

**Response to General and Specific Public Comments  
Received Regarding the Conservation and Recovery Plan  
for Oregon Steelhead Populations in the Middle Columbia  
River Steelhead Distinct Population Segment**

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## **Introduction**

The Middle Columbia River Steelhead Distinct Population Segment ESA Recovery Plan (Recovery Plan) is the product of a four-year regional collaborative process involving Federal, state, Tribal, and local entities and a wide variety of stakeholders. The Recovery Plan is based upon the work of a regional team of scientists (the Interior Columbia Technical Recovery Team [ICTRT]) convened by NMFS and four regional recovery plans (the management unit plans) developed by local and regional planners to cover the entire range of the Middle Columbia River steelhead, anadromous fish that spawn in tributaries on both the Oregon and Washington sides of the Columbia River. The management unit plans, including the Oregon Conservation and Recovery Plan, are based on the subbasin plans developed under the Northwest Power and Conservation Council's Fish and Wildlife Program. This document contains comments and responses that were directed to the Oregon Management Unit Plan and those that were general in nature, but relevant to the Oregon Plan.

# I. Middle Columbia River Steelhead DPS Plan

## General Comments

**1. Comment:** NMFS is currently evaluating the reintroduced steelhead population above the Pelton Round Butte dam complex under section 10(j) of the ESA. This should be discussed in the Plan.

**Response:** As the commenter describes, NMFS is currently developing rulemaking under ESA Section 10(j) to designate steelhead reintroduced above the Pelton Round Butte dam complex as an experimental population. This would provide ESA coverage from take liability for lawful actions during the time frame identified in the rulemaking. There will be a public process associated with the proposed rule, including the opportunity for public comment. NMFS will evaluate section 10(j) designations as an option on a case-by-case basis when and if reintroductions occur in other systems.

**2. Comment:** Note that the September 24, 2008, Federal Register Notice and the proposed Mid C DPS Plan do not identify whether NMFS has sought independent peer review of the draft recovery plan during the review and comment period.

**Response:** The Interior Columbia Technical Recovery Team submitted comments on the Proposed Plan as peer reviewers. NMFS addressed these comments in this Response to Comments published on the NMFS Northwest Region website, and also made additions and revisions to the plan as appropriate in response to this review. Language to that effect has been added to the Executive Summary and main body of document.

**3. Comment:** The commenter is concerned that NMFS has revised recovery plans without describing out-of-subbasin threats (e.g., hatcheries, harvest, and hydro-power) with the same level of detail or with as strong an emphasis as for threats within tributary habitat.

**Response:** NMFS has, since publication of the Proposed Plan, strengthened discussions of out-of-subbasin limiting factors and the strategies and actions to address them.

**4. Comment:** Will NMFS incorporate into the final DPS Plan the actions contained in the Hydro Module (which summarizes actions in the FCRPS Biological Opinion), the Hatchery Scientific Review Group's (HSRG) work, and hatchery management plans? Also, the additional hydro actions

proposed by the State of Oregon in its dissenting view are confusing to the reader.

**Response:** The FCRPS actions contained in the Biological Opinion (and Hydro Module) and actions identified by HSRG or hatchery management plans are incorporated by reference in the recovery plan; thus, they are part of the Plan.

NMFS regrets any confusion that may be generated by the addition of the actions proposed by the State of Oregon in its dissenting view; however, since the Recovery Plan is intended to represent consensus among the participants, it is important to be transparent where the entities are in disagreement.

**5. Comment:** Because most of the Middle Columbia steelhead region is privately owned (64 percent), the actions of individuals on their land and codes/ordinances promoting conservation by cities and counties should not be discounted. In the face of population growth and development pressures, demand for water and desires to increase commodity production from the land, private landowners, communities, and counties must make a significant contribution to the recovery of Mid-C steelhead. This need should be acknowledged in the recovery plan.

**Response:** NMFS agrees. The following sentence has been added to the introduction of the Executive Summary and the main body of the document:

“While Federal, state, and tribal entities can make major contributions to the recovery of Middle Columbia steelhead, the actions of individuals on their land, as well as city and county codes and ordinances promoting conservation, are also essential.”

**6. Comment:** The Plan should include a life cycle mortality index for steelhead. The index would include such factors as dam and reservoir mortality, predation, fishing, prespawning mortality, and ocean survival.

**Response:** A life cycle mortality index was used in Chapter 9 to evaluate the potential effects of proposed recovery actions on the abundance and productivity of Middle Columbia steelhead. EDT (Ecosystem Diagnosis and Treatment) and AHA (All-H Analyzer) models were used to estimate survival in the various life stages from juvenile to adult.

**7. Comment:** While the Plan is thorough and well written, nearly identical conclusions and recommendations were reached in planning efforts in previous decades, yet implementation has been slow. Because of that history, the commenter believes consensus-building efforts are important.

**Response:** NMFS agrees that previous planning efforts focused on many of the same limiting factors and resulted in conclusions similar to this recovery plan.

In fact, a key approach used to develop this Plan was to build on previous information and incorporate new science when available, such as the new technical approach developed by the Interior Columbia Technical Recovery Team (ICTRT). This Plan, however, differs from previous planning efforts in the Middle Columbia in that it focuses exclusively on developing recovery strategies and actions for the threatened Middle Columbia steelhead.

NMFS also agrees that consensus building is critical to recovery of Middle Columbia steelhead. The DPS Plan is based on local recovery plans developed by regional or local planning groups, primarily through consensus building processes. Information from those local plans was integrated into a DPS-wide recovery plan. We believe that implementation of recovery actions is more likely if the plans use strategies and actions derived at the local level.

**8. Comment:** The plan should develop methods for rewarding restoration efforts and improved fish production in smaller management units.

**Response:** NMFS welcomes suggestions on methods for rewarding restoration efforts resulting in improved fish production in management units, but cautions that this could not result in delisting part of a DPS. NMFS can only legally delist the listed unit, which is the DPS.

**9. Comment:** An extension of the public comment period was requested in response to statements in the plan that NMFS and ODFW intend to work with local communities to create a “shared vision” of conservation and broad-sense recovery. The commenters asked for more time so that more of the John Day community could attend meetings and comment.

**Response:** NMFS and the Oregon Department of Fish and Wildlife (ODFW) responded to each commenter, informing them that, although the public comment period would not be extended, further meetings would be held to during the Plan revision period. NMFS and ODFW met with the commenters to understand the issues they raised and to seek agreement on how the Plan could be revised to address their concerns. Based on follow-up meetings with commenters, the Oregon management unit plan was revised or new text added as appropriate to address these public concerns.

**10. Comment:** NMFS should integrate more thoroughly the management objectives of this plan with the natural resource objectives of other state and federal agencies to avoid a recovery plan that too narrowly focuses on the needs of just one species and, as a result, at times unnecessarily compromises the needs of other important species, habitats, and resource users.

**Response:** Section 4(f) of the Endangered Species Act requires that NMFS adopt a recovery plan for each ESA-listed species. Therefore, recovery plans have to be focused on the recovery of one or more listed species. However, the purpose of the ESA, stated in section 2 of the Act, is to provide means whereby the ecosystems upon which these species depend may be conserved. NMFS takes this mandate for an ecosystem approach seriously and the recovery strategies are designed for this purpose. Furthermore, this Plan is built from MU plans that the lead stakeholders designed to meet not only the ESA requirements, but also additional purposes. This Plan was developed in close coordination with state and Federal agencies and land managers over several years to ensure that, where applicable, the Plan is consistent with and complementary to other agency objectives that support steelhead recovery. This Plan references numerous policies and management objectives of other agencies, and includes the actions of relevant agencies to comprehensively address recovery actions for all life stages of steelhead. For example, best management practices from several agencies are used as recovery actions in the Plan. In fact, the steelhead recovery actions identified in this Plan support the conservation of numerous species and habitat other species also depend upon in addition to steelhead.

**11. Comment:** How will new revisions and mandates by Judge Redden be incorporated into this recovery plan?

**Response:** Judge Redden’s rulings pertain to NMFS’ biological opinion (BiOp) on the Federal Columbia River Power System (FCRPS) management actions to be taken by the Bonneville Power Administration, U.S Bureau of Reclamation, and U.S. Army Corps of Engineers (the “action agencies”). The FCRPS BiOp has a number of components that will be included in the recovery plan. The recovery plan, through its “hydro module,” describes potential survival improvements as a result of FCRPS BiOp actions. Also, the final recovery plan will incorporate the FCRPS BiOp actions as important recovery strategies and actions. To the degree that future decisions by Judge Redden result in changed assumptions and/or an amended set of actions, the recovery plan may be updated accordingly.

