UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
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OFFICE OF
ECOSYSTEMS, TRIBAL AND
PUBLIC AFFAIRS
NOAA - NMFS
RECEIVED
DEC 24 2015
SEATTLE
West Coast Regional

December 21, 2015

William W. Stelle, Jr.
Regional Administrator
NMFS West Coast Region
7600 Sand Point Way NE
Seattle, WA 98115

Dear Mr. Stelle:

The U.S. Environmental Protection Agency has reviewed the National Marine Fisheries Service November 2015 Draft Environmental Impact Statement to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound (EPA Region 10 Project Number: 15-0045-NOA).

Our review was conducted in accordance with the EPA's responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act. Section 309 specifically directs the EPA to review and comment in writing on the environmental impacts associated with all major federal actions. Our review of the DEIS considers the expected environmental impacts of the proposed action and the adequacy of the EIS in meeting the procedural and public disclosure requirements of NEPA.

Project summary
The DEIS evaluates five Hatchery and Genetic Management Plans (HGMPs) for steelhead in Puget Sound. The HGMPs specify the propagation of early-returning ("early") winter steelhead in the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie River watersheds in Washington State. The HGMPs were provided by the Washington Department of Fish and Wildlife (WDFW), with the Jamestown S'Klallam Tribe, the Lummi Nation, the Nooksack Tribe, the Stillaguamish Tribes, and the Tulalip Tribes for NMFS's evaluation and determination under Limit 6 of the Endangered Species Act (ESA) 4(d) Rule for listed salmon and steelhead.

Responsiveness to EPA's scoping comments
DEIS chapter 1 addresses our interest in how the HGMPs support NMFS's ESA goals.

DEIS section 1.3 Purpose and Need for the Proposed Action addresses our interest in how the co-managers' objectives relate to an overall strategy to promote viable salmonid populations.

1

DEIS chapter 1 addresses our interest in NMFS's strategy for providing harvest fish for Tribes while promoting ESA salmon recovery.

DEIS section 2.2.1 addresses our interest in the consequences of failing to approve the HGMPs under Limit 6 of ESA 4(d) because it includes NMFS's "best estimate" of what would happen in the absence

of the proposed action - WDFW would discontinue its early winter steelhead hatchery programs in the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie River basins.
The DEIS's range of alternatives is consistent with our scoping recommendation. We believe that the No Action, Reduced Production and Native Broodstock Alternatives help to sharply define the issue of hatchery impacts on natural salmonid populations because there are clear differences in hatchery-related risk, as well as viability benefits, for Puget Sound listed salmonids.

DEIS Chapter 4 Environmental Consequences is responsive to our recommendation for a rigorous comparison of the alternatives' hatchery-related detrimental effects on natural salmonid populations. DEIS section 4.2.4's gene flow risk and viability benefits information is exemplary of the kind of comparison we were interested in. The section contains clear information on how the Native Broodstock Alternative would result in a low risk of harmful genetic effects relative to the other action alternatives. The section also clearly communicates how the Native Broodstock Alternative is the only alternative with the potential for viability benefits to natural-origin steelhead.

DEIS Table 3 is responsive to our recommendation for a flowchart or table which shows the sequencing of past, present and future process steps for NMFS' NEPA compliance, ESA Section 4(d), and ESA Section 7 work on Puget Sound salmon and steelhead hatchery programs.

1

The DEIS addresses our interest in Clean Water Act requirements including National Pollutant Discharge Elimination System (NPDES) permit requirements.

The DEIS's cumulative impacts chapter addresses our interest in the role of habitat protection/restoration for both species recovery and to support Tribal, commercial and recreational fisheries.

EPA Rating for the DEIS
We are rating the DEIS Environmental Concerns – Adequate (EC-1). We have concerns regarding the hatchery programs' potential negative effects on natural-origin steelhead and salmon from genetic risks, competition and predation, hatchery facility effects, incidental fishing effects, and disease transfer. We are also concerned that the Proposed Action and Reduced Production alternatives provide no possibility for viability benefits to natural-origin steelhead.

