December 13, 2016

Response to Public Comments Received Regarding the Proposed ESA Recovery Plan for Oregon Coast Coho Salmon

Prepared by
National Marine Fisheries Service
West Coast Region
Portland, Oregon

Introduction

The Endangered Species Act (ESA) Recovery Plan for Oregon Coast Coho Salmon (*Oncorhynchus kisutch*) (Plan) is the product of a multi-year collaborative process involving Federal, state, tribal, non-governmental entities and a wide variety of stakeholders. The National Marine Fisheries Service (NMFS) developed this recovery plan by drawing on the best available scientific information provided by technical experts from the NMFS Western Regional Office, and numerous other organizations. The Plan applies the best available science to identify the site-specific management actions at the Evolutionary Significant Unit (ESU) and habitat levels, and explains the steps needed for implementation of specific recovery actions at the population levels. The Plan also applies the best available science to identify objective and measurable delisting criteria and time and cost estimates. The Plan identifies where scientific uncertainties and technical limitations exist, and the Plan explains the importance of collaboration with federal, state, local, and nongovernmental partners, as well as adaptive management, to achieve implementation of specific recovery actions in light of uncertainties.

NMFS released the Proposed Recovery Plan (Proposed Plan) for public review and comment (80FR 61379) on October 13, 2015. We received 43 comments on the Proposed Plan from federal, state, local and non-governmental entities as well as interested individuals.

NMFS reviewed all comments for substantive issues or new information, considered all comments in preparing the final Recovery Plan (Plan), and has addressed them in the following summary. For readers' convenience, NMFS has organized comments by major issue categories, addressed similar comments with common responses where possible, and, in some cases, edited comments for brevity and clarity. Detailed editorial comments or minor corrections are not summarized here but were considered and incorporated into the Plan as appropriate.

Salmon are important to the people, culture, economy, and ecosystems of the Pacific Northwest.

NMFS recognizes that public participation is essential to the task of protecting this precious natural resource. The Plan is the product of much work by numerous individuals and entities, and NMFS similarly welcomes the participation of all interested parties as we work collaboratively to implement it.

NMFS adopts the Plan with the incorporated revisions as the final plan. The ESA Recovery Plan for Oregon Coast Coho Salmon is available at the following website:

http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/oregon_coast/oregon_coast_salmon_recovery_domain.html

Response to Comments

We have responded to comments in these categories, presented in alphabetical order:

1. Agriculture
2. Beaver
3. Climate change
4. Coho salmon life histories
5. Common Framework
6. Decision Support System DSS
7. Disease and predation
8. Factors of decline
9. Fish passage
10. Forestry
11. Goals and delisting criteria
12. Harvest
13. Hatcheries
14. Implementation
15. Landslide risk
16. Land use Planning
17. Mining
18. Most Recent info
19. National Floodplain Insurance Program
20. Nutrients
21. Removal/Fill
22. Research, Monitoring, and Evaluation (RM&E)
23. Roads
24. State agencies
25. Status of Oregon Coast coho salmon, current and historical
26. Strategies and actions
27. Supportive of proposed plan
28. Threats, LFs
29. Tidegates, levees, dikes
30. Time and cost
31. Updating the information we used
32. Voluntary vs Regulatory
33. Water quality and quantity

1. Comments about Agriculture

Comments: We received comments suggesting we overstated the impact of agriculture on Oregon Coast coho salmon recovery, as well as comments emphasizing the need for restoration of habitat lost to agriculture and calling for increased regulatory protections for agricultural activities.
Response: We appreciate the comments and the recognition of the importance of agriculture in the recovery of Oregon Coast coho salmon. As discussed in Chapter 8, we recognize the importance of agriculture and maintaining working lands and healthy communities. These

outcomes are essential if coastal stakeholders are to achieve the shared goals of improving watershed health, restoring salmon populations, and promoting economic security.

We modified the language about agriculture in the Proposed Plan, emphasizing that impacts from rural development include, but are not limited, to agriculture. As stated in Chapter 3, together agricultural practices and other land use practices have weakened natural watershed processes and functions. Past, and some current agricultural activities have affected coho salmon habitat conditions by reducing instream flows through water diversions, and altering stream stability by removing stream-side vegetation and through the building of dikes and levees that disconnected streams from their floodplains and resulted in loss of natural stream sinuosity. These human activities have had unintended negative consequences on coho salmon, but improvements can be made to reduce the threats. In Chapter 4, we identify our criteria for assessing the status of the ESU and progress for recovery. These criteria include examining progress towards assuring adequate water quality and quantity, and the adequacy of freshwater and estuarine rearing habitats. We also clarified that for agricultural activities as well as others, we will assess the effectiveness of the combination of voluntary and regulatory measures, explaining the importance of maintaining flexibility to allow for the ability to pursue multiple pathways to recovery through adaptive management. The Plan's approach includes supporting and promoting voluntary opportunities with a regulatory backstop; both voluntary and regulatory management will be considered in assessing the delisting criteria.

Chapter 6 includes numerous recommendations for voluntary (including support for agricultural focus areas) and regulatory (including support for strategic implementation areas) strategies and actions that could, in various combinations, achieve the criteria described in Chapter 4.

2. Comments about Beaver

We received many comments about the management of beavers and have divided them into several categories.

Comments critical of the Proposed Plan's treatment of beaver management include:

- the Proposed Plan makes unsubstantiated statements and proposes regulatory changes to protect all beavers in Oregon that are not supported by scientific literature while withholding information on negative values caused by beavers in Oregon.
- Increasing beaver abundance may not have the desired effect of increasing beaver dams and increasing coho habitat, but could have deleterious effects by increasing human-wildlife conflict, such as plugging culverts.
- A prohibition on beaver trapping is an ill-informed idea that could produce harmful effects.
- Attitudes towards beaver became increasingly negative with increasing severity of beaver damage experienced.
- Beaver conservation plans are not warranted; rather, plans that understand and incorporate beaver dynamics can be useful.
- The Plan should focus on beavers *that construct dams, not all beavers*
- Empirical evidence collected in Oregon has noted this assumption clearly demonstrates the perceived, not actual knowledge of limitations to beaver dam construction activities.

- Healthy beaver populations in Oregon can sustain recreational harvest and damage management.

Response: We clarified and added language and citations, corrected several misquotes in the Proposed Plan. NMFS has relied on a number of peer-reviewed scientific articles as a basis for our treatment of beaver and beaver dams in the Plan. We support use of the best available scientific information to improve coho salmon habitat, including the contributions that beaver dams can make to coho salmon habitat. We recognize that there can be negative consequences to humans from beavers and their dams, so our recommendations call for increased assistance to landowners to have non-lethal options for dealing with nuisance situations.

Comments about education about beaver:

- Educating landowners is important; however, educating managers, researchers, and policy makers is equally or more important.
- Eliminating or restricting trapping and relocating beaver without knowledge of existing abundance and stakeholder tolerances throughout a watershed are not pragmatic management options.
- Developing and distributing outreach materials on the benefits of beaver dams to ecosystem functions in general and specifically to improving juvenile coho salmon rearing habitat should be a major initiative. Educating landowners and better understanding population dynamics of beavers in coastal Oregon should be the focus of addressing potential beaver-coho interactions, rather than efforts to regulate beaver management.
- Promote the beaver pilot project through engagement with local schools and local news outlets and research facilities.

Response: We agree with these comments and will work with agencies, organizations, schools, and individuals to provide balance, science-based information, and educational information about beavers, beaver dams, coho habitat, and their relation to human activities and property.

Comments about beaver dam analogues:

- Anthropogenic devices that mimic beaver dams are not examples of beaver management, nor should they be used in the context of beaver management or working with beavers.

