawn in Lake Ozette. The commenter indicates that collection of more and improved information regarding sockeye abundance and distribution in the lake detracts from the immediate need to implement limiting factors research concurrent with sockeye supplementation actions.

Response: The proposed proposed Recovery Plan approach to recover the beach spawning sockeye aggregations is based on data and hypotheses regarding limiting factors and threats presented in the LFA. As described in the LFA (Section 3.4.3.1.1), because of the difficulty in conducting accurate surveys of spawner abundance at the two known beach spawning locations, there has been a general randomness in annual census data collected for the beach spawning sockeye component. The lack of accurate year-to-year data has necessitated use of survey effort and minimum beach spawning sockeye abundance estimates for years when data are available to estimate beach spawner abundance trends. For the years for which data are available, survey effort ranged from "low" (defined as three or fewer surveys for the season) to "high" (more than six surveys). Also noted in the LFA is that sockeye observation data for the spawning beaches were collected using several different techniques, some of which did not specifically attempt to count the number of sockeye on each beach. Data collected in some years were pooled to estimate the number of fish captured or observed on both beaches, while in other years estimates were based only on observations and collections from one beach or one portion of a beach. The LFA concludes that the applied techniques and available data make it impossible to fully reconstruct spawner abundance estimates for the entire period of record for each beach. The LFA also discusses beach spawning aggregation distribution in Lake Ozette (Section 3.1.4). Although two major spawning beach locations have been verified (Olsen's Beach and Allen's Bay), there is

considerable uncertainty whether beach spawning in Lake Ozette is confined to these two locations only.

NMFS acknowledges the Makah Tribe's work in collecting data needed to allow for the estimation of the number of sockeye using the known spawning beaches each year. But it is clear the conditions complicating this census work (e.g., adverse weather, poor water visibility, varying depths of spawning, and logistical constraints due to the remoteness of the sites) have confounded the ability to derive accurate year-to-year estimates of beach spawner abundances. For these reasons, highlighted in the proposed Recovery Plan is the need to collect improved data regarding the abundance of the beach spawning sockeye aggregations and the distribution of beach spawning aggregations within Lake Ozette. NMFS believes that the plan proposal to better identify beach spawner stock status through the collection of improved census data is an extremely important component of the proposed plan. Improved information regarding beach spawner aggregation abundance and distribution is required to help identify population trends and to evaluate the status of the ESU relative to population viability targets derived by the Puget Sound RITT. This improved status information is needed before actions such as beach spawner supplementation can be considered, and before the recovery status of the ESU can be evaluated. The proposed Recovery Plan therefore includes as actions collection of improved data regarding beach spawning aggregation abundances at known and newly discovered sites and identification of precise beach locations where sockeye salmon spawn in Lake Ozette (Section 7.3.1.5). NMFS concurs with the commenter that these important monitoring and evaluation actions should not be the responsibility of the Makah Tribe alone, and that assistance from other resource management agencies is necessary to collect census data and improve upon stock assessment methods that are applied.

2.18.11 Hatchery Actions Comment 11

Comment: One commenter states that Section 7.3.2.1.3 should be moved to another section of the proposed Recovery Plan, as it is not a long term action, is predicated on other actions, and is not part of the hatchery program.

Response: The subject section addresses mechanical improvement of beach spawning areas as a potential long term enhancement, not hatchery, action (see title of Section 7.3.2.1). With other potential enhancement actions, beach spawning area improvement is appropriately included in this section as an action that may be implemented in the longer term. Consistent with the approach applied throughout the proposed Recovery Plan, these actions may be implemented based on best science-based determinations whether the status of the sockeye aggregations and their beach habitat warrant implementation. As stated previously, NMFS expects that considerations regarding when this particular recovery action will be implemented will occur during the implementation phase of the recovery planning effort for the sockeye salmon ESU.

2.18.12 Hatchery Actions Comment 12

Comment: One commenter stated that the proposed Recovery Plan should clarify that the Lake Ozette Sockeye Salmon Hatchery and Genetic Management Plan (HGMP) is a State/Tribal document, and that Olympic National Park approval is required for enhancement-related activities proposed within the park, including lakeshore spawning populations, broodstock collection, research, and artificial enhancement of lakeshore spawning habitat.