We are rating the DEIS's information as Adequate because of the high level of responsiveness to our scoping recommendations. Thanks to the analysis in the DEIS, we understand that our environmental concerns do not have simple solutions. Hatchery facility and disease transfer effects are the same under all alternatives. The Native Broodstock Alternative's potential for viability benefits also poses an increased risk of incidental fishing effects. The Reduced Production Alternative and the No Action Alternative reduce hatchery-related detrimental impacts, but also reduce hatchery-related benefits to fishing, and would pose a disproportionate impact on Native American Tribes.

FEIS recommendation
We recommend that the FEIS include clarifying information on how NMFS intends to identify the environmentally preferable alternative. We believe that this project is one where identifying the environmentally preferable alternative will involve difficult judgements, both in terms of which alternative would cause the least damage to the biological and physical environment, and which alternative would best protect, preserve, and enhance cultural, and natural resources.

2

2 To assist in your effort in describing a process to identify an environmentally preferable alternative, we recommend consideration of factors that best facilitate adaptation to habitat loss, changes in oceanic conditions, impacts from dams and diversion, direct predation and climate change.

Thank you for this opportunity to comment and if you have any questions please contact me at (206) 553-1601or by electronic mail at littleton.christine@epa.gov, or you may contact Erik Peterson of my staff at (206) 553-6382 or by electronic mail at peterson.erik@epa.gov.

Sincerely,

Christine B. Littleton

Christine B. Littleton, Manager
Environmental Review and Sediment Management Unit

Enclosure:
1. U.S. EPA Rating System For Draft Environmental Impact Statements

U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.

Responses to U.S. Environmental Protection Agency Comments

Letter Dated December 21, 2015

1. Comment noted.

2. Alternatives - The comment recommends that information be included in the final EIS to help clarify how NMFS intends to identify the environmentally preferable alternative. The final EIS includes that information in Subsection 2.4, Selection of a Preferred Alternative and Environmentally Preferable Alternative.

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
620 SW Main Street, Suite 201
Portland, Oregon 97205-3026

IN REPLY REFER TO:
9043.1
ER15/0630

December 28, 2015

William W. Stelle, Jr.
Regional Administrator
NMFS West Coast Region
7600 Sand Point Way NE
Seattle, WA 98115

Dear Ms. Sears:

1 The Department of the Interior has reviewed the Draft Environmental Impact Statement for the National Oceanic and Atmospheric Administration's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound, Washington. The Department has no comments on the document at this time.

We appreciate the opportunity to comment.

Sincerely,

Allison O'Brien
Regional Environmental Officer

Responses to U.S. Department of Interior Comments

Letter Dated December 28, 2015

1. Comment noted.

State of Washington
DEPARTMENT OF FISH AND WILDLIFE
Mailing Address: 600 Capitol Way N, Olympia, WA 98501-1091 • (360) 902-2200 • TDD (360) 902-2207
Main Office Location: Natural Resources Building, 1111 Washington Street SE, Olympia, WA

December 28, 2015

Mr. William W. Stelle, Jr.
Regional Administrator
National Marine Fisheries Service, West Coast Region
National Oceanic and Atmospheric Administration
7600 Sand Point Way NE, Building 1
Seattle, WA 98115

Sent via email to: EWSHatcheriesEIS.wcr@noaa.gov

Dear Mr. Stelle:

The Washington Department of Fish and Wildlife (Department) appreciates the thorough and thoughtful approach that the National Marine Fisheries Service (NMFS) has brought to the review of early winter steelhead (EWS) hatchery programs in the Puget Sound region. We provide the following general comments as well as specific suggestions in the attachment.

Progressive Approach Provided Extensive Public Review. The thorough and progressive approach to the National Environmental Policy Act (NEPA) has provided the Department and the public with an extended public review timeframe and contributes to a focused examination of the environmental effects of the proposed action. The following documents provide extensive support for NEPA analysis:

1

1) July 25, 2014 - Draft Environmental Impact Statement on Two Joint State and Tribal Resource Management Plans for Puget Sound Salmon and Steelhead Hatchery Programs (PS Hatcheries DEIS);
2) March 26, 2015 - Draft Environmental Assessment to Analyze the Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) determination Under Limit 6 for Three Early Winter Steelhead Hatchery Programs in the Dungeness, Nooksack, and Stillaguamish River Basins (EWS Hatcheries DEA); and
3) November 13, 2015 - Draft Environmental Impact Statement to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound (DEIS).