Response: We are suggesting that partners test the effectiveness of beaver dam analogues in the range of Oregon Coast coho salmon on a limited scale at first. Projects elsewhere have shown significant value in several methods of building beaver dam-like structures and attracting beavers to build dams in select locations.

Comments supportive of beavers and coho habitat:

- It is well established that beaver damming activities enhance coho salmon habitat conditions.
- We concur with NMFS' assessment of the near extirpation of beaver in the past.
- We find labeling of this benchmark species as a predatory rodent deplorable and would like to see a more enlightened view adopted by both public and private entities.

- If Oregon government persists in its attitude toward beaver, to avoid accusations of hypocrisy, it ought to remove that iconic fur bearer from the backside of the Oregon State flag.
- Beaver need to be elevated in status to ecosystem engineers as symbiotic coho habitat producers and encouraged to flourish in the upland forests, floodplains and estuary ─ to the greatest extent possible.
- As noted in the Proposed Plan, there is substantial need to revise policy and remove legal ambiguity to encourage the work of beavers in creating dams and ponds in Oregon Coast watersheds.
- The Proposed Plan should strengthen protections for beavers in and above areas of endangered coho habitat.
- Should provide resources to local watershed stewards to reduce landowner conflicts.
- The Proposed Plan should also call for mandatory reporting for all beavers lethally removed within the ESU.
- Encouraged that NMFS recognizes the need for policy changes to encourage the work of beavers in creating the dams and ponds that are so critical to coho productivity, but suggest a more nuanced approach.
- Beaver ponds not only provide superior habitat for juvenile coho, but also provide multiple ecosystem services, including upstream nutrient retention, sediment retention, promotion of hyporheic flow, and augmentation of dry-season flows. These services are also expected to improve ecosystem resilience to climate change.
- The decline of beaver populations has been particularly significant to coho population trends… encouraged by the recognition by NMFS of the need to restore beavers throughout their range in order to promote the critical habitat complexity and water quality that beavers provide through the construction of dams and pools… encourage NMFS to work with the Oregon Department of Fish and Wildlife, NRCS and other agencies to change existing rules and regulation regarding beaver trapping and removal, including a prohibition on the lethal take of beavers in areas important for Coho recovery.

Response: We received numerous comments in support of beavers and beaver dams in coho salmon habitat. We will continue to work with all partners to support increasing numbers of beaver dams where it makes sense to do so, including consideration of the potential negative impacts on landowners. We clarified the importance of maintaining flexibility to allow for the ability to pursue multiple pathways to recovery through adaptive management; the Plan's approach includes supporting and promoting voluntary opportunities with a regulatory backstop; both voluntary and regulatory management will be considered in assessing the delisting criteria.

Comments with recommendations relating to beaver:

- The Plan should more specifically acknowledge and better assess this current statutory framework and related efforts. State staff and members from a variety of interests to work collaboratively within existing laws to achieve the following mission: “Using existing rules and statutes, identify research and information gaps to help us improve our understanding of beaver ecology and beaver management so we can maximize the ecological benefits that beaver provide (especially for ESA-listed coast coho), and minimize any negative economic (or other) impacts.”

- We urge NMFS to please use its excellent scientific credentials to strongly endorse respect for the restoration of beaver to our watersheds so as to encourage recovery of coho and watershed health and biodiversity in general.
- Because beavers are classified as a rodent in Oregon statutes, the regulatory mechanisms allow beaver to be killed at any time on private lands with not limit. On public lands, they can be trapped, but there inadequate records of the number of beavers removed.
- If a multi-agency work group is formed, recommend that Wildlife Services, including at least one representative from the National Wildlife Research Center and one from the operations program in Oregon be invited to join the group.
- Beavers are but one component of the ecosystem including wetlands; what are needed are watershed or region-specific management plans for coastal Oregon that include beavers, as well as other native flora and fauna (terrestrial and aquatic).
- Plan should be updated as new knowledge is found regarding beaver population dynamics, and timing/persistence of beaver dams.
- Provide support to landowners who experience beaver-related challenges in order to protect both property and beavers and their ponds is not new, but it is important to retain this in future efforts.
- USDA Wildlife Services is a leader in providing this support to landowners with human-wildlife conflicts. Biologists and specialists use an adaptive management approach to problem solving, which seeks to use non-lethal methods first.
- Managing beaver conflict through non-lethal and lethal techniques works well with large-scale management plans.
- Without adequate forage and dam building material, beaver relocations and colony establishments will be ineffective and result in inefficient use of public funding.
- More focus on integrating floodplain restoration with beaver strategies.
- NMFS should work with USDA to develop and promote beaver conservation practices that can be included in conservation incentive programs such as CREP and WRP.
- The Final Plan should include narrative and actions in detail promoting beaver pond retention to address climate change.
- NMFS should encourage federal land managers to create riparian habitat conditions conducive to beaver forage and dam building material. This could include creating gaps and openings that would promote the development of early seral hardwoods that beaver use as a food source and as material for beaver dams.
- Where existing partnerships and beaver working groups exist with state, private and federal entities, actively engage those in recovery efforts. For example, in the Umpqua basin, the Beaver Advocacy Group has made commitments to educate landowners, identify and translocate potential nuisance beaver, and participate in restoration and habitat enhancement activities that work toward creating riparian habitat conditions conducive to beaver and beaver ponds.
- Add a component to the RM&E Chapter to better understand beaver population dynamics in coastal Oregon.
- Recommend cost-effective non-lethal management practices for beavers.
- The Proposed Plan should strengthen protections for beavers in and above areas of endangered coho habitat, and provide resources to local watershed stewards to reduce landowner conflicts.

- The Final Recovery Plan needs to call for statutory modifications regarding USDA's APHIS program and ODFW rules regarding beaver removal and trapping, including but not limited to specific requirements to document information on locations and numbers removed, and allowing ODFW to prohibit the lethal take of beavers associated with beaver dams without permit in areas determined to be important for coho (also see comments below referencing P. 6-30 of the Proposed Plan).

Response: These are excellent suggestions. We updated portions of the Plan and will share these suggestions with partners as we implement the NMFS and state plans and other efforts.

Update from the state of Oregon about beaver: While it is true that ODFW's statutory- based classifications for beaver have not recently changed, Oregon has adopted statutes likely to benefit beaver and the Oregon Coast coho habitat they provide. For example:

- *Relocation/Reintroduction* (ODFW; ORS 497.308; 498.002): Trapping, transporting, and releasing beaver on public land or across property boundaries requires a permit and monitoring.
- *Beaver Dam Removal* (DSL; OAR 141-085): A permit for dam removal recently became required (as *Large Woody Debris*, defined at OAR 141-085-0510(47)); a permit is required for any removal at sites within ESH, except 1 cubic yard (cy) per site may be removed by hand; a permit is required for removal of equal to or greater than 50 cy outside of ESH.

In addition to these regulatory measures, Oregon has implemented a beaver workgroup comprised of ODFW staff and members from a variety of interests to work collaboratively within existing laws to achieve the following mission:

> *"Using existing rules and statutes, identify research and information gaps to help us improve our understanding of beaver ecology and beaver management so we can maximize the ecological benefits that beaver provide (especially for ESA-listed coast coho), and minimize any negative economic (or other impacts."*

To date, this group has encouraged, supported and disseminated beaver-related research and has produced relocation guidelines, a landowner incentives and tolerances survey, bibliography of beaver- related research, and map products consistent with NOAA's desire to encourage beaver conservation. The Plan should more specifically acknowledge and better assess this current statutory framework and related efforts.

Response: We updated portions of the Plan based on these comments and will continue to work with state agencies and others to implement effective beaver management efforts.