## Harvest

**12. Comment:** Will harvest management decisions made in the *U.S. v. Oregon* process consider impacts on listed populations.

**Response:** *U.S. v. Oregon* is the result of the Federal government intervening in Federal court to protect tribal treaty reserved fishing rights in the Columbia Basin, and a 10-year agreement (through 2017) is now in place to govern mainstem Columbia River fishing. Harvest impact is limited to ESA incidental mortality limits set by NMFS. Within these ESA limits, the states and tribes negotiate how harvest will be allocated, with the objective being to balance the

catch between them. All of the fisheries are abundance based with higher harvest rates allowed as ESA-listed adult returns increase.

There is a standing technical committee, the TAC (Technical Advisory Committee), to help monitor the fisheries. The TAC, using models, develops pre-season estimates of adult returns, updates these estimates in-season based on dam counts, and monitors the fisheries in season. The fisheries (both state and tribal) are adjusted based on the in-season run forecasts to stay within the ESA impact limits. Most of the time the fisheries take less than the ESA impact limit. The states provide real time updates of the fisheries, accessible to the public via the Internet, during periods of fishing. There is usually a post-season review of the fishery.

To summarize, NMFS sets ESA limits; the states and tribes negotiate how the harvest will be allocated, with the objective being to balance the catch between them.

**13. Comment:** More detail is needed in the plan on whether harvest and the hatchery production system currently relied upon to support harvest are impeding recovery of the DPS and its component populations. If so, NMFS should call for a re-evaluation of escapement and harvest goals to ensure that the targets are designed to support recovery of the population and sustainability of any harvest program.

**Response:** More detailed information on tributary harvest management and treaty tribal harvest related to ocean impacts has been added to the DPS Plan. The Plan describes the actions that are proposed or ongoing to evaluate whether harvest and hatchery programs are impeding the recovery of the Middle Columbia River steelhead DPS. Section 7.1.6 of the DPS recovery plan describes the harvest actions to maintain the low fisheries impacts, including management actions by the parties to the *U.S. v. Oregon* agreement, and by the individual states through their Fisheries Management and Evaluation Plans. In addition to the management actions, the DPS Plan includes monitoring and evaluation to reduce uncertainties concerning fisheries impacts on the steelhead.

Section 7.1.4 of the DPS Plan describes the actions that are ongoing or have been recently completed to evaluate hatchery impacts, including work on the Mitchell Act Environmental Impact Statement, the USFWS Hatchery Review Team, Interior Columbia River Technical Review Team, and the Hatchery Scientific Review Group. Information and recommendations developed by these efforts and by others will be considered as NMFS conducts an assessment as part of the ESA consultation process for all hatchery programs in the Middle Columbia River steelhead DPS. The scheduling of the consultation process is required under Hatchery Action RPA 39 of the FCRPS Biological Opinion.



Furthermore, hatchery Action RPA 39 requires the evaluation of all of the Federally funded hatchery programs in the Columbia River Basin, including those that contribute hatchery strays that affect Middle Columbia River steelhead populations.

**14. Comment:** There appears to be a double standard when comparing harvest and hatchery goals with natural escapement goals: Fisheries are sometimes restricted to allow hatcheries to get their brood stock requirement, but fisheries are not restricted to meet natural escapement requirements.

**Response:** In many fisheries, natural escapement goals do restrict harvest. For example, the escapement goal for wild upriver bright fall Chinook returning to the Hanford Reach has limited fisheries in the ocean and mainstem Columbia River. Another example is Lewis River bright fall Chinook; ocean, mainstem and tributary fisheries are managed to meet the escapement goal in the Lewis River basin. The management unit recovery plans now provide natural escapement goals that were not available in the past for listed populations, and it is expected that these escapement goals will influence harvest management.

**15. Comment:** Rather than assuming harvest is not a limiting factor on wild steelhead recovery, harvest should be studied and evaluated. The 12 percent harvest impact on Klickitat River steelhead referred to in the plan should be considered a potential limiting factor.

**Response:** NMFS agrees with the commenter that harvest should continue to be studied and evaluated, although we disagree that harvest is a limiting factor for wild steelhead recovery. The Klickitat Recovery Plan, in Section 5.3, describes the reasoning behind the determination that the harvest rate for Klickitat and Deschutes River summer steelhead, which may exceed 12 percent, is not a key limiting factor.

Section 8.5.4 of the Oregon Steelhead Plan summarizes a modeling study conducted by Chilcote (2001) to evaluate the effect of harvest levels on the survival of 27 Oregon steelhead populations. The model looked at a range of fisheries mortalities from 0 to 75 percent. The results were stated in terms of the probability of population extinction in 50 years at each mortality rate. For most populations, the modeling suggested that the probability of extinction was essentially zero as long as fisheries mortality rates remained less than 30 percent. However, there was significant variation between populations. The probability of extinction increased dramatically as mortality rates became greater than 40 percent. Furthermore, once the probability of extinction increased beyond 0.05, the transition to an extinction probability of 1.00 was very rapid. In other words, once mortality rates increase sufficiently to cause the probability of extinction to exceed 0.05, any additional mortality would

cause a rapid increase in the likelihood of extinction. Because the transition from low to high risk happens rapidly, there is little room for error (in the model or the measurements of mortality rates).

To address this concern, ODFW generally manages steelhead fisheries not to exceed a maximum fisheries mortality rate of 20 percent, but it is more conservative when warranted. NMFS (2008b) estimated that for most populations in the MCR Steelhead ESU, harvest impacts from Columbia River tribal and non-tribal fisheries have averaged 8.23 percent for the period from 1998-2007 and are expected to remain at this level (NMFS 2008b, Table 8.8.8.8-1). The combined tributary and mainstem impacts for Klickitat summer steelhead (the highest harvest impact for all MCR steelhead populations) is 14.53 percent of the wild run. This impact is still below the 20 percent fisheries mortality rate identified by Chilcote (2001) and is considered conservative because it assumes a 63 percent wild steelhead encounter rate in the Klickitat River, with a 10 percent catch and release mortality, and because the population is exposed to only part of the tribal mainstem fisheries.

**16. Comment:** The plan should address improving the recreational and commercial fishery in the John Day basin, not just delisting.

**Response:** NMFS agrees with the commenter that a long-term goal would be to improve recreational and commercial fisheries. When delisting goals or broad-sense recovery goals are achieved, consumptive fisheries on wild steelhead may be possible. For example, this has occurred for the coho fisheries on Siltcoos and Tahkenitch lakes on the Oregon Coast. (<http://www.nwr.noaa.gov/Salmon-Harvest-Hatcheries/State-Tribal-Management/FMEP-OC-Coho.cfm>).

Furthermore, broad-sense recovery goals that go beyond those needed for delisting are designed to allow for meaningful harvest by treaty and non-treaty fishermen (see Sections 5.1 and 5.2 of the Oregon Steelhead Plan). Because of the importance of recreational fisheries, the USFWS and NMFS jointly issued the "Policy for Conserving Species Listed or Proposed for Listing Under the Endangered Species Act While Providing and Enhancing Recreational Fisheries Opportunities" on June 3, 1996 (61 FR 27978), which was issued pursuant to Presidential Executive order 12962, issued on June 7, 1995. That order requires Federal agencies, to the extent permitted by law, and where practical and in cooperation with States and Tribes, to improve the quality, function, sustainable productivity, and distribution of aquatic resources for increased recreational fishing opportunity. Among other actions, the order requires all Federal agencies to aggressively work to promote compatibility and reduce conflict between administration of the ESA and recreational fisheries.

17. Comment: Harvest of listed steelhead should be banned.

**Response:** NMFS does not agree that harvest of listed steelhead should be banned, because studies indicate that harvest, as presently managed, is not limiting wild steelhead recovery. Section 8.5.4 of the Oregon Steelhead Plan includes a modeling study conducted by Chilcote (2001) that evaluated the effect of harvest levels on the survival of 27 Oregon steelhead populations. The model looked at a range of fisheries mortalities from 0 to 75 percent. The results were stated in terms of the probability of population extinction in 50 years at each mortality rate. For most populations, the modeling suggested that the probability of extinction was essentially zero as long as fisheries mortality rates remained less than 30 percent. However, there was significant variation between populations. The probability of extinction increased dramatically as mortality rates became greater than 40 percent. Furthermore, once the probability of extinction increased beyond 0.05, the transition to an extinction probability of 1.00 was very rapid. In other words, once mortality rates increase sufficiently to cause the probability of extinction to exceed 0.05, any additional mortality would cause a rapid increase in the likelihood of extinction. Because the transition from low to high risk happens rapidly, there is little room for error (in the model or the measurements of mortality rates).