Response: Section 2.6.2 of the proposed Recovery Plan clearly identifies the HGMP as a joint Makah Tribe and WDFW Resource Management Plan. In subsequent sections of the proposed Recovery Plan, the Makah Tribe is identified as the primary implementing agency for the HGMP. There is no mention in the proposed Recovery Plan of any involvement by Olympic National Park as a cooperator for the HGMP. NMFS concurs that it is appropriate to highlight that approval by Olympic National Park is required for enhancement actions proposed for implementation within the park boundary. In response, a sentence acknowledging the need for Olympic National Park approval for potential enhancement-related actions will be included the proposed Recovery Plan Section addressing long term actions.

Recommended change to Plan: There is no need for further clarification in the plan regarding the action agencies involved in the development and implementation of the Lake Ozette Sockeye Salmon HGMP. In response to the second part of the comment, the following sentence will be included at the end of the second full paragraph in proposed Recovery Plan Section 7.3.2 “Long Term Actions”:

“Implementation of these and other enhancement-related actions within the boundaries of Olympic National Park will require review and approval of the action by Olympic National Park, and by NMFS if the action has the potential to affect listed sockeye salmon or the species’ habitat.”

2.18.13 Hatchery Actions Comment 13

Comment: One commenter stated that the Lake Ozette sockeye salmon HGMP does not stipulate reintroduction in tributaries, because there is still a question as to the historical presence of sockeye in the tributaries. Therefore the commenter questions the use of the word “reintroduce” in Section 2.92 of the proposed Recovery Plan regarding spatial structure and diversity. The commenter also indicates that Section 2.9.2 does not address the importance placed by the HGMP on separating the tributary program from influencing the natural-origin beach-spawners, and language stressing this isolated intent is needed. A second commenter wondered why there was a desire to separate tributary production from the beach spawning fish, and not use the tributary fish to augment the beach spawning group.

Response: The HGMP approved by NMFS under the ESA in 2003 includes as one of its five recovery goals “increas(ing) distribution and diversity of Lake Ozette sockeye salmon in their present and historic localities along the lakeshore of Lake Ozette and its

tributaries using supplementation, reintroduction, and natural colonization (page 212 of the Makah HGMP). The proposed Recovery Plan text addressing reintroduction program contributions to population viability parameters that is questioned by the commenter is taken directly from the program strategy section of the Makah HGMP (first numbered strategy on page 12 of the HGMP):

"1) Reintroduction and supplementation efforts directed in Big River and Umbrella Creek using tributary returns for brood stock, with intensive monitoring of the experimental introductions to clearly understand their outcome. The intent is that reintroduction into these tributaries will increase viability (abundance, productivity, spatial structure, and diversity) of Lake Ozette sockeye, which should be of long term benefit to the success of the population."

In reviewing the historical status of tributary spawning sockeye salmon in the watershed in its ESA 4(d) Rule limit 6 determination document, NMFS (2003) found that "spawning sockeye salmon have been absent from Ozette Lake tributaries in recent decades" and that "available information on historic spawner abundance, timing, and distribution in Ozette Lake tributaries prior to that time is unclear, anecdotal, and often contradictory." NMFS furthermore concluded that "the question of whether or not self-sustaining sockeye salmon populations existed in the tributaries remains unresolved, and is likely unanswerable due to the lack of conclusive evidence regarding historical sockeye spawning distribution."

In its 2004 review of the effects of the tributary hatchery program on Ozette Lake sockeye salmon ESU viability parameters, NMFS concluded that the program is increasing the abundance of naturally spawning sockeye in the ESU; however, tributary spawners from the program are isolated (by design) from the beach spawning aggregations, and are therefore unlikely to benefit either the abundance or the productivity of the natural-origin beach-spawners. NMFS also concluded that the hatchery program is likely to increase the spatial structure of the ESU as a whole, although it is not likely to increase the spatial structure of the beach-spawning aggregations. The program was also expected to affect the ESU's diversity by extending the range of spatial distribution, which may, in turn, contribute to life history diversity and increase the resiliency of the population (NMFS 2004).