Comment: With regard to the U.S. Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) that can remove nuisance beavers, has there been an ESA section 7(a)(2) consultation with APHIS on the agency's removal of beaver?

Response: No

3. Comments about Climate Change

Comments: We received comments suggesting we include more and updated information about the potential effects of ocean and climate change on the recovery of Oregon Coast coho salmon.

Response: We appreciate the comments about the importance of using the best available information on ocean and climate conditions. We updated the Chapters 3, 4, 6, and 8 relating to ocean and climate conditions based on the comments we received and other new scientific information. We incorporated the new information on climate change in our assessment of threats and limiting factors and in our analysis of recovery strategies and implementation measures. The assessment discusses how the effects of climate change could influence freshwater and estuarine conditions, creating future habitat conditions that differ from the present and past conditions. This includes a rise in sea levels and related reduction in intertidal wetlands and terrestrial habitats.

We also incorporated the most recent scientific findings on changes in ocean conditions and related effects on coho salmon, including fluctuations in the number of returning adults during periods of good and poor ocean conditions. It stresses the need to improve the resilience of Oregon Coast coho salmon to safeguard against such threats, particularly by protecting and restoring coho salmon rearing habitats that could buffer impacts from changes in climate and ocean conditions, and support long-term juvenile survival and overall productivity.

The Plan also includes findings from scientific research on the life history of Oregon Coast coho salmon, including research that shows that substantial numbers of coho salmon fry may emigrate downstream from natal streams to rear in tidally influenced lower river and estuarine habitats. The Plan includes strategies to both protect and restore these habitats, and to gain more information about coho salmon life history diversity.

Comment: Climate change discussion throughout the Plan does not address or even mention sea level rise, which will effect estuaries, lower reaches of rivers and frontal streams, and infrastructure which impedes fish passage.

Response: We respectively disagree. Rising sea levels and a related reduction in intertidal wetlands and terrestrial habitats were described as effects on climate change in the Proposed Plan. The final Plan expands this discussion.

Comment: We know from a great deal of research and regional predictions based on global climate models that future climate and habitat conditions in the coastal region of Oregon (both freshwater and marine) are likely to differ from past or present conditions. Taking into account coho salmon life history diversity (historic, current, and future) will be especially important in light of changing climactic conditions and restoration efforts aimed at increasing coho resilience.

Response: We agree. The Plan includes findings from scientific research on the life history of Oregon Coast coho salmon, including research showing that substantial numbers of coho salmon fry may emigrate downstream from natal streams to rear in tidally influenced lower river and

estuarine habitats. The Plan includes strategies to protect and restore these habitats, and to gain more information about coho salmon life history diversity.

Comment: Given the ongoing impact of ever accelerating climate change; of the continuing and widespread clear cut destruction of upland sylvan habitat on private holdings in the Oregon Coast Range and Cascades Foothills, under aegis of the very retrograde Oregon "Forest" Practices Act; of renewed efforts by the Bureau of Land Management to "up the cut," largely by means of reducing the riparian protections of the Aquatic Conservation Strategy of the Northwest Forest Plan; considering these and other negative pressures, actual and potential, brought to bear upon coastal coho salmon and numerous other aquatic (and terrestrial) species in Oregon, the time for gentle hints and subtle suggestions from NMFS (as, indeed, from USFWS) is, surely, well past.

Response: We agree that there is a need to provide, and in some cases improve, regulatory mechanisms to ensure that there is sufficient habitat protection for coho salmon recovery. Chapter 3 of the Plan contains a thorough assessment on the framework of regulations that affect coho salmon habitats. In addition, Chapter 6 identifies and discusses potential ways to improve regulations in collaboration with regulating partners and through management frameworks. The Plan, however, does not identify specific regulatory "fixes" to forest practices rules or other regulations, which are beyond the scope of the Plan. Instead it calls on partners to collaborate through existing federal and state land and forest management frameworks to improve the effectiveness of regulatory efforts to ensure coho salmon recovery.

Comment: We believe the Plan should include a summary about ocean conditions and the effects on coho survival/production.

Response: We agree. The Proposed Plan contained discussions on changing ocean conditions and effects on coho survival and productivity, and the Plan expanded this discussion. Indeed, increasing coho long-term sustainability during periods of unfavorable ocean conditions is the main focus of the Plan's recovery strategy.

4. Comments about Coho Salmon Life Histories

Comments: We received numerous comments about the latest scientific information about the multiple life histories expressed by Oregon Coast coho salmon. Comments also encouraged NMFS to increase focus on protection and restoration of estuaries, lakes, and other habitats that can support and contribute to greater life history diversity in salmon populations.

Response: We acknowledge that recent scientific work has added significantly to our understanding of coho salmon life histories. We updated several sections of the Plan with new information, quoted from new scientific reports, and added relevant citations. The Plan also recognizes the importance of increasing life history diversity in the recovery strategy for Oregon Coast coho salmon.

Comment: The Proposed Plan describes the coho salmon life history as relatively simple, yet recent studies have indicated that this is not necessarily true. The Plan should refer to the Pacific

Marine and Estuarine Fish Habitat Partnership 2015 State of Knowledge report, Koski and other recent reports on the life history of coho salmon.

Response: We appreciate these and other updates about coho salmon life history strategies and have updated the Plan to include findings from recent scientific research. Section 2.2.2 describes findings by Koski (2009), Jones et al. (2014), and others on the life history of Oregon Coast coho salmon, including research showing that substantial numbers of coho salmon fry may emigrate downstream from natal streams to rear in tidally influenced lower river and estuarine habitats. Section 3.1 discusses the potential impacts of estuarine tidal habitat loss on life history diversities. Section 3.3.3 describes findings that predation and competition from non-native fishes, such as in the lower Coquille River, could seriously affect the lake and slow-water rearing life history of coho salmon, especially if water temperatures rise from climate change. The Plan recognizes that such findings illustrate the importance of life history diversity in the recovery of Oregon Coast coho salmon and other species. Chapter 6 of the Plan includes strategies and actions to protect and restore freshwater and estuarine rearing habitats to increase life history diversity, and to gain more information about coho salmon life history diversity. As stated in Section 6.2.4.1, strategies and actions to address climate change need to increase not only the quality and quantity of habitats, but also the diversity of habitat types in streams and estuaries in order to increase the number of successful pathways that coho salmon have available.

5. Comments about Common Framework

Comment: NMFS should use the common framework to identify and define habitat (component) types, and propose specific metrics that local stakeholders can monitor to evaluate habitat quality relative to its capacity to foster life history diversity.

Response: We appreciate the comment about the use of a common framework. In Chapter 6 we explain the importance of using common terminology and a comment framework among the goals, strategies and actions for the independent populations. In Chapter 8, we identify efforts underway in Oregon Coast coho salmon population areas to provide these tools.

6. Comments about the Decision Support System (DSS)

Comments: We received comments that we should update the DSS used in the biological recovery criteria, and also why the results of the DSS are reason to declare Oregon Coast coho salmon recovered and remove the ESU from list of threatened species.

Response: In the final Plan, we used the latest results of the DSS assessment on ESU biological status. These results show that we have moderate confidence that the ESU is sustainable. We also explain in Chapter 4 how the ESA requires us to consider the listing factors in addition to the biological status in our listing determinations, so we cannot make a decision to delist based solely on biological status.

7. Comments about Disease and Predation

Comments: We received numerous comments about threats posed by the predation of warm-water non-indigenous fish on listed coho salmon. We also received comments that this predation is not a threat to ESA recovery and we should remove the delisting criteria related to this predation.

Response: We clarified the role of predation by warm-water fish in the delisting criteria, recognizing that the lakes stratum is the healthiest in the ESU, but that predation is a limiting factor for the lake populations.