To address this concern, ODFW generally manages steelhead fisheries not to exceed a maximum fisheries mortality rate of 20 percent, but it is more conservative when warranted. NMFS (2008b) estimated that for most populations in the MCR Steelhead DPS, harvest impacts from Columbia River tribal and non-tribal fisheries have averaged 8.23 percent for the period from 1998-2007 and are expected to remain at this level (NMFS 2008b, Table 8.8.8.8-1).

18. Comment: How could harvest be considered only a secondary threat on steelhead populations, when it is actually incompletely monitored? This commenter applied the same logic to predation and suggested that management actions addressing both harvest and predation should be higher priorities.

**Response:** The DPS Plan describes in Section 6.3.7 the reasons why NMFS and the co-managers believe that harvest is a secondary threat on MCR steelhead populations. This information is reiterated in NMFS' response to Comment 28. Section 7.1.6 of the DPS Plan describes the harvest actions that are expected to improve monitoring and evaluation to reduce uncertainties concerning fisheries impacts on Middle Columbia River steelhead. These actions include creel surveys and other methods to quantify impacts in the more popular fisheries; in-basin monitoring of escapement from ocean to tributaries and onto the spawning grounds; and monitoring to verify the applicability of aggregate impact rates on mainstem fisheries on specific populations. A specific example

where monitoring is expected to improve is in the Klickitat River basin, where remodeling at the Lyle Falls Fishway will improve estimates of steelhead escapement, the proportion of hatchery and wild steelhead, and in-basin harvest rates.

**19. Comment:** Selective fisheries should be required for any commercial harvest on steelhead to protect the few remaining wild stocks, as is already required for sports fisheries.

**Response:** NMFS agrees with the comment that applying selective fisheries to commercial fisheries would protect those few steelhead that are currently affected by the fisheries. Since 1975, non-tribal gillnet fisheries have been required to release all steelhead caught. WDFW has proposed, as part of its Conservation and Sustainable Fisheries Plan, to work with lower Columbia River commercial fishers to develop live-catch harvest methods that can be used to replace current commercial gill-net fisheries (WDFW 2008). The Colville Tribe in the Upper Columbia River is also investigating the use of other gear to live-capture non-listed summer Chinook returning to the Columbia River above Wells Dam. The development of new gear may be applicable to other fisheries that currently harvest natural-origin steelhead. The Colville Tribal proposal is described in the Colville Fish and Wildlife Resource Management Plan (Colville 2006) (See objective AFG-4.01.s-4: “Develop live-capture gear and methodologies for selective tribal fisheries that can potentially protect natural-origin fish while consumptively harvesting hatchery-origin fish”).

## **Hatcheries**

**20. Comment:** When hatcheries are identified as having a negative impact on the wild population, they should be reduced or modified to allow natural populations to rebound and expand.

**Response:** NMFS agrees with the commenter that when hatcheries are identified as having a negative impact on the wild population, the program should be reduced or modified to allow natural populations to rebound and expand. NMFS will be conducting assessments as part of the ESA consultation process for all hatchery programs that affect the MCR steelhead DPS, including the upriver programs that result in strays into Middle Columbia River steelhead spawning habitat. The schedule for this consultation process is required under Hatchery Action RPA 39 of the FCRPS Biological Opinion. The consultation(s) will use recent work by the HSRG, Interior Columbia River Technical Recovery Team, and others to evaluate all the hatchery programs that are within, or that affect, the MCR steelhead DPS.

**21. Comment:** The Plan should aggressively identify some of the corrective actions required of hatchery operations to help guide HGMP and other

hatchery review processes. The plan should point out that transportation is one of the potential underlying causes of hatchery fish straying into middle Columbia tributaries.

**Response:** NMFS agrees with the comment that clearly defined hatchery actions and measures to minimize impacts from hatchery operations need to be identified. NMFS will be conducting an assessment as part of an ESA consultation process for all hatchery programs in the MCR steelhead DPS. The scheduling of this consultation process is required under Hatchery Action RPA 39 of the FCRPS Biological Opinion. The consultation will consider the work by the HSRG, Interior Columbia River Technical Recovery Team, and others to evaluate hatchery programs within the MCR steelhead DPS or that affect the DPS.

NMFS does not necessarily agree that the transportation of Snake River steelhead juveniles is an underlying cause of straying into the Middle Columbia River tributaries. However, this issue was identified as an action under the Hatchery Strategy in the Oregon Management Unit recovery plan (Section 9.7.1), which proposed to reduce the number of Snake River hatchery steelhead smolts transported at Lower Granite and Little Goose dams.

**22. Comment:** The Plan should recommend that hatchery production facilities have a plan to reduce output as natural production begins to recover.

**Response:** NMFS agrees that in the long term, as natural populations approach their broad-sense recovery goals, hatchery production levels should be reevaluated and decreased if appropriate. This question will be addressed in subsequent status reviews.

**23. Comment:** More segregation of hatchery fish is needed and could be done by clearly marking all releases for harvest and constructing exclusion weirs on spawning tributaries.

**Response:** NMFS agrees with the strategies of marking hatchery fish when they are being produced for harvest and segregating them from naturally spawning populations when they are not intended to supplement the natural population. The Oregon Steelhead Plan addresses this in Section 9.7.1, as part of the “Strategy to reduce the uncertainty of origin of hatchery strays and increase ability to recognize hatchery-origin fish,” with actions to increase the proportion of hatchery steelhead with CWTs (coded wire tags) so that the source of stray hatchery steelhead can be identified, and to mark all hatchery steelhead releases. NMFS also agrees that other strategies to control the escapement of hatchery fish on the spawning grounds should be considered (e.g., weirs).

**24. Comment:** The Plan needs to evaluate the impact of stray hatchery steelhead in each subbasin and recommend a solution. It is not enough to use recreational fisheries as a means to control stray steelhead; the numbers in some years are very large, and fishing is a relatively ineffective tool for their removal. The hatchery stray problem is exacerbated by the Columbia basin transportation program and by not marking all hatchery steelhead.

**Response:** NMFS agrees that the impact of stray hatchery steelhead needs to be evaluated. The Oregon Management Unit Recovery Plan includes in Section 9.7.1, as part of the “Strategy to reduce the uncertainty of origin of hatchery strays and increase ability to recognize hatchery-origin fish,” actions to increase the proportion of hatchery steelhead with CWTs so that the source of stray hatchery steelhead can be identified, and to mark all hatchery steelhead releases. As stated by the commenter, fisheries may not be effective in removing enough stray hatchery steelhead so the strategy in Section 9.7.1 also includes proposals to weir some tributaries to remove hatchery steelhead and to monitor others to determine if weirs are needed.

NMFS does not necessarily agree that the transportation of Snake River steelhead juveniles is an underlying cause of straying into the MCR tributaries. However, this issue was identified as one of the Out-of-Basin Research, Monitoring and Evaluation Need (see Section 12.4.2) in the Oregon Management Unit Recovery Plan and as an action under the Hatchery strategy that proposes to reduce the number of Snake River hatchery steelhead smolts transported from Lower Granite and Little Goose dams (see section 9.7.1).

**25. Comment:** Although the Oregon Steelhead Recovery Plan as well as the Mid-C Steelhead DPS plan describe the threat posed to several populations by out-of-DPS hatchery strays and identify Snake River hatchery fish as the primary source of the spawning strays, the DPS plan does not appear to link its proposed actions to actions in the Snake River recovery plan, which is also under development. Commenters recommend that language be included to describe the linkage between these plans with respect to this threat and to reiterate the threat’s significance. They also recommend that the DPS plan propose reducing the total number of smolt releases for those hatcheries with fish known to stray, as an interim measure while other hatchery actions are being developed.