Regarding the isolation intent of the HGMP, this approach for separating the tributary program from the beach spawning production areas is adequately covered and explained in the proposed Recovery Plan. For example, Section 7.3.2.1.5 carries forth language from NMFS's ESA determination for the HGMP regarding the topic:

"NMFS approved the HGMP under the ESA based on a hatchery approach that isolated the tributary supplementation program from the core beach spawning aggregations (NMFS 2003). A precautionary approach to supplementation that reduced the likelihood for unintended adverse genetic and ecological effects on the beach spawning aggregations was proposed, improved, based on agency review input, and implemented. The approved hatchery program relies on broodstock removed from Ozette Lake tributary

sockeye salmon returns. The listed beach spawning population is not used as broodstock. Sufficient sockeye adults, both first-generation hatchery sockeye and natural-origin sockeye, return to Umbrella Creek to sustain the tributary hatchery programs. Adult sockeye salmon returns to the tributaries result directly from hatchery juvenile sockeye salmon releases, or from natural spawning by hatchery-origin adult sockeye salmon. The core, listed beach-spawning population is proposed to be collected in low numbers, for research purposes only."

2.18.14 Hatchery Actions Comment 14

Comment: One commenter asked whether there would be a public review process regarding any future expansion, introduction, or "reintroduction" of sockeye salmon into other Lake Ozette tributaries or other areas prior to a decision to do so.

Response: Actions proposed for implementation that are consistent with the Recovery Plan when finalized will still be required to receive approval from NMFS, if the action is likely to affect the listed sockeye ESU or the listed species' habitat. The only potential actions included in the plan pertaining to the commenter's category of concern are the longer term beach spawning ground sockeye salmon supplementation and introduction actions described in Section 7.3.2.1 of the proposed plan. These actions, when proposed for implementation, will require ESA impact review and approval. The determination process involved with authorizing such actions under the ESA includes a public review and comment period. As stated previously, actions proposed within the boundaries of Olympic National Park will also require approval from the park.

2.18.15 Hatchery Actions Comment 15

Comment: One commenter stated that the discussion of enhancement actions in Section 7.3.2.1.1 should reference the tribal and State co-managers' Future Brood Document process, which facilitates implementation of hatchery program changes.

Response: NMFS acknowledges all salmon resource management requirements specified in *U.S.* v. *Washington*, including the need for annual co-manager agreement on hatchery production through the Future Brood Document process. The proposed Recovery Plan is written to comply with the ESA's requirement to identify how a listed population can be recovered to the point where it no longer required protection under the Act. However, it is not the intent of the plan to usurp or take precedence over other laws.

Recommended change to Plan: In response to the comment, the first sentence in the first paragraph of proposed Recovery Plan Section 7.3.2.1.1 is modified as follows (new language bolded):

"After 12 years of operation of the currently approved tributary hatchery programs (post 2014), and de**pending on co-manager agreement through the U.S. v. Washington Future Brood Document process, and the results of evaluations of** the status of tributary sockeye salmon escapement, tributary population sustainability, and habitat in

the tributaries, a decision would be made to either terminate or continue the supplementation programs on Umbrella Creek and Big River."

2.19 Federal Register

2.19.1 Federal Register Comment 1

Comment: One commenter challenged NMFS' contention that the Steering Committee played a role in developing the Plan and questioned why no local agency or recovery board was formed to take the lead in producing a recovery plan as has been done in other parts of Washington.

Response: The ESA requires that NMFS adopt a recovery plan for all listed species. NMFS' goal is to work with the local citizens, agencies, co-managers and all stakeholders so that there is local support and interest in recovery there species. For Lake Ozette sockeye recovery planning, NMFS worked with the already established Lake Ozette Steering Committee and expanded the Committee to ensure broad representation. Because there was no state-sanctioned recovery board formed for this effort, NMFS was the lead in producing the recovery plan and sought input and review from the Steering Committee throughout the recovery planning process. NMFS has been fully committed to this public process and is thankful for the dedication of all participants in the recovery planning process.

2.19.2 Federal Register Comment 2

Comment: One commenter criticized the content of the Federal Register notice that announced the availability of the proposed recovery plan for public review and comment as being confusing and not clearly identifying the proposed documents for which public comment was being sought.