Comments: We received comments about predation by seals and sea lions and birds, emphasizing the threats they pose to Oregon Coast coho salmon, the lack of evidence that they threaten the viability of the ESU, the existence of federal protections for marine mammal and birds, and the expenses involved in monitoring the related predation.

Response: We acknowledge these issues related to predation and explain in Chapter 4 how we will consider the best available science and information on predation in our listing criteria and we recommend, to the maximum extent practicable, strategies and actions in Chapter 6, recognizing budget limitations.

Comments: We received comments about the risks of disease related to warming water temperatures.

Response: We acknowledge the risks related to disease resulting from increasing water temperatures in Chapter 3, include criteria related to disease in Chapter 4, and recommend strategies and actions in Chapter 6.

8. Comments about Factors of Decline

Comments: We received a wide variety of comments about the factors that contributed to the decline in the status of Oregon Coast coho salmon, including: suggestions we disregarded over-utilization, disease, and predation; under and overemphasized the role of warm-water fish in the lakes populations; failed to explain the role of degraded estuaries; and over- and under-estimated the loss of habitat including barriers to fish passage.

Response: We appreciate the interest in the factors of decline from a number of different perspectives. We explain how we thoroughly considered and addressed the best available scientific information regarding all the factors of decline and provided citations to the most relevant scientific references.

9. Comments about Fish Passage

Comment: The Proposed Plan asserts that impaired fish passage has caused the slow recovery of the Oregon Coast coho salmon. The description of these impairments includes culverts, stream crossings, tide gates and other barriers. Many of the listed impairment to fish passage have

existed for many years; for example, substantially all tide gates have been in place well over 100 years. So it does not appear reasonable to blame the decline on so called impaired fish passage.

Response: The Plan identifies a range of factors that led to the decline and eventual ESA listing of Oregon Coast coho salmon, and continue to influence their viability today. While numerous existing fish passage impairments have been in place for years, many activities still occur today and continue to restrict the amount and quality of estuarine habitat. Further, new information is showing that a large number of coho salmon use wetland and estuarine habitat during their first year of life. Consequently, restoring access to historical habitats that are currently blocked, including areas that could protect juveniles from being washed out to the ocean during high flows, will help improve population productivity. Research showing that the number of coho smolts has stayed relatively constant since 2000, despite large variations in the number of returning adults, is an indication that improving habitat accessibility to historical habitats may be important to boost juvenile coho abundance and productivity.

10. Comments about Forestry

Comments: We received numerous comments about the treatment of federal, state, and private forest management from two basic perspectives ─ we either over- or under-estimated the role of the different forest management approaches in terms of ongoing threats to Oregon Coast coho salmon recovery.

- The Proposed Plan describes outdated Oregon Forest Practices Act administrative rules and federal management that do not reflect newer developments such as the Aquatic Conservation Strategy.
- The Northwest Forest Plan has improved the habitat in federal forests and it is important to distinguish between management of federal, state, and private forests, noting that the federal forests provide significantly better protection of salmon habitat; under the NWFP and RRSNF Land Management Plan; headwater streams, fish-bearing streams and sensitive areas that affect water quality and stream conditions are protected and rehabilitated where possible. Oregon regulations fail significantly to address forestry issues, and as such it is important that NMFS create specific guidance for Oregon to follow. In addition, this provides the public with a check on Oregon's progress, and a further incentive for Oregon to better regulate.
- Proposals to weaken protection in federal and state forests are a major concern.
- The Proposed Plan includes recommended measures (new requirements for forest management) not authorized by the ESA and should be deleted.
- The Proposed Plan fails to assess the reduced productivity in headwater streams that are overstocked with timber that blocks sunlight.
- A number of comments provided updated information about the condition in specific forests.
- Specific requirements for the regulation of forestry activities are absent from the Proposed Plan.

Responses:

- Chapters 3 and 8 of the revised Proposed Plan clarify and update discussions on the Forest Practices Act, Agricultural Water Quality Management Area plans, and other existing mechanisms to protect and improve water quality. Our assessment shows, however, that the existing regulatory mechanisms have yet to demonstrate significant progress in meeting water quality standards. Voluntary actions are also leading to improved conditions, but increases in funding and other resources may be needed to ensure that water quality criteria are met. We agree that some regulatory mechanisms may need to be improved to ensure that there is sufficient habitat protection for coho salmon recovery.
- We clarified the importance of maintaining flexibility to allow for the ability to pursue multiple pathways to recovery through adaptive management; the Plan's approach includes supporting and promoting voluntary opportunities with a regulatory backstop; both voluntary and regulatory management will be considered in assessing the delisting criteria. Chapter 6 identifies and discusses potential ways to improve regulations in collaboration with regulating partners and through management frameworks.
- The Plan calls for collaboration through partnerships and existing federal and state land and forest management forums to improve the effectiveness of regulatory efforts to ensure coho salmon recovery. This approach is consistent with the Plan's adaptive management framework.
- NMFS appreciates efforts by the U.S. Forest Service, Bureau of Land Management, and others to protect and restore habitats on their lands. We recognize that Oregon Coast coho salmon recovery will depend to a significant extent on the collaboration and continued contributions of these partners in habitat management. We particularly need to work together to identify and implement actions that will protect and restore watershed processes, provide stream complexity for juvenile rearing, increase shading to reduce stream temperatures, and connect wetland and off-channel habitats.
- We appreciate the numerous updates on activities in the federal forests; we updated the Plan in several areas and will include these updates in population-level plans.

11. Comments about Goals and Delisting Criteria

Comment: The Proposed Plan does not include the required objective, measurable delisting criteria

Response: We appreciate the comment and the recognition of the importance of these criteria. As we explain below, we identified objective and measurable delisting criteria based on the best available science; these criteria are as specific as practicable given scientific uncertainties and limitations regarding available technology (for example, current limitations regarding habitat and population monitoring technology).

As we state in section 4.1 of the Plan:

> The ESA requires that recovery plans; "…<u>to the maximum extent practicable</u> - …, incorporate … objective, measurable criteria which, when met, would result in a

determination in accordance with the provisions of the ESA that the species be removed from the Federal List of Endangered and Threatened Wildlife and Plants (50 CFR 17.11 and 17.12)…."

Chapter 4 of the Plan presents a set of "objective, measureable criteria" for Oregon Coast coho salmon that we consider to be the most accurate, practicable and up-to-date possible at this time. These criteria are at the ESU and stratum scales, since it is not practicable to create scientifically based goals, strategies and actions at the population scale given the data gaps and scientific uncertainties that remain. Our analysis explains how we will consider and apply both biological viability and the regulatory delisting criteria, and we structure our assessment in light of the fact that recovery may occur through various pathways. We explain how we will analyze and assess various potential scenarios and how we will apply the detailed delisting framework that we outline in Figure 4-1. We also explain how we apply the concept of trade-offs and our contemplation of both voluntary and regulatory recovery approaches.

There is no requirement that the delisting criteria be quantitative where, as here, such an approach would not be practicable or not supported under the available science. In Section 4.2 we explain the uncertainties that prevent us from creating specific numeric criteria for ecosystem factors and viability risk. Regardless, we identified measurable criteria guiding our delisting analysis (e.g., recovery requires more than one half of all independent populations in a stratum are sustainable and that all five strata are sustainable) and explained how we would measure, apply, and assess the factors outlined in our delisting approach.

Comments relating to recovery based on biological status:

- The Proposed Plan should be revised to focus on biology.
- Because the population numbers remain healthy, NMFS should consider the species recovered.
- The text box comparing coho salmon to bald eagles is an example of poor science.