**Response:** More information has been added to the DPS plan’s Chapters 6 and 7 regarding the source of out-of-DPS hatchery strays and actions to reduce their effects on threatened populations. Also, NMFS and the affected parties have already begun the process of revising and/or updating the Hatchery and Genetic Management Plans (HGMPs) in the Snake Basin that are causing the problem. The Snake River recovery plan will address this issue as well. The hatcheries

will be regulated, however, through the HGMP and NEPA processes already underway pursuant to the requirements of the FCRPS biological opinion's reasonable and prudent alternative. With regard to adding a proposal in the plan to reduce the total number of smolt releases from hatcheries that are the source of the strays, NMFS has included reducing the strays as a general strategy; the details need to be worked out in a regional process. The HGMP and *U.S. v. Oregon* processes are the forums in which to consider the specific action of reducing releases of smolts.

**26. Comment:** Given the incomplete assessment of the HSRG recommendations for developing hatchery supplementation programs, should they all be accepted? The HSRG does not address the emerging issues of ecological impacts from naturally spawning hatchery fish and hatchery releases. These effects include competition for rearing space, food resources, predator attraction, disease transfer, and predation on native fish.

**Response:** NMFS will be considering the HSRG recommendations along with other information when evaluating hatchery programs. NMFS supports the overall approach taken by the HSRG in their evaluation of hatchery programs in the Columbia River basin. NMFS agrees with the commenter that there are potentially significant emerging issues of ecological impacts in the tributary habitats from naturally spawning hatchery fish and hatchery releases. NMFS will be conducting an assessment of these issues as part of the ESA consultation process for all hatchery programs in the MCR steelhead DPS. The schedule for this consultation process is required under Hatchery Action RPA number 39 of the FCRPS Biological Opinion. The consultation will consider the work by the HSRG, as well as the Interior Columbia River Technical Recovery Team and others, to evaluate all the hatchery programs within the MCR steelhead DPS.

Furthermore, there are emerging issues of ecological impacts in the estuary. In the Columbia River estuary, limiting factors such as off-channel habitat availability, competition with native and exotic fish for food and space, disease and predation by piscivorous fish and native birds may in part be manifestations of density dependence. Density dependence refers to changes in the size of a population that are themselves a result of the size of the population, such as when a population declines because it has exceeded the amount of resources available to support it. Density-dependent mortality can occur through several mechanisms, such as direct competition for limited food and habitat and changes in the foraging activity of predators. With salmon and steelhead, density-dependent mortality can occur at any stage in the animal's life cycle and may be exacerbated by the introduction of and/or cumulative effects of large numbers of hatchery fish released over a relatively short period of time.

How much density-dependent mortality is taking place in the estuary compared to the ocean is unclear. There is some evidence that density-dependent mortality is occurring in the open ocean. For example, during years when salmon are especially numerous in the ocean, their growth rates are reduced (Peterman 1984 as cited in Ford 2007). One study found that, during years when nearshore ocean productivity was low, survival of wild Snake River Chinook decreased as releases of hatchery Chinook increased (Levin et al. 2001 as cited in Ford 2007). However, another study found no connection between ocean conditions and density-dependent mortality, which appeared to be occurring among wild Snake River Chinook as hatchery steelhead were released (Levin and Williams 2002 as cited in Ford 2007). The authors suggested that the apparent density-dependent mortality could be better explained by interactions in the tributaries or estuary than by interactions in the ocean.

There is growing awareness among scientists studying the Columbia River estuary that mechanisms related to density dependence may limit salmon and steelhead while they are using estuary and plume habitats. Scientists studying Skagit River fall Chinook have documented density dependence-related mortality as a result of loss of habitat in the Skagit estuary and believe that such mortality can be attributed to a 75 percent loss of tidal delta estuarine habitat (Beamer et al. 2005). With similar habitat losses in the Columbia River estuary, it is possible that too many fish are competing for limited habitat and associated resources in the estuary at key times, and that the resulting stressors translate into reduced salmonid survival. NOAA/NMFS's Northwest Fisheries Science Center currently is investigating potential density-dependent mortality in the estuary. The Mainstem Lower Columbia River and Columbia River Estuary Subbasin Plan raised the specter of density dependence in the estuary and recommended continued research to analyze conditions there (Northwest Power and Conservation Council 2004). Thus, although the occurrence of density dependence-related mortality in the Columbia River estuary has not been proven, given the dramatic changes in habitat opportunity and capacity in the estuary over the last 200 years, it is likely that some of the mortality associated with the limiting factors described in this chapter is related to increased density of juveniles in the estuary. Consistent with this concern, NMFS, Salmon Recovery Division and the Northwest Fisheries Science Center are planning to initiate a number of approaches to better define and describe the scientific uncertainty associated with ecological interactions of hatchery origin salmon on natural origin.

**27.Comment:** The use of hatchery fish to supplement natural populations is problematic: artificial propagation does not contribute to increased natural productivity needed for viability and appears, in most cases, to erode productivity of wild populations. Another comment said that in considering recovery options, an objective assessment of potential risks should be



undertaken and management techniques requiring less intervention should be evaluated before initiating artificial propagation.

**Response:** NMFS agrees with the need to be cautious when using the hatchery tool to help sustain and rebuild natural populations. Hatchery fish can provide a buffer when a natural population is at low abundance as a result of other factors. Risks to the natural population increase the longer hatchery fish are used to supplement a natural population. The decision to use the hatchery tool needs to be informed by the overall risks to the population from all sectors.

**28. Comment:** The commenter believes that all the steelhead currently in the John Day river system are the progeny of ODFW hatchery plantings in the 1960s, and thus recommends hatchery supplementation for faster population recovery.

**Response:** There is no indication that the wild steelhead are the progeny of hatchery outplants in the 1960s. Significant numbers of adult (native) steelhead were documented before the hatchery plantings, and a very limited number of hatchery steelhead were released in the John Day Basin, although rainbow trout have been released in larger numbers. Further, most of the steelhead releases were fry or eggs, which survive poorly. There were no documented returns from the limited number of steelhead releases. Genetics data show significant between-population variation among the five John Day steelhead populations. Such variation indicates that the populations were not derived from a recent common ancestry.

Hatchery supplementation is not recommended for the John Day Basin for three principal reasons:

- a. The John Day Basin is designated as a wild fish management basin, one of only a few in the entire Columbia River Basin.
- b. John Day Basin steelhead populations are among the most abundant and productive in the Columbia River Basin. Juvenile *O. mykiss* rearing densities throughout the basin are high.
- c. ODFW believes that hatchery supplementation has not been demonstrated to be an effective means of enhancing natural production and that it has been demonstrated to have negative long-term effects on natural productivity.

While NMFS agrees with ODFW's position as it applies specifically to the John Day populations, there are other circumstances in which a careful approach to supplementation to assist weak natural production may be warranted. The long-term benefits and risks of supplementation continue to be evaluated

## **Hydro – Mainstem Columbia**

**29. Comment:** The Plan relies on the BiOp for hydro actions, but the BiOp is currently being litigated. The commenter asked how this Plan will be modified following a court decision and to what extent NMFS considered the public comments and concerns related to the inadequacy of the 2008 BiOp when electing to use it as a basis for the Plan.

**Response:** The commenter points out that the extent of the mainstem hydro operation changes supported by the Plan are still unknown, since a final decision in Federal District Court has not yet been provided. The Plan acknowledges this problem in Chapter 7.1.3.1, and further states that “the plan for current mainstem hydro operations, as summarized in the Hydro Module, and further improvements for fish survival that may result from the ongoing FCRPS collaborative process, represent the hydropower recovery strategy...” NMFS recognizes that the FCRPS litigation process is controversial, but NMFS is bound by the decisions of the court. The recovery plan incorporates by reference whatever decisions come from this legal process.

**30. Comment:** Ocean mortality and tracking of outgoing smolts to see where they are lost should receive more study.

**Response:** NMFS agrees. More data are needed on this phase of the life cycle. Language was added in the DPS plan to address this critical uncertainty. Additional research needs to be done to obtain better estimates of ocean mortality. Two new sections have been added to the DPS Plan: 10.3 Critical Uncertainties and 10.4 Important Data Gaps.

## **Tributary Habitat**

**31. Comment:** Few cold water refuges for steelhead remain in the lower John Day basin. Sometimes fish returning in early summer start up the river in the cool water of a summer storm but are killed when warm temperatures return. The commenter recommended an aggressive plan to rehabilitate habitat in the lower tributaries to improve water temperatures.