Response: NMFS Northwest Regional Office worked with NMFS' Headquarters to review, approve, and finalize all materials for public noticing through the Federal Register. The same process was used for the Lake Ozette Sockeye Recovery Plan as is used nationally for all NMFS recovery plans and for all previously noticed recovery plans in the Pacific Northwest. All materials for public review were posted on NMFS' Northwest Region web page when the Federal Register notice was published, as well as sent to individuals upon request. NMFS believes the Federal Register notice and web posted recovery materials were accessible and understandable to the public.

2.19.3 Federal Register Comment 3

Comment: One commenter questioned the Plan's proposed language that states that NMFS will use information from the recovery plan in its ESA section 7 and section 10 decisions.

Response: When a species is listed on the ESA, this requires all Federal agencies to consult with NMFS under section 7 of the ESA to ensure Federal actions do not jeopardize the species or impair its critical habitat. ESA section 10 also applies to listed species and enables non-Federal entities to receive incidental take permits and develop habitat conservation plans. All Federal agencies have had this requirement since Lake Ozette sockeye salmon were listed on the ESA in 1999. Section 7 and section 10 permitting require NMFS to use best available science. Information in the Plan and Limiting Factors Analysis will be used by NMFS staff when preparing and issuing section 7 consultations or section 10 permits.

2.19.4 Federal Register Comment 4

Comment: One commenter questioned how the Plan can be considered voluntary when information in it can be used for ESA regulatory decisions.

Response: ESA recovery plans are non-regulatory documents and are voluntary roadmaps that identify actions to recover ESA listed species. The Plan itself is non-regulatory, yet the Plan contains the most up-to-date scientific information on the species. This information can be used by anyone, including NMFS, as required, in its ESA analyses and decisions.

2.19.5 Federal Register Comment 5

Comment: One commenter challenged the Plan by stating that the priorities and geographic context for recovering sockeye were decided by NMFS and that the local community will not accept it.

Response: NMFS has worked with the Ozette Steering Committee to develop the sockeye recovery strategy, identify recovery actions, and develop research and monitoring needs. NMFS understands that the Plan will not be embraced or accepted by all community members. It is NMFS' intent, however, that those who want to recover Lake Ozette sockeye salmon will have the best plan and recovery actions to implement in order to recover this species.

2.19.6 Federal Register Comment 6

Comment: One commenter questioned how NMFS can use the proposed population description in the recovery plan when the population description details have not been finalized.

Response: One of the fundamental building blocks of this recovery plan is the description of the Lake Ozette sockeye population. Descriptions of the population have been used in NMFS' biological review teams that recommended the listing determinations for this species, as well as past critical habitat determinations and status reviews. The Puget Sound Technical Recovery Team (TRT) population identification paper (Currens et al. 2006) is a refinement of this past information, together with new

analyses and information. The TRT work is the basis for developing the recovery plan. The public may comment on the TRT products as well as the proposed Plan. All documents related to this recovery plan will be finalized before the final Lake Ozette Sockeye Salmon Recovery Plan is adopted.

2.19.7 Federal Register Comment 7

Comment: One commenter stated that the recovery vision statement and broad sense recovery goals were never voted on by the Steering Committee and stated that as the goals currently appear it will mean the local community will have to sacrifice and bear disproportionate burden to recover this species.

Response: NMFS worked with the Steering Committee to develop the recovery vision and broad sense goals. The Steering Committee advised NMFS and helped revise this statement, yet it is correct that no vote was taken to adopt the vision or broad sense goals. The goals were generally supported and it was agreed to move forward and develop the Plan based on this vision and goals.

2.19.8 Federal Register Comment 8

Comment: One commenter suggested that NMFS, not the Steering Committee, decided to use the TRT's viability criteria as the biological criteria for the Plan.

Response: NMFS worked with the Steering Committee and proposed to use the TRT's proposed biological criteria for the proposed Plan, similar to what has been done in other recovery plans in the Northwest Region. This decision was not voted on by the Committee, yet there was general agreement to use the TRT's criteria. Members of NMFS' Puget Sound TRT attended several Steering Committee meetings to explain the draft criteria and answer questions.

2.19.9 Federal Register Comment 9

Comment: One commenter suggested that the sockeye viability criteria for diversity should specify that the distinctness should be maintained between the tributary spawners and kokanee, not tributary and beach spawners.