Response: We respectfully disagree. As explained in Chapter 4, under the ESA, the recovery goals and delisting criteria must include both biological status and the five listing factors. Viability in terms of biological status alone is not sufficient to meet the ESA standard. We revised the coho salmon/bald eagle text box to more clearly explain the relevance of the comparison and how it illustrates both the biological status and the listing factors.

Comment: The Proposed Plan does not show how it will succeed in achieving the goals.

Response: We respectfully disagree. The Plan clearly describes the key limiting factors and threats and Chapter 6 describes strategies and management actions that offer multiple pathways to addressing the limiting factors and threats. Chapter 6 identifies specific recommended strategies to achieve the recovery goals at the ESU and stratum level, and identifies steps toward development and implementation of specific actions at the population level. Chapter 6 also recommends potential population-level actions, but explains the need for further collaboration and analysis before implementation of population-level approaches. Chapter 8 describes our implementation strategy and its public-private approach.

Comment: The Plan is inappropriately based on the state's Oregon Coast Coho Conservation Plan (OCCCP) which has a goal of broad-sense recovery, not ESA delisting.

Response: As we explain in the Plan, NMFS supports the OCCCP and considers it a valuable foundation for ESA recovery, but the ESA delisting criteria are not based on broad-sense recovery. Accordingly, while we analyzed and incorporated elements of the OCCCP in the Plan, the Plan is based on NMFS' own analysis of the required factors, including achieving the biological recovery criteria and ESA delisting criteria.

Comment: The Proposed Plan should manage at the population level.

Response: Although there is no specific regulatory requirement to manage at the population level rather than the ecosystem, stratum, or ESU level, it is correct that the Plan does not set specific goals or manage at the population level. NMFS intends to work with partners to develop and implement strategic action plans for independent populations as part of the implementation of the Plan.

In Chapter 6, we outline our overall recovery strategy and priorities, explain how we will incorporate an analysis of regulatory mechanisms into each listing factor, and identify specific habitat actions and management actions at the ESU and stratum level. We explain the uncertainties currently present; we also explain that development of population-level specific management actions will require collaborative management and may depend on resolution of state and local regulatory frameworks and land management mechanisms that are in the process of being amended. Development and implementation of population-level actions will also benefit from the ongoing development in technical and scientific tools for monitoring and assessment.

We also summarized our priorities in habitat management actions, and Table 6-1 outlines a 10-step process for development of strategic action plans and specific implementation measures. Table 6-3 summarizes potential options by listing factor. Finally, we identify recommended specific actions to implement strategies in each stratum, and identify to which areas and populations these recommendations apply. We will post population-level information on our website as it becomes available: http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/oregon_coast/oregon_coast_salmon_recovery_domain.html

Comments about the "ocean test" in the delisting criteria: We received comments supportive of the 'ocean test' as a more relevant criteria than habitat conditions. We also received comments critical of the 'ocean test' because there is no practicable scientific approach to implement the test.

Response: We revised the delisting criteria relating to habitat and the ocean test in response to comments supportive and critical of the language in the Proposed Plan.

Comments relative to the level of specificity of the criteria and measures: We received comments calling for more prescriptive and specific criteria as well as comments calling for criteria and measures to be less prescriptive in order to allow flexibility in implementation.

Response: As we explain in several sections of the Plan (for example, Chapters 4 and 6), the statute and recovery guidance allow for trade-offs between actions to address different threats and paths to recovery. The final Plan offers multiple recommendations and explains how we intend to assess progress towards recovery. The Plan also explains how recovery and delisting may occur via different pathways, and we applied our discretion and expertise to craft a framework for recovery that captures both (1) specific measures to address the delisting criteria and (2) flexibility to craft specific implementation actions and revise our response based on collaboration and adaptive management.

Comments calling for more stringent delisting criteria include:

- The Oregon Forest Practices Act (OFPA) is infamous for its grossly inadequate requirements for stream shading, large wood recruitment and for reducing sediment loading, particularly fine sediments from forest roads.
- While voluntary and incentive-based actions can and have been helpful in restoring some habitats, they cannot be relied upon as the sole mechanism to address the problem of degraded habitat. A strong regulatory hand is needed to strengthen existing regulations, punish bad actors, and make the significant changes necessary to recovery the species.
- Need to advocate for specific regulatory mechanisms. The Plan lacks sufficiently specific actions and strategies.
- The Plan should be more prescriptive and explicit in outlining recovery goals.

Response: We appreciate the comments regarding the delisting criteria. Chapter 4 in the Plan explains that "there are multiple combinations of strategies and actions that could meet the biological criteria and listing factors and there is no single, pre-established, approach to progress from threatened to recovered status for Oregon Coast coho salmon." In light of this context, we thoroughly explain how we structured a delisting framework that maintains the flexibility to consider and adapt to a range of recovery pathways. We also explain the importance of building off of existing collaboration networks and leveraging the voluntary actions that contribute to habitat restoration, and the importance of maintaining flexibility to allow for the ability to pursue multiple pathways to recovery through adaptive management. The Plan's approach includes supporting and promoting voluntary opportunities with a regulatory backstop; both voluntary and regulatory management will be considered in assessing the delisting criteria. Chapter 3 identifies and thoroughly discusses the framework of regulations affecting the available habitat.

The Plan explains, for a number of reasons, it is impracticable to recommend specific mandatory actions or identify specific regulatory "fixes" at the level of detail the commenters' request. First, development and implementation of specific population-level recovery approaches will depend on collaboration with partners and on new information regarding the ongoing amendments to federal and state land and forest management frameworks. Absent this developing information regarding both voluntary and regulatory options for recovery, it is impracticable and beyond the scope of the Plan to require specific regulatory amendments. Second, the overall recovery framework outlined in the Plan requires that we maintain flexibility in applying and

implementing specific actions to maintain an adaptive approach. Section 6.2 identifies and discusses, in many pages of analysis, numerous habitat actions at the ESU and stratum levels, and potential habitat actions at the population level, that address improvements in regulations, collaboration with regulating partners, and management frameworks.

We further explain that we will assess the effectiveness of the combination of voluntary and regulatory measures. Chapter 6 includes numerous recommendations for voluntary and regulatory strategies and actions that could, in various combinations, achieve the criteria described in Chapter 4.

Comments about broad sense versus ESA recovery goals: We received comments about the difference between broad sense and ESA recovery goals.

Response: We acknowledge the difference between the two goals and explain how the ESA recovery plan focuses on achieving recovery and delisting, but relies to a great extent on the state's conservation plan, which is aimed at achieving broad sense recovery. Chapter 4 clarifies the ESA delisting criteria.

12. Comments about Harvest

Comments: We received numerous comments about harvest, including;

- The Plan should consider reducing or eliminating harvest actions until the ESU is recovered in light of recent literature that suggest that surplus adult carcasses provide necessary and beneficial nutrients to food webs that can enhance juvenile production (Chaloner and Wifpli 2002; Kiffney et al. 2014).
- Amendment 13 of the Pacific Coast Salmon Fishery Management Plan appears to allow for adjustments in harvest levels as ocean conditions/ survival vary, but there does not appear to be a "no harvest" option when conditions are unusually poor ─ as seen during El Nino years, or when extreme circumstances are encountered ─ as demonstrated by the unprecedented "blob" of warm water that persisted off the Pacific Northwest coast during the past spring/summer/fall of 2015.
- There have been years where the allowed instream (freshwater) take (up to 1,200 fish) is well above the authorized levels. Additionally, a review of recent catch data for Oregon Coast coho salmon harvest levels from 2012 to 2014 indicates that roughly 14 percent to 18percent of the returning adults were harvested during these years (ODFW data, 2014). In our view, this represents a substantial portion of the population.
- Allowing up to 35 percent take under Amendment 13, on a species listed as threatened, undermines the credibility of the listing.
- The literature is fairly clear on this topic. Reduced inputs of salmon-derived organic matter and nutrients (SDN) may limit freshwater production and thus establish a negative feedback loop affecting future generations of fish (Compton et al. 2006). Management or restoration actions that increase the number of spawning adults or mimic their enrichment and physical effects may improve the individual and population growth of a variety of organisms, including juvenile salmon, in tributaries with low adult returns (Kiffney et al. 2014).