2

Purpose Must Recognize Hatchery Role as Mitigation for Lost Habitat. Missing from the purpose and need statement of the DEIS is the historic context from which hatchery programs arise. Hatchery programs were developed and/or continue to serve as mitigation for lost habitat

2 and resultant decline in naturally-produced salmon and steelhead. Hatchery production represents the social contract between citizens and the environment to bolster fish runs to support treaty and nontreaty fisheries until habitat is protected and restored. Proposed language to address this shortcoming in the Final Environmental Impact Statement (FEIS) is provided in the attachment.

3 **Programs Economically Valuable**. Given the complexity of the social and economic relationships and effects, the NMFS has done an admirable job in improving the various elements of the socioeconomic impacts analysis. The improved socioeconomic analysis provides a good overall perspective of EWS in Washington's economy, and the expanded Environmental Justice section is appreciated. The DEIS states that these hatchery programs support more than 78,000 recreational angler trips with a value of $5.3 million. The FEIS should clarify that these benefits often accrue to rural communities during the winter months when other sources of recreation-related revenue are extremely limited. We note that the estimated economic benefit does not include tribal fisheries.

4 **Anglers Important Voice for Habitat Protection and Restoration**. The DEIS fails to capture an important point – that stakeholders who are provided fishing opportunities are more likely to engage and support the habitat protection and restoration efforts that are necessary to recover ESA-listed salmon and steelhead. The discussion presented under Cumulative Effects is centered on the effects of regulations and government-funded projects and programs in improving conditions for ESA-listed fish in the long term. Washingtonians know that improvements in conditions for fish and wildlife are squarely in the hands of citizens - improvements are not made without the advocacy of individuals and groups invested in salmon recovery. The discussion should recognize that many of those advocates are motivated because of their direct involvement with fish through fishing. It is the people most directly engaged with fish who are the most likely to accept, support, and even advocate for governmental restrictions and to engage and support the habitat protection and restoration efforts that are necessary to recover Endangered Species Act (ESA)-listed salmon and steelhead in Washington. Natural resource managers should increase efforts to recruit future anglers because doing so improves participants' personal and political involvement in conservation causes. Please acknowledge this linkage throughout the FEIS.

Strong Scientific Foundation. The analyses presented in the DEIS are rigorous and based on the best science available, while acknowledging that results of new data and studies will continuously improve our understanding of the effects of our actions and will inform our management decisions.

5 The Department, Puget Sound treaty tribes, Hatchery Scientific Review Group (HSRG), NMFS and others have worked together to improve the evaluation of the genetic effects of EWS hatchery production on wild steelhead. The DEIS presents a thorough assessment of past hatchery practices on the genetic effects of the early winter steelhead hatchery programs using cutting-edge genetic analyses.

5 NMFS's conclusion that an isolated hatchery program with a 2% gene flow to a wild population poses a low risk is consistent with the extensive analysis of the Department and the Congressionally-constituted HSRG. We also recognize that a population-specific approach is appropriate, and that higher rates of gene flow for some populations would be consistent with the survival and recovery of the Puget Sound Steelhead distinct population segment.

6 **Incorrectly Portrays Genetic Effects of Proposed EWS Programs.** The public may mistakenly surmise that Table 7 and Appendix B provide the projected gene flow for the proposed programs. For example, Table 7 reports a Proportion Effective Hatchery Contribution (PEHC) value of 4% for the Snoqualmie Winter population. The PEHC values provided on Table 7 represent the effect of past hatchery practices, which are different from the programs proposed in the WDFW HGMPs. The Department has proposed a 40% reduction in onstation releases and the elimination of offstation releases for the Tokul Creek Winter Steelhead program. As stated in the HGMP submitted by the Department, this is projected to result in a PEHC of less than 2% for the Snoqualmie River Winter population. In addition, it appears that the values in the final column of Table 7 are a worst case scenario. The Tokul Creek Winter Steelhead HGMP provided a projected demographic gene flow (DGF) range of 0.26% to 2.93%. The FEIS should correct the table and appendix to accurately reflect the range of estimates for each program, or a rationale for selecting a single estimate. The Department has: 1) updated the estimates of PEHC and projected PEHC to incorporate improved analytical methods; and 2) updated estimates of DGF to include three additional years of wild and hatchery data. Please see the attachment for additional information.