Response: The TRT specifically stated that the diversity criteria should maintain the distinctness between anadromous sockeye, including both beach and tributary spawners, and kokanee. Maintaining and improving the viability of the beach spawners is crucial to overall viability and recovery of the ESU. Having viable beach spawners will ensure the spatial structure of the ESU is maintained, as well as diversity and abundance of the ESU.

2.20 Plan Review/Peer Review

2.20.1 Plan Review Comment 1

Comment: One commenter questioned the peer review process and asked for information regarding how the peer review process was carried out and asked if there was any conflict of interest with any of the peer review members because they were original authors of the proposed products that were being reviewed.

Response: NMFS' Northwest Fisheries Science Center Puget Sound Recovery Implementation Technical Team (RITT) managed the peer review process for this Plan. The RITT worked with NMFS to develop criteria for how the peer review members would be selected and sought suggested names of peer reviewers from the Steering Committee. Potential peer reviewers were contacted and finally five independent peer reviewers agreed to review the proposed Plan.

A report from the peer review process was provided to the NMFS recovery staff and this report was shared with the Steering Committee and will be available for public review when the Plan is adopted. None of the five peer reviewers were associated or participated in development of the proposed Plan or draft Limiting Factors Analysis. Originally two of the authors of the draft Limiting Factors Analysis were suggested as potential peer reviewers, but based on their association with the draft recovery products, their names were withdrawn from consideration. The peer review report is available to the public on NMFS' Ozette sockeye recovery web page.

2.20.2 Plan Review Comment 2

Comment: One commenter also questioned the peer review process and urged NMFS to use the peer review process to review the technical information submitted on behalf of the timber industry regarding the draft Limiting Factors Analysis.

Response: The peer review process was coordinated by NMFS' Northwest Fisheries Science Center. Five independent peer reviewers submitted their comments and recommendations for the proposed Plan and draft Limiting Factors Analysis. The peer reviewers were independent and not involved in producing any of the products or documents related to the proposed Plan or Limiting Factors Analysis. In addition to the peer review comments, NMFS staff also reviewed the technical documents provided by the timber industry and made changes to the plan in response. See Comment 1.16.13 for more details on the review and the changes.

3 COMMENTS ON DRAFT LIMITING FACTORS ANALYSIS

3.1 General Comments

3.1.1 LFA General Comment 1

Comment: One commenter stated that the LFA title page does not represent the interest of the citizens of the State of Washington or those citizens under the exclusive jurisdiction of the National Park Service. The commenter further stated the LFA should specify that the document was prepared for the National Park Service and the State of Washington and the title page should reflect contributions by the National Park Service and the State of Washington. Failure to do so provides no accountability or commitment on the part of these two government representatives. This belief needs to be reflected in the second page, the disclaimer page of the LFA .

Response: The LFA was prepared for the Makah Indian Tribe and NOAA Fisheries in cooperation with the Lake Ozette Sockeye Steering Committee. The document was not directly prepared for the National Park Service or the State of Washington.

3.1.2 LFA General Comment 2

Comment: One commenter suggested that the following statement on page vi of the LFA Executive Summary is not substantiated because it implies that sockeye salmon historically spawned in Lake Ozette tributaries: "Based partially on recommendations of Dlugokenski et al. (1981), the Umbrella Creek Hatchery was established in 1983 as a tool to reintroduce and rebuild sockeye populations in the Ozette tributaries." The commenter states there is not consensus regarding whether sockeye salmon historically used tributaries for spawning

Response: The LFA describes the historical use of tributaries by sockeye salmon in Sections 3.3 and 3.4.3.1.2. However, in order to eliminate any potential confusion, this sentence was changed to read, ". . . as a tool to reintroduce and rebuild the sockeye population in the Lake Ozette watershed."

3.1.3 LFA General Comment 3

Comment: One commenter cited text on page viii that describes the minimum number of sockeye spawning on Lake Ozette beaches for one brood year and shows increasing numbers of sockeye through time. The commenter asked why this was not further investigated to help determine why there was an increase.