**Response:** NMFS agrees. The Plan identifies elevated water temperature as one of several primary limiting factors for steelhead in the lower John Day River mainstem. In addition, recovery actions identified for the lower John Day mainstem include a broad suite of actions addressing each recovery strategy,

including actions to restore riparian conditions, improve large wood recruitment, and improve degraded water quality and maintain unimpaired water quality.

**32. Comment:** Cottonwoods need to be reintroduced to the riparian zone in the John Day basin .

**Response:** The Oregon Steelhead Plan's Strategy No. 5, Restore Riparian Condition, for the John Day basin includes recovery actions to restore natural riparian vegetative communities, including vegetative planting. Cottonwood reintroduction may be included as part of this action where appropriate.

**33. Comment:** The plan is overly dependent on habitat improvement in the John Day Basin; the emphasis should be shifted to supplementation, predator control, fire management related to water quality, and artificial weir log removal.

**Response:** The Plan identifies a broad range of recovery strategies and actions to address all limiting factors identified for the John Day Basin. Habitat improvement is just one of many recovery strategies and actions addressing the full range of limiting factors throughout the steelhead life cycle. Therefore, the Plan provides a balanced approach to identifying numerous recovery actions that can be implemented with the John Day basin, as well as out-of-basin actions. For example, the Plan includes predator control actions in the mainstem and estuary, fire management actions for upland habitat and removal of passage barriers in the tributaries. NMFS does not agree that there should be a shift to supplementation as part of the recovery strategy. The John Day is designated as a wild fish management basin, one of a few in the entire Columbia Basin.

**34. Comment:** In the John Day basin, when streams are fenced off against livestock, hardpan develops in the streambed. Also, ungulate streambed disturbance is vital for creating loose gravel for spawning beds.

**Response:** NMFS respectfully disagrees with this comment. The burden of scientific study of watershed and streambed process indicates that cattle moving through the riparian area and through the streambed do not restore stream and sediment processes. The Plan identifies agriculture and grazing practices as primary threats to the John Day MPG. This includes the impacts from livestock entering streams and causing streambed disturbance. One goal of the Plan is to restore stream processes, including the natural movement of gravel and sediment within the watershed. The Plan identifies numerous recovery actions to address this threat, including developing grazing strategies that promote riparian recovery, riparian corridor fencing, and removal of riparian grazing.

**35. Comment:** The Plan ignores significant habitat improvements in the John Day basin, most of them made, according to one commenter, without a recovery plan and without the help of state or Federal fish agencies. The commenters asserted that the fact that the John Day basin has the best run of MCR steelhead in the DPS is due to efforts of local people who know and understand the John Day Basin.

**Response:** NMF acknowledges the important habitat restoration work that has been carried out in the John Day basin and commends landowners for their leadership and dedication to habitat restoration. This important work has benefited steelhead and the ecosystems numerous species depend upon. Chapter 9 of the Oregon Steelhead Plan describes the program sufficiency, together with current and near-term efforts for each recovery strategy in the John Day basin. The DPS Plan assesses each MPG's viability status. The John Day MPG's overall status is not viable. The North Fork population is highly viable; however all of the other John Day River populations are below viable status. Therefore, overall viability improvements are still needed and actions still need to be carried out to address existing limiting factors.

**36. Comment:** The Oregon management unit plan's discussion of forest health and its relevance for steelhead recovery should be strengthened, particularly with respect to management to prevent catastrophic wildfires. The plan should address impacts that result from catastrophic fire, such as significant sediment loads that flush into streams and harm fish spawning and overall survival. The plan should list forest conditions as a primary limiting factor for the John Day MPG.

**Response:** The Oregon management unit plan does include substantive actions and information regarding forest health for all fish populations and also identifies forest health as an emerging threat. Specifically, forest health issues are included in the Limiting Factors and Threats section 8.2 and in Appendix J: *Fuels Treatment as an Action Contributing to Recovery of ESA-listed Anadromous Salmonids*. These forest health-related sections were developed in close cooperation with the Oregon Department of Forestry and the U.S. Forest Service. Based on the plan's limiting factors analysis, forest conditions are not a primary limiting factor for the John Day MPG, but it has been identified as an emerging threat.

## **Livestock**

**37. Comment:** The commenter strongly supports the emphasis in the DPS plan on the recovery of aquatic habitat. The impact of commercial livestock on sensitive steelhead spawning reaches is a concern; however, fencing as a primary tool for livestock management is inadequate. Fencing is a temporary fix and difficult to maintain in the long term. Commenter recommended

managing herds as a whole with constant movement ensured by a dedicated rider.

**Response:** NMFS agrees that improperly managed livestock grazing can severely reduce steelhead habitat quality. NMFS also agrees that improperly constructed and/or poorly maintained fences will not effectively control livestock. NMFS further agrees that active livestock herding and tending is also an effective technique to reduce damage of grazing to steelhead habitats. However, NMFS is aware that such techniques are relatively unpopular with livestock producers because of high labor costs. Because fencing costs are typically born by the public, livestock owners generally find fencing to be a more palatable means of limiting livestock access to streams. Furthermore, despite the maintenance issues with fences, they are a generally reliable means of livestock control.

**38. Comment:** The plan should address how ESA regulation may affect Federal grazing allotments, which are an important component of agricultural operations in the upper John Day basin.

**Response:** This Plan identifies limiting factors, recovery strategies and recovery actions at the population, watershed and reach scale. The Plan cannot address individual land use actions on the landscape, which may require detailed site-specific analyses such as Federal grazing allotment considerations. These are important issues that are best analyzed and decided in the context of other ESA decision-making and permitting forums such as ESA Section 7 consultations or Section 10 habitat conservation plans.

**39. Comment:** Reducing grazing on public forest lands results in higher fire hazard and that logging and grazing should be re-established to control the fuel load.

**Response:** NMFS disagrees that reducing grazing would necessarily increase the risk of wildfire. To the contrary, throughout much of the MCR steelhead DPS range, improperly managed grazing has increased the risk of wildfire by displacing native grasses with cool season grasses such as cheat that are dormant and highly flammable during the summer months. That said, NMFS agrees with responders' implied point that properly managed grazing can be used as a tool to achieve forest health and salmonid habitat objectives. NMFS also agrees that forest health plays a major role in determining the health of steelhead habitat and accordingly works closely with state and Federal land managers to enable management practices that reduce the risk of catastrophic wildfire.

**40. Comment:** Fishing, predation, and catastrophic wildfires are far more likely to adversely impact steelhead recovery efforts than cattle grazing as it

is currently managed; the plan also lacks information on local watershed conditions. The commenter would like the opportunity to explore with NMFS scientists physical or biological factors in the John Day River Basin that might substantially mitigate or alter the need for land use restrictions to protect steelhead, depending on local or site-specific circumstances.

**Response:** By its nature and scope, the Oregon Steelhead Recovery Plan does not provide site-specific information about individual land use practices or analyze specific land use actions. It may provide a context for these actions, but additional site-specific information will still be needed for individual land use reviews. The Plan describes limiting factors and the actions needed to recover the species. Reach scale actions are identified and prioritized. The commenter is correct that limiting factors such as main stem hydro impacts, ocean conditions and hatchery strays pose a greater overall relative risk to steelhead than cattle grazing.

Regarding fishery impacts, NMFS recommends that the commenter review section 8.5.4 of the Oregon Steelhead Recovery Plan for a detailed discussion of why harvest is not considered a limiting factor. This section describes the modeling that was conducted by Chilcote (2001) that evaluated the effect harvest levels on the survival of 27 Oregon steelhead populations. The model looked at a range of fisheries mortalities from 0 to 75 percent. The results were stated in terms of the probability of population extinction in 50 years at each mortality rate. For most populations, the modeling suggested that the probability of extinction was essentially zero as long as fisheries mortality rates remained less than 30 percent. However there was significant variation between populations. The probability of extinction increased dramatically as mortality rates became greater than 40 percent. Furthermore, once the probability of extinction increased beyond 0.05, the transition to an extinction probability of 1.00 was very rapid. In other words, once mortality rates increase sufficiently to cause the probability of extinction to exceed 0.05, any additional mortality would cause a rapid increase in the likelihood of extinction. Because the transition from low to high risk happens rapidly, there is little room for error (in the model or the measurements of mortality rates). To address this concern, ODFW generally manages steelhead fisheries not to exceed a maximum fisheries mortality rate of to 20 percent, but it is more conservative when warranted. NMFS (2008) estimated that for most populations in the MCR Steelhead ESU harvest impacts from Columbia River tribal and non-tribal fisheries has averaged 8.23 percent for the period from 1998-2007 and is expected to remain at this level (Table 8.8.8.8-1).