7 **Improve Presentation of Genetic Effects of Summer Steelhead Hatchery Programs.** We suggest the DEIS could be strengthened by including additional information on the genetic effects of summer steelhead hatchery programs under past hatchery practices. A proposed addition to address this issue is provided in the attachment.

8 **Hatchery Risks Now Low Relative to Other Factors**. The cumulative effects analysis presents a good discussion of the history of fisheries, hatcheries, and habitat for salmon and steelhead in Puget Sound. As such, the section provides context for the risks to wild fish from hatchery production compared to risks to wild fish from continued habitat degradation.

9 **Water Use Not Diminished if Early Winter Hatchery Programs Eliminated**. The Department wishes to clarify that water use would not be diminished if EWS programs were decreased or eliminated. The hatchery space and available water would be used to increase production of other species or to improve conditions for the health and survival of the remaining fish. This is important not only in weighing the impacts of the four alternatives, but also because the Department does not intend to relinquish any of the beneficial uses of its full water rights. More specific comments relating to the evaluation of water use are provided in the attachment.

10 **Additional Facilities Not Needed to Increase Production.** The description of this discarded alternative indicates that increased production levels would require development of additional hatchery facilities. This is not the case as the Department has existing capacity at our facilities to increase production.

10 We also understand, based on our conversations with the NMFS, that the exclusion of an alternative in the DEIS for increased levels of early winter steelhead production does not preclude the co-managers from submitting program increases for NMFS' review, or submitting Hatchery Genetic Management Plans for new programs in the future.

11 **Preferred Alternative**. The Department urges adoption of Alternative 2 as the preferred alternative in the final EIS. Alternative 2 represents a program that is consistent with ESA standards for survival and recovery of the Puget Sound steelhead distinct population segment, provides for tribal fishery benefits, and supports recreational fisheries that contribute to the economies of rural areas in Whatcom, Skagit, Snohomish, and Clallam counties.

Thank you for your work in developing this DEIS and for the opportunity to comment on your environmental effects analyses for the Dungeness, Nooksack, Stillaguamish, Snoqualmie, and Skykomish early winter steelhead programs.

Sincerely,

James Unsworth, Ph.D.
Director

Attachment

Detailed Comments of the Washington Department of Fish and Wildlife regarding the Draft Environmental Impact Statement to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound

Chapter 1

Purpose and Need Statement

Missing from the purpose and need statement is the historic context from which all hatchery programs arise. Please insert on page 11 after line 22 the following:

12 *"Hatchery programs were developed an/or continue to serve as mitigation for lost habitat and resultant decline in naturally-produced salmon and steelhead. Habitat conditions continue to degrade as a result of development throughout the Puget Sound basin. Hatchery production represents the social contract between citizens and the environment to artificially bolster fish runs to support treaty and nontreaty fisheries until habitat is protected and restored."*

Chapter 2

Alternative 2 is preferred

13 Alternative 2 represents the current Department program, which is consistent with and supportive of ESA standards for survival and recovery of the Puget Sound steelhead distinct population segment. This alternative also provides tribal fishing benefits and supports recreational fisheries that contribute to the economies of rural areas in Whatcom, Skagit, Snohomish, and Clallam counties.

Descriptions of the Alternatives in Chapter 2

Water use does not diminish if EWS programs are reduced

The Department would like to clarify that reduction or elimination of the early winter steelhead program would not lead to a reduction in water use. Under state water law, unused water must 14 be relinquished after a defined period of non-use; the Department is concerned that the language in the DEIS as written could jeopardize our ability to retain full water rights.

The Department does not intend to give up this precious resource, and instead would choose to use the vacated space and available water to increase production of other species or to improve health and survival of the remaining fish at the facility.

Exclusion of an alternative with greater EWS production does not preclude future such proposals

15 The Department wishes to clarify that the decision by NMFS to exclude from evaluation an alternative with greater production does not preclude such a proposal at some future time.

No new hatchery facilities would be needed to accommodate future production increases

15 The description of this discarded alternative indicates that increased production levels would require development of additional hatchery facilities. This is not the case, so please delete that sentence (page 28 lines 22-24, sentence beginning "In addition").