- Recommend revised wording – instead of "should not be higher than has been allowed, suggest: *"To meet the goal for Listing Factor B, harvest practices will need to remain consistent with the recovery of OC coho salmon, meaning that harvest rates should not exceed those allowable under Amendment 13."*
- Continued allowance of wild adult coho salmon harvest, while pushing for needed changes to riparian forestry regulations, does not seem to be an equitable approach to recovery of the species.
- NOAA should provide recommendations to PFMC regarding its assessment of overfished
- An emphasis on terminal harvests rather than ocean harvests as better-suited for sustainable management, because it provides the option to adjust harvest to protect individual weak populations. … The Final Recovery Plan should incorporate a mechanism to assess whether Oregon Coast coho salmon merit designation as "over-fished" under the Magnuson-Stevens Act.

Responses:

- We based our treatment of harvest on the best available science, but appreciate and acknowledge the concerns and suggestions provided in the comments.
- We revised and clarified our treatment of harvest in several sections, including revising the goal for Listing Factor B.
- NMFS' opinion is that while overharvest of Oregon Coast coho salmon was one of the factors leading to the species decline, fishery impacts have been dramatically curtailed since ESA listing and now pose less danger to species' viability.
- The Plan does emphasize the need for continued adaptive management of harvest in order to ensure that harvest levels do not impede recovery. We will consider the suggestions for moving from ocean to terminal harvest and determining if the species is "over-fished" under the Magnuson-Stevens Act if the future.
- The Plan also calls on fisheries managers to continue to improve forecasting skills for purposes of harvest management, recognizing the significant challenges in forecasting ocean survival, and also for revision of the parental spawner abundance to improve on the application of 'full seeding' in the future.

13. Comments about Hatcheries

Comments: We received a number of comments expressing concern about the effect of hatcheries on Oregon Coast coho salmon recovery, including:

- Hatcheries are a significant impediment to salmonid recovery.
- The continued use of hatcheries to augment (or replace!) wild fish runs is both prohibitively expensive and antithetical to salmonid recovery in general and to Oregon Coastal Coho recovery.
- NMFS should consider as a management action reducing or eliminating hatchery releases in concert with habitat enhancement. A natural production regime is more beneficial long term to the ESU; supplementation with hatchery fish can have a negative feedback into the genetic structure of the population.

- The Recovery Plan for wild coho salmon must include hatchery impacts as a continuing limiting factor on wild coho recovery and establish criteria for hatchery management that would protect wild coho.
- The adverse impact of the coho hatchery program in the Umpqua cannot be overstated.
- Criteria should include a stray rate for hatchery fish into natural spawning areas for wild coho of less than 5 percent. This is justified based on NMFS report by Grant (1997) and Buhle et al. 2009. The premise is that hatchery coho have diverged from wild coho affecting their reproductive success that is lower than for wild coho, and therefore function as a non-native species in the ecosystem, causing lower reproductive success through interbreeding and competition with wild coho salmon.

Responses:

- Since ESA listing, ODFW has taken numerous steps to minimize adverse impacts of hatcheries on the Oregon coast coho salmon ESU. Consequently, scientific reviews have found that hatchery practices that were detrimental to the long-term viability of this ESU have been greatly reduced. Changes in ODFW hatchery management have resulted in substantial decreases in the proportion of hatchery-origin fish on the spawning grounds in individual populations and the ESU as a whole. Given program changes and continued management oversight, our working hypothesis is that hatchery fish are not expected to impede Oregon Coast coho salmon recovery.
- However, we will continue to use the best available science to guide hatchery management. We will also continue to work with ODFW to monitor potential effects of hatchery production (of coho and Chinook salmon and steelhead) on coho salmon recovery efforts. The Plan recommends continued research, monitoring, and evaluation to examine uncertainty regarding the extent that reduced hatchery production has improved sustainability. Information gained through the research will be incorporated into recovery efforts through the adaptive management framework.
- Section 6.2 of the Plan proposes actions to maintain current low levels of hatchery coho salmon production and increase use of native-origin broodstock to minimize genetic and ecological risks of hatchery-origin coho on natural-origin coho. In addition, NMFS will continue to track potential hatchery-related effects through evaluation and approval of Hatchery and Genetic Management Plans, and ensure implementation of the programs by ODFW according to the approved plans. This includes reviewing hatchery fish releases, collection of broodstock, and incidental handling of coho salmon at hatchery facilities for compliance with approved Hatchery and Genetic Management Plans.

14. Comments about Implementation

Comments: We received a number of comments providing information about the role that state agencies and local organizations will plan in implementing the Plan.

Response: We appreciate the comments and the recognition of the importance of these organizations in implementing the Plan. We revised Chapter 8 to include updated information and we emphasized the importance of coordination and collaboration among all the partners who

have and will continue to contribute to the conservation and recovery of Oregon Coast coho salmon.

15. Comments about Landslide Risk

Comments: We received several comments about our description of the risk from, and role of, landslides in the Proposed Plan.

Response: We clarified the role of landslides as a factor in decline in Chapter 3, in delisting in Chapter 4, and recommendations for actions in Chapter 6.

16. Comments about Land Use Planning

Comments: We received several comments suggesting we update the information about the state's land use planning laws and practices.

Response: We added new information about land use planning and practices in Chapters 3, 4 and 6. In Chapter 8, we identify programs of the Department of Land and Conservation and Development that will contribute to Oregon Coast coho salmon recovery.

17. Comments about Mining

Comments: We received comments praising our treatment of gravel mining and emphasizing the negative effects on in-stream habitat from mining; providing updates on the continuation or curtailment of gravel mining in specific areas; suggestions that mining in general (including gold mining) is not a serious threat to the recovery of Oregon Coast coho salmon.

Response: We appreciate these different perspectives on gravel and gold mining. Our discussion in Chapter 3 of the role of mining in the decline of Oregon Coast coho salmon; the criteria in Chapter 4; and the recommendations in Chapter 6 are all based on the best available scientific information available.

Comment: We applaud NMFS' citation of gravel mining in the South Fork of the Coquille River as a chronic impediment to Coho Recovery. (We have offered similar testimony to the Oregon Department of State Lands and the U.S. Army Corps of Engineers.) Indeed, as NMFS is doubtless aware, significant reaches of this river are deeply incised and thereby disconnected from their historic access to the adjacent floodplain during high water events. (The CWA has invested considerable time and energy in assessing this distressing condition and hopes to play a significant and constructive role in ameliorating it.)

Response: While gravel mining has ceased in the South Fork Coquille River, scars from past mining activities continue to reduce coho salmon viability. Strategies and actions identified in the Plan (Section 6.3.5) aim to improve habitat complexity, connect floodplain areas, reduce fine sediment levels, and otherwise restore watershed processes that promote winter and summer rearing habitats. The strategies encourage use of best management practices to retain gravel bar form and function.

18. Comments about the Most Recent Information

Comments: We received numerous comments providing specific information and opinions about the biological status and habitat condition at the stratum and population levels.