The Oregon Steelhead Plan addresses forest health issues in Section 8.2 and Appendix J. Forest health is also identified as an emerging threat. Additional text was added to the Oregon Steelhead Plan to describe how active forest health treatment can also help steelhead, based on local conditions.

## Mainstem Columbia River

**41. Comment:** Only a few sentences in the entire DPS Plan were devoted to habitat conditions in the mainstem Columbia River, beyond fish passage. No actions are recommended to address protection or enhancement of Columbia River nearshore (freshwater) or cold water refugia habitats.

**Response:** NMFS understands that the commenter is referring to mainstem habitat areas not already addressed as part of mitigating actual dam operations. NMFS agrees that there is a need to assess restoration and protection opportunities and potential benefits from nearshore habitat or cold water refugia. Currently, data on these areas is limited. The DPS Plan has been revised to include such an assessment as a DPS-level strategy.

That said, estuary and mainstem habitat below Bonneville Dam are covered in Sections 6 and 7 of the DPS Plan, which incorporate the Columbia River Estuary Recovery Plan Module's description of threats and primary limiting factors in the mainstem Columbia River below Bonneville Dam. Section 7 of the Plan incorporates specific Estuary Module strategies and actions to address the threats and limiting factors that are priorities for recovery.

## Predation

**42. Comment:** The Plan contained very little information about predation within the tributaries. Also, only the Columbia offers a reward on pikeminnows.

**Response:** NMFS agrees that tributary predation could be a significant concern. NMFS supports a reward fishery in the tributaries, similar to that funded by BPA on Columbia pikeminnow in the mainstem, to help protect outmigrating juveniles. NMFS supports the ISAB's recommendation to the Council to urge state agencies to relax or eliminate fishing regulations that actually protect or enhance populations of introduced predators. However, NMFS also notes the ISAB's conclusion, as summarized in Chapter 7 of the DPS plan, that methods of controlling non-native piscivores have not been sufficient, and that maintaining and restoring habitat is the key strategy that enables native species to persist in habitat for which they are best adapted. Readers are encouraged to refer to each of the management unit plans for descriptions of predation issues in the tributaries. Also see response to Comment 61.

Added to the DPS Plan Section 7.4.4 more specific strategies and actions to address non-native predators. These include encouraging reward fisheries on non-native predators, encouraging the states to relax regulations that enhance

non-native species that prey on threatened and endangered salmonids, and promoting healthy tributary ecosystems as the foundation for reducing non-native predation on listed salmonids.

**43. Comment:** NMFS needs to be more specific about how to reduce predation by pinnipeds, cormorants, and terns and needs to consider lethal methods.

**Response:** NMFS agrees and has added more detail on these subjects. The DPS plan states in Section 6.3.5.1 “In March 2008, NMFS granted the request of the states of Oregon, Washington, and Idaho to lethally remove problem California sea lions” and “NOAA has authorized the states to remove as many as 85 animals annually...” Concern with the predation impacts of double-crested cormorants and terns is described in Section 6.3.5.2, as is a statement supporting the need to review all alternatives for the reduction of their abundance in the Columbia River estuary. Section 7.1.5.1 of the DPS Plan summarizes the actions in the FCRPS Biological Opinion and the Estuary Module for reducing predation by terns and cormorants. For example, the FCRPS biological opinion calls for further reduction in bird habitat on East Sand Island. Section 7.1.7 of the DPS Plan also provides a selection of some of the specific Estuary Module actions beneficial to steelhead, which include specific actions addressing pinnipeds, cormorants, and terns.

**44. Comment:** The plan should include more on the relationship of bull trout and steelhead and how to protect both, given that bull trout are predators of steelhead.

**Response:** NMFS agrees that bull trout are predators of steelhead. However, even though there is overlap in their freshwater rearing area, including the mainstem Columbia, the population of bull trout is depressed and probably does not constitute a major predator to steelhead. To further address this question, NMFS would support research on the predator/prey relationship between bull trout and steelhead.

**45. Comment:** A program in the mainstem Columbia basin targets the native pikeminnow (a salmonid predator), while protecting introduced species like bass, walleye, and channel catfish as game fish.

**Response:** NMFS is also concerned about the abundance of non-native predators such as bass. In Section 7.4.4 of the DPS plan, NMFS summarizes the results of the ISAB report, which urges the state agencies to eliminate fishing regulations that enhance the non-native piscivorous fish populations. NMFS will add this as a specific action to the recovery plan. In addition, NMFS supports the recommendations in the Yakima Steelhead Plan for research and monitoring to track trends in predator populations, understand their impacts on steelhead,



and develop appropriate management techniques to reduce predation. See Response to Comment 44.

## **Reintroduction of Extirpated Populations**

**46.** Comment: Restoring passage at Pelton Round Butte Dam on the Deschutes and habitat restoration and passage after removal of Condit Dam on the White Salmon are important to steelhead recovery.

**Response:** NMFS agrees with the comment. The Plan includes fish passage facilities at Pelton Round Butte dam and reintroducing steelhead to the upper Deschutes River basin. The White Salmon Plan's recovery strategy contains two key parts: (1) a plan for reintroducing naturally produced steelhead into historical habitat after the removal of Condit Dam, and (2) improving and increasing freshwater habitat for steelhead production in the watershed.

**47.** Comment: The local community in Morrow County will support restoring a sustainable summer steelhead run to the Willow Creek subbasin, if NMFS and ODFW support the plan and if access to funding is available, this commenter contended.

**Response:** Willow Creek is one of three extirpated populations in the Middle Columbia Steelhead DPS. Section 1.5 of the Oregon Steelhead Plan identifies broad sense recovery goals that include the recovery objective of having the extirpated Willow Creek population restored in a manner that engages landowner cooperation in the reintroduction. NMFS and ODFW will work with the local community and interest groups to identify funding opportunities to implement reintroduction activities.

## **Landowner Concerns**

**48.** Comment: The Oregon Steelhead Plan includes a goal of ensuring that there will be no regulation or ESA liability for impacts on reintroduced populations until they are self-sustaining. This commenter noted that regulation or restriction may be necessary to protect the fish so that they can become self-sustaining and suggested that Section 10 of the ESA provides a great opportunity for private landowner protection through development and approval of Habitat Conservation Plans.

**Response:** Reintroduced steelhead are listed under the ESA as part of the Mid-Columbia steelhead DPS and therefore, section 4(d) take prohibitions apply to these fish. NMFS is working with stakeholders and local governments in the upper Deschutes River basin to educate land owners and local jurisdictions about how to avoid take of newly introduced listed steelhead. NMFS is also

exploring possibilities for designating steelhead introduced above Pelton Round Butte as an experimental population. In addition, several irrigation districts in the upper basin have initiated an ESA section 10 habitat conservation plan for ESA coverage of their actions.

**49.** Comment: The extent of local efforts to improve steelhead habitat is not recognized in the Plan. This commenter also wrote that the plan will bring serious harm to agriculture.

**Response:** NMFS recognizes the importance of the time and commitment citizens make to steelhead recovery. Section 1.5 of the DPS Plan acknowledges the conservation efforts already underway throughout the region and this important recovery work makes the possibility of near term future delisting a strong possibility. The Plan, however, is a voluntary road map for steelhead recovery and because it is non-regulatory, no one is required to carry out the actions identified in the Plan. The actions in the Plan were developed through a multi-year process with diverse stakeholders, including representatives of the agriculture community. Recovery actions were developed with these stakeholders and the goal is to recover steelhead in the context of local working economies, including agriculture. Financial resources will be sought and incentives used to implement recovery actions.

## **Climate Change**

**50.** Comment: The Plan should provide more specific direction regarding how watersheds should be managed to mitigate impacts from climate change and help this DPS survive in the face of a warming climate.

**Response:** NMFS believes that all of the strategies proposed in Chapter 7 of the DPS Plan do address potential impacts from climate change. As stated in Section 6.3.8, climate change may affect steelhead more than other salmonids because of their long rearing period in freshwater. This possibility further reinforces the importance of achieving survival improvements throughout the entire steelhead life cycle, as well as the importance of maintaining habitat diversity. The DPS Plan's recovery strategies in relation to climate change are further bolstered by the 2007 report on climate change submitted to the NPPC by the Independent Scientific Advisory Board. More extensive reference to this report and its recommendations has been added to Section 7.1.8 of the DPS Plan.