Response: The LFA describes and evaluates limiting factors affecting the survival and productivity of Lake Ozette sockeye salmon. The LFA summarizes past information relating to limiting factors, presents new information and data, and analyzes factors

limiting sockeye productivity and recovery. The trend commented on was detected during the synthesis of the data and is note worthy. However, speculating on a cause-and-effect relationship for a single brood year of sockeye salmon was beyond the scope of the LFA. The LFA concluded that these data strongly suggest that this portion of the population has increased significantly from the low abundance observed in 1989.

3.1.4 LFA General Comment 4

Comment: One commenter asked why the sockeye salmon run-size data for Umbrella Creek only includes data up to 2004, stating that data is available through at least 2006.

Response: Only data and estimates through 2004 were available at the time the LFA was written.

3.1.5 LFA General Comment 5

Comment: One commenter stated that the LFA had several references throughout the document to creek entering the lake just south of Crooked Creek. The LFA refers to this stream as Boot Creek. The commenter stated that unless the name can be shown through substantiated local reference or some other form of substantiated reference, it appears that the LFA is attempting to name un-named streams. The commenter suggests that the LFA should stipulate in the plan why there is an attempt to name streams. The commenter further states the LFA should refer to the WRIA stream ID number. The commenter also questioned where the stream course information came from. The commenter asked whether the map is reflective of the current coho distribution and whether it includes any historical distribution, as well as how the coho distribution map correlates with the WDFW coho distribution map.

Response: Boot Creek is a local name that is included in the Makah Tribe's GIS fish distribution layer. Loss of a computer hard drive and some of the layers used to generate maps occurred during the drafting of the LFA. This was discussed on at least four occasions during Lake Ozette Sockeye Steering Committee meetings. The authors of the LFA cannot change the maps without making all new maps at a cost of thousands of dollars. With respect to a local reference to the name Boot Creek, the reference is local biologists and scientists who call the stream Boot Creek. No one is attempting to officially name or rename streams within the watershed.

The base hydrography used in the map in question comes from DNR hydrography layer. This citation will be added to all figure captions where appropriate. With respect to the coho distribution, this is the current known and presumed distribution. This layer is more accurate and up-to-date than the WDFW distribution map. Also note that the authors of the LFA were the primary source of data/information used in the WDFW coho distribution map. The distribution map includes both adult and juvenile rearing

distribution. However, due to the scale of the map, many small juvenile habitats are not included.

3.1.6 LFA General Comment 6

Comment: One commenter stated that they disagree with the following statement on page ii of the LFA Executive Summary: "Largely as a result of the 1999 ESA listing, multi-agency efforts to coordinate research and recovery planning resumed, and the Lake Ozette Sockeye Steering Committee was reorganized and expanded to include NMFS, as well as local landowners and other interested parties. The Lake Ozette Steering Committee initiated the development of a Hatchery and Genetic Management Plan (HGMP)/Joint Resource Management Plan (JRMP) for Lake Ozette Sockeye Salmon (Makah Fisheries Management 2000)." The commenter stated there was no vote by the committee, and any discussion did not include the committee in its entirety. The same commenter also questioned the text on page vi, that states, "the Makah Tribe and WDFW worked with NMFS to assemble a Hatchery and Genetic Management Plan." The commenter questioned WDFW's participation in the development of the HGMP.

Response: The development of the Lake Ozette Sockeye Salmon HGMP was initiated by the Steering Committee; however, the HGMP was directly prepared by the Makah Indian Tribe for the Bureau of Indian Affairs as part of the ESA section 7 consultation. The HGMP is not a product of the Lake Ozette Sockeye Steering Committee; however, the Steering Committee did participate in the development of the HGMP. Upon completion of the HGMP the Makah Tribe, and WDFW as co-manager of the fisheries resource with the Tribe, provided a joint Resource Management Plan (RMP) for artificial propagation and associated research, monitoring, and evaluation actions that will affect Lake Ozette sockeye salmon. The joint RMP was prepared and submitted to NOAA Fisheries by the co-managers as a framework through which the tribal and state jurisdictions will jointly manage sockeye salmon artificial propagation, research, monitoring, and evaluation activities while meeting requirements specified under the ESA. On August 1, 2002, NMFS published notice in the Federal Register on its ESA 4(d) Rule evaluation and recommended determination of how the Ozette Lake sockeye salmon RMP addressed the criteria in § 223.203 (b)(5) of the ESA 4 (d) rule of the RMP (67 FR 49905).