Response: We greatly appreciate these comments and the information they contain. In some cases we included this information in the Plan but in many cases we will include this information in the population level materials that will be posted on our website at

http://www.westcoast.fisheries.noaa.gov/protected_species/salmon_steelhead/recovery_planning_and_implementation/oregon_coast/oregon_coast_salmon_recovery_domain.html

19. Comments about the National Floodplain Insurance Program (NFIP)

Comments: We received contrasting comments about the National Floodplain Insurance Program, including: a request to clarify our recommendations relating to the NFIP; support for increasing protections for floodplains and calling for changes in the NFIP; and objections to what is described as our call for expanding the authority of the NFIP beyond the authority of the Federal Emergency Management Agency (FEMA).

Response: We appreciate these comments and consider the NFIP to be an important issue in the recovery of Oregon Coast coho salmon and other listed salmon and steelhead species. We explained the ESA consultation with FEMA that led to a jeopardy opinion in Chapter 3 and our recommendations related to the NFIP in Chapter 6.

20. Comments about Nutrients

Comments: We received a number of comments about the importance of salmon carcasses as sources of nutrient enrichment for young salmon and the ecosystem, including calls to reduce harvest in order to increase the number of spawners and the nutrients they provide.

Response: We appreciate these comments, acknowledge the importance of the nutrients that salmon carcasses provide, and emphasize the importance of adaptively managing harvest management to ensure adequate spawning escapement.

21. Comments about Removal/ Fill

Comment: The Oregon Department of State Lands (DSL) protects and conserves waterways through administration of a statewide program to regulate fill and removal in waters of the State of Oregon. …. the State regulates more waters and a wider range of removal-fill activities, both within and outside of Oregon Coast coho salmon habitat. NOAA's conclusion regarding the sufficiency of fill and removal mechanisms points to a lack of understanding of Oregon's fill and removal program.

Response: NMFS greatly appreciates the improvements that DSL has made since initial listing of Oregon Coast coho salmon, and continues to make today. The Plan (including Section 3.3.4 and Chapter 8) have been updated to acknowledge recent developments. We need to ensure that regulatory backstop for mining practices and other land uses are in place to support recovery of the coho salmon populations.

22. Comments about Research, Monitoring, and Evaluation (RM&E)

Comments: We received a comment that research and monitoring criteria in Chapter 4 would be better placed in Chapter 9, Research Monitoring and Evaluation as recommendations.

Response: We agree and moved several criteria to Chapter 9.

Comment: Hypothesis #2 in Chapter 9 is not readily testable and should be removed.

Response: We appreciate this comment and agree that the hypothesis would not be easy to test, but we do offer this relevant statement from Chapter 4 as reason to keep the hypothesis:

> As one indication of the adequacy of freshwater and estuarine habitat, NMFS will consider available evidence relating to the resilience of the Oregon Coast coho salmon ESU. For example, we will carefully assess the scores for population productivity critical abundance within the DSS (Wainwright et al. 2008).

23. Comments about Roads

Comments: We received comments on both sides of the impact of roads on Oregon Coast coho salmon habitat, for instance: we strongly disagree with NMFS' concerns and conclusions about the effects of legacy roads; the U.S. Forest Service and many partners have spent millions of dollars removing barriers at road crossings, upgrading road drainage, closing roads; there is an abundant body of literature that identifies the negative impact of forest roads on aquatic habitat, particularly within riparian zones and in landslide prone areas; the forest practices act is infamous for its grossly inadequate requirements for stream shading, large wood recruitment and for reducing sediment loading, particularly fine sediments from forest roads.

Response: We appreciate these comments about roads. While we recognize that efforts have been made by a number of organizations to reduce the impact of roads on coho salmon habitat, where we refer to impacts, we have cited scientific references that are the basis for these comments.

24. Comments about State Agencies

Comments: We received an extensive update from the state of Oregon about ongoing and new efforts to support and implement conservation actions that will benefit Oregon Coast coho salmon recovery and conservation.

Response: We appreciate the extensive effort by the state of Oregon to provide these updates and have included summaries of them in Chapter 8 and elsewhere in the Plan.

25. Comments about the Status of Oregon Coast Coho Salmon, Current and Historical

Comments: We received comments that the Plan overstated historical abundance and also comments that emphasized the significance of the dramatic reduction in abundance from historical levels.

Response: In the final Plan, we acknowledge that there are uncertainties relating to the data and methods used to estimate historical abundance, and while we point to the significant reductions in abundance, we explain that the delisting criteria is not based on historical abundance.

26. Comments about Strategies and Actions

Comments: We received a wide variety of comments about the strategies and actions in the Proposed Plan:

- The Plan is overly prescriptive.
- The Plan is not prescriptive enough.
- The plain fails to include the required site-specific management actions necessary to ensure recovery, including regulatory changes.
- The Plan proposes measures that are not supported by science or law, are unnecessary and some that are not authorized by the ESA.
- The Plan overstated the threats and limiting factors.
- The Plan understated the threats and limiting factors.
- NMFS should include more emphasis on reducing the impacts of tidegates, levee, dikes, and other structures and improvements.
- NMFS should include less emphasis on reducing the impacts of tidegates, levee, dikes, and other structures and improvements.
- The Plan fails to include any scientific analysis to show how the general measures it proposes will actually lead to a stable, self-sustaining populations of OCC salmon that no longer require the protections of the ESA.
- The Plan should include more, and specific, regulatory protections.
- The Plan should include less regulatory protections.
- The Plan does not emphasis the importance of landowner support and collaboration efforts.
- A number of comments expressed support for the Plan and for continued and increased protections for Oregon Coast coho salmon.

Response: Chapter 6 in the Plan includes specific actions at the ESU and stratum levels designed to meet the requirements of the ESA; they are based on the best information we had at the time

the Plan was finalized. These actions focus on the primary limiting factor that is recognized by federal, state and university scientists: the destruction, modification, and curtailment of the species' habitat. As we state in the Plan (with emphasis added here):

> **"**The ESA requires that recovery plans; "…to the maximum extent practicable - …, incorporate … a description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species…"

The site-specific management actions outlined in the Plan are at the ESU and stratum scales, since it is, at this time, not practicable to create scientifically based goals, strategies and actions at the population scale, given the data gaps and scientific uncertainties that remain.

In Chapter 6, we outline our overall recovery strategy and priorities, explain how we will incorporate an analysis of regulatory mechanisms into each listing factor, and identify specific habitat actions and management actions at the ESU and stratum level. We explain the uncertainties currently present; we also explain that development of population-level specific management actions will require collaborative management and may depend on resolution of state and local regulatory frameworks and land management mechanisms that are in the process of being amended. Development and implementation of population-level actions will also benefit from the ongoing development in technical and scientific tools for monitoring and assessment.

We also summarized our priorities in habitat management actions, and Table 6-1 outlines a 10-step process for development of strategic action plans and specific implementation measures. Table 6-3 summarizes potential options by listing factor. Finally, we identify recommended specific actions to implement strategies in each stratum, and identify to which areas and populations these recommendations apply. We will post population-level information on our website as it becomes available (the link is available in the Plan).

We revised the language in the Proposed Plan to clarify that NMFS will consider the combined effectiveness of voluntary and regulatory actions in future listing determinations. Throughout the Plan, we emphasized and identified the importance of maintaining flexibility to allow for the ability to pursue multiple pathways to recovery through adaptive management. The Plan's approach includes supporting and promoting voluntary opportunities with a regulatory backstop; both voluntary and regulatory management will be considered in assessing the delisting criteria.

27. Comments Supportive of the Plan

Comments: A number of comments expressed support for the Plan and for continued and increased protections for Oregon Coast coho salmon.

Response: We appreciate this support and look forward to working with all partners, stakeholders, and otherwise interested parties and individuals to implement this Plan and the state's conservation plan.