## **Definition of DPS, MPGs, Populations – What Should Be Included**

**51. Comment:** Mill Creek, 4 miles west of Fifteenmile Creek, should be included in the Plan as it has wild winter steelhead similar to those in Fifteenmile Creek.

**Response:** Steelhead in Mill Creek, Mosier Creek, and Chenoweth Creek are part of the Fifteenmile Creek population. There are a significant number of priority protection and restoration actions proposed in the Oregon Steelhead Plan's Chapter 9, Fifteenmile Creek population tributary habitat action table, for Mill Creek. These priority habitat actions reflect the plan's recognition of the importance of the Mill Creek watershed.

**52. Comment:** Hood River should be included in the Mid-Columbia plan.

**Response:** NOAA Technical Memorandum NMFS-NWFSC-73 provides the biological background for placing the Hood River steelhead population in the Lower Columbia DPS. The Lower Columbia Technical Recovery Team used several criteria, including geographic location and genetic distinctness, for making their recommendation.

**53. Comment:** What is the scientific rationale for lumping John Day in with the other management areas? NMFS should consider a separate listing status for the John Day Basin.

**Response:** The ESA requires NMFS to list and delist species at the evolutionarily significant unit (ESU) or distinct population segment (DPS). Section 2.2 describes the DPS' biological structure. The John Day MPG is one of four MPGs making up the Mid-Columbia steelhead DPS. This DPS structure determines why the John Day MPG is included with the other MPGs. There is currently no precedence for NMFS to list or delist subunits of a DPS. One potential opportunity to explore with NMFS is to provide incentives and recognition for the important recovery work that is taking place in the John Day basin.

## **All-H Analysis**

**54. Comment:** The All-H analysis in the plan is actually related mainly to habitat without sufficient consideration of disease and hydropower impacts.

**Response:** Section 9 describes the models used to estimate the effects of actions within different sectors on steelhead abundance and productivity. As described in Section 9.1.2, the AHA model was used to estimate the effects of actions within tributary habitat, harvest, hatcheries, hydro, predation, and the estuary on the abundance and productivity of steelhead populations within the Mid-Columbia DPS. In addition, various ocean conditions were included in the models. Tables in Section 9 identify the benefits associated not only for habitat, but also for hydro, predation, estuary, harvest and ocean conditions. The tables

were set up this way so the reader could easily identify the projected effects of actions within different sectors. “Disease” was not included in modeling because mortality associated with disease is not projected to increase from baseline conditions (i.e., disease was not identified as a primary limiting factor; see Section 6.3.5.5). Furthermore, actions intended to improve hatchery programs should also reduce the potential incidence of disease within wild steelhead populations.

**55. Comment:** The All-H analysis in the Oregon Steelhead Plan is based on questionable assumptions and should be improved before it can be useful for management for recovery.

**Response:** NMFS disagrees. The plan and Appendix H describe the assumptions, methods, and analyses used to determine the potential effects of proposed recovery actions on the abundance and productivity of Middle Columbia River steelhead. Oregon’s Independent Multidisciplinary Science Team (IMST) and the Interior Columbia Technical Recovery Team reviewed this analysis and found the methods to be reasonable and technically sound. The expected benefits of the proposed actions as identified in the All-H analysis will be monitored and evaluated over time to determine whether the actions are providing the benefits anticipated in the All-H analysis. Recovery actions can be adjusted through adaptive management as monitoring results are evaluated.

## **Monitoring and Adaptive Management**

**56. Comment:** Critical uncertainties must be acknowledged and thoroughly addressed in the Monitoring and Adaptive Management plans that are to be developed after the Plan’s adoption. In addition, monitoring should include resident trout populations, not just sampling of migrating juveniles or migrating adults.

**Response:** NMFS agrees that critical uncertainties should be clearly defined and addressed in monitoring and adaptive management plans. The Oregon Steelhead Plan contains the identification of critical uncertainties that currently limit the ability to make informed management decisions. The Oregon Steelhead Plan then developed RM&E objectives from those critical uncertainties. We anticipate a similar approach to be used in the remainder of the Middle Columbia DPS management units. Resident trout populations should be monitored when there is a question on the overlap with steelhead viability parameters. The concern and monitoring needs are greatest in areas supporting large rainbow trout populations.

## **Implementation**

**57. Comment:** What is the relationship between the “Fish Accords” and the Middle Columbia River steelhead recovery plan?

**Response:** The DPS plan Chapter 11, Implementation, has been updated to include the following information about the Fish Accords.

The Fish Accords consist of three Memorandums of Agreement (MOAs) entered into between the Federal Columbia River Power System (FCRPS) action agencies (Bonneville Power Administration, U.S. Army Corps of Engineers and the Bureau of Reclamation), four tribes, and one state. The most relevant MOA to the Middle Columbia River steelhead is with the Columbia River Inter-Tribal Fish Commission and the three treaty fishing tribes, Confederated Tribes of the Umatilla Indian Reservation; Confederated Tribes of the Warm Springs Reservation; and Confederated Tribes and Bands of the Yakama Nation. The MOAs are 10-year action agency commitments for projects to benefit fish affected by the FCRPS, with a focus on ESA-listed fish. The projects will be reviewed through the Northwest Power Act processes for implementing the Fish and Wildlife Program, administered by the Northwest Power and Conservation Council.

NMFS and the MU stakeholders view the MOAs as they do other significant funding sources, such as the Pacific Coast Salmon Recovery Fund (PCSRF). It is critical that these funds are targeted to priority recovery plan actions and that the reporting systems for implementing these actions will contribute to ESA recovery plan reporting overall. It will be an important task for the Mid-C Forum, the parties to the Accords, and the Northwest Power and Conservation Council to ensure that these funds and actions are part of recovery plan implementation and reporting.

**58. Comment:** Explain the relationship between the Northwest Power and Conservation Council’s (Council) Fish and Wildlife Program and the Middle Columbia River steelhead recovery plan.

**Response:** The Fish and Wildlife Program is funded by the Bonneville Power Administration (BPA) and administered by the Council. BPA will be implementing both its FCRPS Biological Opinion obligations and its Fish Accord obligations through this program. The Program will also fund actions that go beyond the scope of the FCRPS Biological Opinion and the Accords. The Council implements its Program according to subbasin management plans that guide review and funding recommendations. The subbasin management plans were developed in 2000. NMFS has encouraged all recovery planning in the Columbia Basin to build upon the Council’s subbasin plans. In its 2009 Program, the Council recognized that the recovery planning work in the Columbia Basin has continued and will initiate an effort in 2009 to update subbasin management plans so that relevant portions of recovery plans can be considered. NMFS and

the Forum intend to participate in the subbasin plan update to ensure that the appropriate strategies and actions in the Middle Columbia River steelhead recovery plan are incorporated into the Council's updated subbasin management plans.

## Costs

**59. Comment:** The plan is too expensive and should have a cost/benefit analysis. With a cost of \$500 million and a goal of 15,000 fish, the plan proposes to spend over \$30,000 per fish to achieve delisting—not a realistic value proposition.

**Response:** The ESA requires that recovery plans identify the cost to recover a listed species. However, cost/benefit analyses are not required. NMFS agrees that significant resources will be needed to recover Middle Columbia River steelhead; yet recovery of the species will provide economic, ecological, cultural, and numerous other benefits, many of which are difficult to quantify. It should be noted that the reference to the 15,000 fish is for annual abundance, while the \$500 million is the expense over a 30-50 year timeframe. Cost per fish over 50 years is far less than \$30,000.

**60. Comment:** The Plan does not address social and economic impacts and will create serious economic and social hardship with no measurable benefits to ESA listed species.

**Response:** The ESA requires that a recovery plan for a listed species include measurable criteria that will determine when the species can be delisted, site-specific actions to achieve the recovery plans' goals, and time and cost to carry out these measures. Therefore, based on the ESA, a recovery plan focuses on specific listed species and not on the social and economic impacts of implementing the recovery plan. In addition, recovery plans are voluntary and non-regulatory so that citizens are not required to carry out actions identified in the Plan. We recognize, however, that a recovery plan will only be successful and fully implemented with the support of local communities, agencies and relevant stakeholders. Therefore, partnerships will be formed and funding sought to implement recovery actions so that no sector of society is bearing an unreasonable burden to implement the Plan. Through the Plan's All-H analysis we know the proposed actions will benefit steelhead. The Plan's adaptive management plan will allow actions to be adjusted over time as needed to recover steelhead.