3.2 Streamflow Comments

3.2.1 Streamflow Comment 1

Comment: One commenter asked why the figure on page 2-10 does not use data from the Big River stream gage to make the comparison.

Response: The Hoko River stream gage was used for the comparison because it is the nearest long-term gage to Umbrella Creek. Complete stream gage data for Umbrella Creek (or Big River) is not available for the entire period of 2001 through 2004.

3.3 Ozette River Habitat/LWD/Lake Level

3.3.1 Ozette River Habitat/LWD/Lake Level Comment 1

Comment: One commenter referenced the Ozette River Habitat section (page x) from the executive summary of the LFA and stated it does not mention or evaluate natural recruitment of LWD in the river. The commenter stated that the riparian area is predominately mature forest and wondered what is considered functional LWD. The commenter suggested that the backwater effect has dramatically increased, especially during high water events. The commenter stated that the plug at the outlet of the lake should have been investigated and included as a limiting factor.

Response: Riparian conditions along the Ozette River are described in Section 4.3.2 of the LFA. The modeling work conducted by Herrera suggests that some recovery of the backwater effect has occurred since LWD removal ceased. The "sediment plug" at the outlet of the lake was evaluated within the LFA and the work conducted by Herrera Environmental. Hydraulic modeling work indicates that currently the lake's hydraulic control during low lake level is associated with the sediment deposit located at the confluence with Coal Creek. The LFA describes in detail the hydraulic modeling work conducted by Herrera Environmental, which found that under current inflow hydrologic conditions, lake level during high lake level periods is and was controlled by LWD obstructions in the upper Ozette River.

3.3.2 Ozette River Habitat/LWD/Lake Level Comment 2

Comment: One commenter refers to text on page xi that describes a decrease in unvegetated shoreline and asks why the LFA does not consider that prior to human intervention that the lake levels may have been lower and thus the shoreline vegetation was not an issue.

Response: There is no evidence that lower lake levels existed prior to "human intervention" and therefore it is not included in the LFA.

3.3.3 Ozette River Habitat/LWD/Lake Level Comment 3

Comment: One commenter stated that the modeling work conducted by Herrera conflicts with the 1893 cadastral survey. The commenter states that James Swan said the river was blocked with logs and that there would have to have been a lot of river clearing between the 1860s and 1890s to achieve the conditions that are hypothesized to create the lake level disconnect.

Response: The comment is unclear on how the Herrera modeling work conflicts with the 1893 cadastral survey.

3.4 Sediment Issues

3.4.1 Sediment Comment 1

Comment: One commenter cites page 5-53 of the LFA and states that sediment delivery to Umbrella Creek has improved as a result of the cross drains put in by Quileute/Rayonier in 1999 and 2000. The commenter states that this section of the report does not reflect that project and it should.

Response: This section of the LFA is describing changes in sediment production and delivery over the last 50-100 years. The authors attempted to conduct an analysis of recent road work completed so it could be included in the LFA. After several years of failed attempts to get data on road work completed on commercial forest land, this effort was abandoned.

The LFA describes and evaluates limiting factors affecting the survival and productivity of Lake Ozette sockeye salmon. Current habitat conditions and limiting factors in the Ozette River, the lake, and tributaries are a function of the cumulative effects of all past activities. Where the LFA describes habitat impacts from forestry-related activities, this description refers to past activities and not to future activities conducted under the Washington State Forest Practices Habitat Conservation Plan (FPHCP). The effects of implementation of the FPHCP on sockeye habitat and population levels are assumed to be satisfactory and may be the subject of an intensive future monitoring program. It is the goal of the LFA to provide guidance as to where and how this monitoring could be most informative.

3.5 Predation

3.5.1 Predation Comment 1

Comment: One commenter asked why there was a reference to bull trout in the LFA. The commenter stated that this reference needs to be removed from the plan unless relevancy can be shown.

Response: Bull trout were mentioned in the LFA because bull trout are present in many nearby watersheds (e.g., Hoh and Elwha Rivers) and bull trout can be an aggressive salmonid predator. Understanding the current and historical assemblage of potential sockeye salmon predators is necessary in order to accurately reflect potential limiting factors affecting Lake Ozette sockeye salmon.