28. Comments about Threats and Limiting Factors

Comments: We received some comments stating that we overstated the threats and limiting factors and other comments stating that we understated them.

Response: Our treatment of threats and limiting factors is based on the best available scientific and commercial data available at the time the Plan was finalized. In some cases we corrected or updated information in Chapter 3 based on new information and comments we received. We also explain how these factors contribute to the listing of the Oregon Coast coho salmon ESU and to the subsequent reaffirmation of this listing. (For example, Table 3-1 summarizes our thorough assessment of this point.) We conducted a detailed analysis of each listing factor through our application of the best available science, and we identified where uncertainties remain and where limitations in the available information constrain our analysis.

29. Comments about Tidegates, Levees, Dikes

Comments: We received comments calling for more, and less, emphasis on reducing the impacts of tidegates, levee, dikes, and other structures and improvements.

Response: We recognize that these comments highlight an important set of issues that could affect many landowners and important habitat features. While we describe impacts and recommend actions, we know that much work remains to be done to inventory, assess, and propose measures relating to tidegates, levees, dikes, etc. and we will continue to work with federal, state and local agencies and stakeholders to implement practicable solutions to a variety of challenges.

30. Comments about Time and Cost Estimates

Comments: We received comments calling for more detailed accounting and analyses of the estimated costs associated with recovery.

Response: As we explain in the Plan, the statute calls for incorporation, <u>to the maximum extent practicable</u>, of estimates of the time and cost required to carry out the measures needed to achieve the Plans goals. Given the multiple paths that are possible to get to recovery and uncertainties about the ocean and freshwater conditions in the future, we cannot say how much effort will ultimately be required to achieve the recovery goals and delisting criteria. Given resource and information constraints, basing the estimates of the cost to recovery Oregon Coast coho salmon on the costs described in the OCCCP, adjusting for time and estimated monitoring costs, was the most practicable approach we were able to use. We explained our approach in detail in Chapter 7 of the Plan: we articulated the numerous uncertainties at play, identified a range of time and cost estimates, and explained why the range was the most specific assessment of time and cost estimates that we could practicably provide.

Comment: The addition of mandatory regulatory considerations has not been documented as having a benefit to the coho that can be quantified and. therefore, it is difficult to conduct any cost benefit analysis. For example, while the Proposed Plan describes the need to change the

Oregon Forest Practices Act, it does not state in any quantifiable way what these changes must be, or the measurable and quantifiable benefits thereof.

Response: This comment provides a good example of the challenges in estimating the cost of recovery. The final Plan makes recommendations and does not have and "mandatory regulatory considerations." We made the estimates based on the best information available, bearing in mind the importance of maintaining a flexible approach to accommodate various recovery pathways. We also explained the difficulty of quantifying the costs of regulatory amendments.

31. Comments about Updating the Information We Used

Comment: The Proposed Plan describes outdated Oregon Forest Practices Act administrative rules and agricultural regulations that do not reflect newer developments in the Agricultural Water Management Program and other Oregon Department of Agriculture (ODA) initiatives; some of the information from the OCCCP about the roles and responsibilities of various state agencies is no longer accurate. Updated information is available from the ODFW Salmon and Steelhead Recovery Tracker website: *http://www.odfwrecoverytracker.org/explorer/species/Coho/run/default/esu/129/.* The 2014 Forest Practices Act statute and administrative rules are available at: *http://www.oregon.gov/ODF/Documents/WorkingForests/FPARulebook.pdf.*

Response: We appreciate this information and updated a number of sections in the Plan in response to the state's comments.

Comments: We received a variety of other updates from federal, state, and local governments as well as other organizations and individuals.

Response: We incorporated numerous updates in the Plan and appreciate the effort that went into all the comments.

32. Comments about Voluntary and Regulatory Approaches

Comments: We received numerous comments about the role of voluntary and regulatory efforts in support of the recovery of Oregon Coast coho salmon from several perspectives: some calling for far less emphasis on regulatory mechanisms, others calling for increased regulatory protections.

Response: We appreciate all of these comments and have revised language in the Plan to more clearly explain the importance of maintaining flexibility to allow for the ability to pursue multiple pathways to recovery through adaptive management. The Plan's approach includes supporting and promoting voluntary opportunities with a regulatory backstop; both voluntary and regulatory management will be considered in assessing the delisting criteria in light of the ESA section 4 listing factor D: the inadequacy of regulatory mechanisms.

33. Comments about Water Quality and Quantity

Comments: We received extensive comments about the treatment of the Clean Water Act (CWA), Oregon's water quality standards, the Coastal Zone Act Reauthorization Amendments (CZARA), Total Maximum Daily Loads (TMDLs), Forest Practices Act, Agricultural Water Quality Management Act, and the coastal nonpoint program in the Proposed Plan. Included in these comments were suggestions that Oregon has not demonstrated that it has existing regulatory mechanisms to provide current and future protection of Oregon Coast coho salmon habitat in terms of water quality and until the state can demonstrate that waters listed on any of the four TMDL categories have been moved to Category 1 (all standards are met) or Category 2 (specific standards are met).

Response: The Proposed Plan has been revised and includes discussions on TMDLs, the CZARA, the nonpoint source program, and other programs. (See Chapter 8 and Tables 8-1 and 8-2.) In addition, as stated in Section 4.3.2, NMFS will consider progress in meeting the allocations or targets in TMDLs, the requirements of the CZARA and Clean Water Act Section 303(d), and other targets in its assessments to determine if the ESA listing factor criteria for Listing Factor A, the present or threatened destruction, modification, or curtailment of a species' habitat or range, and ESA Listing Factor D, the inadequacy of regulatory mechanisms, have been met. NMFS' assessments of these factors will be guided by the delisting framework set forth in the Plan, which encompasses consideration of the biological status and threats and the regulatory delisting criteria, and informed by the understanding that multiple combinations of strategies and actions could meet the biological criteria and delisting criteria.

During Plan implementation, NMFS will also work with federal, state and local agencies for more effective implementation and enforcement of existing regulatory mechanisms, including CWA, CZARA including temperature and sediment impairments and 404(d) permits, to ensure that effective regulatory backstops exist to support long-term persistence of Oregon Coast coho salmon populations.

Comment: NMFS alleges that while "a water leasing program is available, there is much uncertainty about how this program will result in increased instream flow." Presumably NMFS would like Oregon to develop a regulatory structure that would place more agricultural water rights instream. This regulatory suggestion is beyond the authority of the state and federal government, would disrupt Oregon's long-held prior appropriations doctrine, and would cost the state millions of dollars in litigation and compensation costs. At any rate, NMFS has failed to demonstrate that a lack of instream flow due to agricultural operations is impacting coastal coho species, nor has it alleged how increased instream flows would aid in coho recovery. NMFS discussion of instream leasing is misguided, not supported by facts or data, and would result in illegal regulation. The Oregon Agricultural Organizations request that NMFS remove this discussion from the Recovery Plan.

Response: NMFS has expanded discussions in the Plan, including in Chapters 3 and 8, to identify Oregon regulatory and volunteer programs that will continue to contribute to Oregon Coast coho salmon recovery efforts. Table 8-1 identifies these state programs. NMFS will rely to a great extent on the contributions of these programs during recovery plan implementation. The

statement in Section 3.3.4 that refers to water leasing has been revised. The statement now reads, “A water leasing program is available through contracts with the Oregon Water Resources Department and there is some uncertainty about how this program will assure adequate instream flow for Oregon coast coho salmon. The available information leads us to conclude that it will take significant increases in funding and other resources to ensure that water quality criteria are met and coho salmon habitat is restored to a significant extent.” In making this determination, NMFS relied on the best available information, with consideration of present uncertainties and in light of the comments received.