## II. Interior Columbia Technical Recovery Team Comments

1. Comment: The current status chapter should include spatial structure and diversity (SS/D) status of the DPS. The Gaps chapter should restate the need to also consider SS/D factors, not just abundance and productivity that elevate the risk of populations.

**Response:** A new section on spatial structure and diversity has been added to Chapter 4, Current Status Assessment of DPS. A summary of that information has been added to Chapter 5, the “Gap” between Current and Desired Status.

2. Comment: The DPS plan should more specifically describe high priority threats that must be addressed for each population. The specific threats that are identified in the MU Plans and highlighted in Sections 6.3 and 6.4 of the DPS Plan should be incorporated into the Threats Criteria. Incorporating more specific criteria relative to threats would give regional managers a clear picture of desired levels of reduction to target in their strategies. In the cases where targets have been established it would be beneficial to use the targets in the criteria to help guide the future threats status assessments.

**Response:** NMFS agrees that more specific and measurable threats criteria are highly desirable. NMFS deeply appreciates that regional managers would like to have clear, specifically defined targets for reducing threats, and accordingly a clear path to delisting. Building adaptive management into the recovery plan is an appropriate response to the scientific uncertainties that remain. Research, monitoring, and evaluation (RM&E) are necessary for adaptive management.

The threats criteria listed in the DPS plan for each of the relevant listing/delisting factors are intended to help recovery planners formulate appropriate RM&E to ensure that information is available to help determine whether the underlying causes of decline have been addressed and mitigated before a species is considered for delisting. NMFS intends that the appropriate metrics will be developed in the cooperative process of local and regional implementation, and fed back into adaptive management for steelhead recovery. In some cases, metrics or targets in certain categories have already been established by NMFS or by management unit planners and approved by NMFS. These will become part of the RM&E plan that will be developed after the DPS plan has been approved (see Chapter 10 of this Plan).

3. Comment: The plans should address the question of effectiveness of recovery actions—with empirical examples demonstrating effectiveness or description of effectiveness of similar types of actions.

**Response:** Section 10 indicates that a more detailed and specific RM&E implementation plan will be established after the recovery plans are finalized. The plans will include status and trend monitoring for all statutory listing factors, implementation and compliance monitoring, and effectiveness monitoring. In addition, the plan will include a section on how the data will be managed and curated. An adaptive management plan will also be developed that helps track the effectiveness of the recovery plan.

4. Comment: The DPS plan should discuss how the various harvest planning forums can be linked with the proposed Mid-C planning forum and should identify what entity should be responsible for reporting on current harvest impacts and tracking answers to key monitoring/evaluation questions regarding harvest impacts that relate directly to recovery strategies.

**Response:** NMFS agrees that the Mid-C planning forum should closely track the decisions of harvest managers, especially seasons and harvest impacts on Middle Columbia steelhead adopted in *U.S. v Oregon*. The Middle Columbia forum will determine how to address this issue when their implementation meetings begin in 2010.



### **III. Management Unit Plans**

#### **A. Oregon Steelhead Recovery Plan**

##### **General Comments**

1. Comment: The Oregon Steelhead Recovery Plan is a comprehensive, science-based recovery plan.

**Response:** ODFW acknowledges this comment and notes that the Plan would not be possible without the dedication, involvement and expertise of the Sounding Board members, Recovery Planning Team, Management Action Teams and consultants. ODFW would also like to thank the Interior Columbia Technical Recovery Team who developed the technical population and viability documents, and the NMFS economist who helped to develop the cost estimates used in the Plan.

2. Comment: It is important for ODFW to adopt as state policy the delisting goal and criteria in Section 5.1, p. 5-1 of the Oregon Steelhead Recovery Plan. This passage defines delisting criteria and the viability criteria defined by the ICTRT as synonymous. This commenter also urged ODFW to adopt by rule the recovery objectives on ps. 5-18 and 5-19.

**Response:** Comment noted. The ESA delisting goal and criteria are used by NMFS in its role to list and delist species under the ESA. The State of Oregon does not have this authority under the ESA. The Plan is voluntary and non-regulatory, providing a framework and road map of voluntary actions that may be carried out to recover steelhead. Similarly, the recovery objectives provide the goals and context for the plan. However, the State of Oregon will adopt elements of the Oregon Steelhead Plan as rule and will consider the commenter's request in rule making.

##### **John Day Basin Comments**

3. Comment: Despite progress in habitat improvements in the John Day basin, with many costs borne by private landowners, the John Day steelhead MPG cannot be delisted until the rest of the DPS "catches up."

**Response:** Based on the ESA, NMFS can only delist steelhead by the distinct population segment designation (DPS) for which it was listed. As stated in the response to Comment 71, the John Day MPG still needs improvements in viability even though important advancements have been made through landowner restoration work. Recovery actions are being implemented across the DPS and this DPS has strong potential for future delisting based on

improvements to viability. NMFS and ODFW will work with landowners and stakeholders provide incentives for restoration work and identify ways to recognize the important recovery work that has been carried out over the years.

4. Comment: The John Day basin should be set apart and monitored separately from other Mid-Columbia units.

**Response:** DPS-wide monitoring and adaptive management are essential to understanding how steelhead respond to recovery actions and to track changes in viability status over time. Oregon will implement monitoring in coordination with other Management Units, the Mid-C Forum's technical science team, and NMFS. Monitoring will still be carried out at the local level in the John Day basin, yet it is essential that local monitoring is coordinated DPS-wide so that data on the status of the DPS are available for the 5-year DPS status reviews conducted by NMFS.

5. Comment: Because streams in the John Day basin historically were poisoned with rotenone are any native fish are left in the basin?

**Response:** It is correct that past management practices to control non-native species and remove large wood from the stream channels have negatively impacted stream structure and the composition of native fish found in the John Day basin. Despite these and other past practices, however, native fish still thrive in the basin and the Recovery Plan describes the current status of ESA-listed steelhead and the actions needed to recover the species and restore ecological processes.

6. Comment: The plan did not mention a strategy to improve water flows in the John Day basin, but flows are critical to steelhead in that area.

**Response:** NMFS and ODFW agree that adequate instream water flows are critical to steelhead survival and eventual recovery. The Oregon Steelhead Recovery Plan identifies inadequate stream flow as a habitat-related limiting factor. In addition, Section 9 of the Oregon plan identifies two strategies and related recovery actions for these strategies to address low flow and the water quality consequences of low flows:

- Strategy 6: Restore natural hydrograph to provide sufficient flow during critical periods; and
- Strategy 7: Improve degraded water quality and maintain unimpaired water quality.

7. Comment: recommended a fish trap, much like Shearer's Falls at Tumwater, to select out hatchery strays in the John Day tributaries.

**Response:** Comment noted and the Tumwater site will be evaluated. If a fish ladder is available at Tumwater Falls then the option to install a trap similar to the one at Shearer's Falls may be possible. However, the trap at Shearer's Falls is currently used only for enumeration and is not being used to remove hatchery steelhead. There is a proposal in the Recovery Plan that if other measures fail to reduce the number of hatchery steelhead in the Deschutes River, the trap at Shearer's Falls could be used to remove hatchery steelhead.

**8. Comment:** Ranchers in the John Day basin have paid an extremely heavy financial cost for riparian recovery for steelhead, yet there are still not enough fish. This commenter wondered whether the impact of riparian conditions on fish recovery has been overestimated, and suggested that NMFS needs to re-examine ocean conditions, predators, lower river conditions, and everything else that impacts the fish once they leave the upper, middle, and mainstem John Day.

**Response:** NMFS and ODFW commend landowners for their leadership and commitment to steelhead recovery as evidenced by the recovery actions they have implemented over the years. These actions have greatly benefited steelhead and stream health. The Plan describes the full suite of limiting factors affecting steelhead across the full life cycle of the fish, both within basin and out-of-basin. The Plan addresses ocean conditions, predators, stream flow, and all other limiting factors and threats affecting the species. A comprehensive set of recovery actions to be implemented in the tributaries is described, as well as out-of-basin actions that are included in the Estuary Module referenced in the Plan. All actions will be evaluated over time and adjusted as needed through adaptive management to improve steelhead status.

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