3.5.2 Predation Comment 2

Comment: One commenter suggests the LFA is inconsistent and cites page xvi, second paragraph under Estuary and Nearshore Environment as evidence as this paragraph points out that sea lions were responsible for 25% of the predation scars observed but elsewhere in the document sea lions are not included with seals and otters as major predators.

Another commenter stated that pages 5-2 and 5-3 show different authorship or perhaps different times by the same author. In some places Gearin's work just talks about seals and otters, and in others, we see some impact by sea lions (25%).

Response: Sea lions were responsible for the scarring that occurred in the estuary and nearshore, and possibly off-shore in the open ocean. Sea lions have not been documented in the Ozette River, Lake Ozette, or in the tributaries and therefore they are not discussed beyond the geographic locations in which they occur.

3.6 FISHERIES

3.6.1 Fisheries Comment 1

Comment: One commenter stated that the rationale for Hypothesis 8 states that there is no impact from individuals engaging in the sport fishery. The commenter then quotes from the rationale for hypothesis 9: "incidental hooking and catching of sockeye salmon occurs at an extremely 'low' level during sport fisheries targeting trout, bass, or other non-salmon species." The commenter questions obtaining this information from the fishermen themselves, and believes there should be a more independent source. Finally, the commenter asks what numbers are "low"—relative to what?

Response: Hypothesis 8 states, "Very low numbers (if any) of sockeye are caught in ONP's Lake Ozette catch and release fishery." The LFA does not state there is no impact; the impact is rated as negligible and the certainty is rated as moderate. The rationale is based on experience and knowledge of the Lake Ozette sport fisheries contributed by members of the Limiting Factors Work Group.

Hypothesis 9 states, "Incidental hooking and catching of sockeye salmon occurs at an extremely low level within the lake during sport fisheries targeting trout, bass, or other non-salmon species. Incidental hooking or catching of sockeye salmon has a negligible effect on the sockeye population." Here again, the level of impact is considered "negligible," not nonexistent; however, for clarification, the phrase will be modified to read, "at extremely low levels (if any)." It should also be noted that sport fisheries targeting bass and or other non-salmon species often occur in shallow bays and nearshore areas where adult sockeye presence is unlikely during summer months, further reducing the likelihood of incidental encounters.

3.6.2 Fisheries Comment 2

Comment: One commenter stated that the last time of non-tribal harvest of Lake Ozette sockeye salmon should be included on page xvii of the executive summary.

Response: The history of non-tribal fishing regulations is poorly documented within the Lake Ozette watershed. A review of WDFW fishing regulations for the Ozette watershed back to 1990 indicated that all tributaries have been closed to the retention of salmon since before 1990. A review of Washington freshwater salmon sport catches by stream

indicates that an average of 2 salmon were caught and retained per year in the Ozette River from 1964-1973. WDFW reports that 18 coho salmon were retained from the Ozette River in 1974. 1974 is the last year in which sport salmon harvest is documented in the available WDFW records.

CITATIONS

Currens, K.P., R. Fuerstenberg, W. Graeber, K Rawson, Ruckelshaus, M., N.J. Sands, and J. Scott. 2006. Independent populations of sockeye salmon in Lake Ozette. Puget Sound Technical Recovery Team document. March 21, 2006. Northwest Fisheries Science Center. NOAA Fisheries Service. Seattle, WA. 20 pp. http://www.nwfsc.noaa.gov/trt/puget_docs

Haggerty, M.J., Ritchie, A.C., Shellberg, J.G., Crewson, M.J., and Jolonen, J. 2007. Lake Ozette Sockeye Limiting Factors Analysis: Draft 8_1. Prepared for the Makah Indian Tribe and NOAA Fisheries in cooperation with the Lake Ozette Sockeye Steering Committee., Port Angeles, WA.

Rawson, K. N. J. Sands, K. P.Currens, W. Graeber, M. Ruckelshaus, R. Fuerstenberg, and J. B. Scott. 2008. Viability Criteria for the Lake Ozette Sockeye Salmon ESU. Puget Sound Technical Recovery Team document. Northwest Fisheries Science Center. NOAA Fisheries Service. Seattle, WA. 39 pp.