Indeed, adding the context of previous EWS production levels might provide perspective to the reader about the progress that has already been made in reforming hatchery programs.

Alternative 4

16 The DEIS correctly characterizes Alternative 4 as providing information with which to compare the effects among alternatives. For example, in Chapter 4, the DEIS assumes fisheries would occur, and identifies that incidental harvest effects will impact the wild population. It would be helpful to clarify on page 28, first paragraph, that the transition period to a program that meets harvest objectives using wild broodstock would be lengthy, not instantaneous as might be inferred by the analysis.

Chapters 3, 4, and 5

Water Quantity Elements (Sections 3.1; 4.1; and 5.5.1)

"Beneficial," "consumptive," and "non-consumptive"

There are several terms of art that are used improperly in the EIS. For example, the term "beneficial" is used throughout these sections. It is unclear in the EIS whether the terms "consumptive" and "nonconsumptive" both refer to uses that are beneficial. Indeed all uses must be "beneficial" to receive a water right, and, conversely, certificated water uses are by definition beneficial. WAC 173.500.060 provides definitions as follows:

17

> (4) "Beneficial uses" are uses of water for domestic, stock watering, industrial, commercial, agricultural, irrigation, hydroelectric power production, mining, fish and wildlife maintenance and enhancement, recreational, and thermal power production purposes, and preservation of environmental and aesthetic values, and all other uses compatible with the enjoyment of the public waters of the state.
>
> (5) "Consumptive use" means use of water whereby there is a diminishment of the water source.
>
> (9) "Nonconsumptive use" is a type of water use where either there is no diversion from a source body, or where there is no diminishment of the source.

"Dewatering"

The Department suggests that the term "dewatering" as it is used in Sections 3.1 and 4.1 of the DEIS is used improperly. The term dewatering has a specific meaning in statute and rule, whereas the intent of the DEIS is to indicate "flow reduction."

> RCW 18.104.020 (5) defines "Dewatering well" as a cased or lined excavation or boring that is intended to withdraw or divert groundwater for the purpose of facilitating construction, stabilizing a landslide, or protecting an aquifer.

WAC 220-660-040 uses the term "dewatering" to describe the removal of water from a construction site.

The Department requests that the term "dewatering" be replaced with alternative language on page iv, line 4; page 33, line 8; page 33, line 10; and page 78, line 14 of the EIS.

Fate of unused water under Washington water law

The EIS concludes that water not used by a hatchery would accrue to other water users. This would not necessarily be the case for "saved" water (if any). Nor is it necessarily a foregone conclusion that water left unused by a hatchery would remain instream or in the aquifer. In the unlikely event that the Department was to permanently reduce water use at a hatchery, Washington State Department of Ecology would make a determination under state water law on the disposition of that relinquished water.

A reduction in ground water use means that ground water is no longer returned to local surface waters through hatchery discharge. If, indeed, a reduction in groundwater use occurs at a hatchery, that reduction represents a negative effect to stream flows over existing conditions. This effect is not represented in the DEIS.

Section 3.1 corrections relating to water quantity

Please replace the text on page 34 lines 1-18 with the following:

"A water right permit is required for surface water diversions and groundwater withdrawals, with the exception that, in many cases, wells for single-family domestic use are exempt from permitting requirements. All water used by hatchery facilities supporting the proposed early winter steelhead hatchery programs are permitted by Ecology. Water right permits provide for a maximum instantaneous diversion (measured as a flow, e.g., in cubic-feet-per-second) and a total annual use (measured as a volume, e.g. in gallons or acre feet). Water that is chronically unused by a permit holder is relinquished, meaning that the quantity of the water right is reduced.

Hatchery facilities typically vary their water use throughout the year based on the species, their sizes, and the overall numbers of fish being propagated, as well as the volume of the ponds or raceways in which fish reside. Washington State water law allows for these fluctuations, and provides exceptions from relinquishment when less that the permitted maximum flow or volume is used in any given year.

Water use at hatcheries is typically highest in late winter and spring months, when fish are nearing release size. This is also when natural stream flows are highest; especially for streams dependent upon surface water runoff (i.e. rainfall) and snow melt. Hatchery water needs are typically lowest in the late summer months when stream flows are also at their lowest level. This is because fish being reared over the summer are typically small in size and require less water to maintain fish health.

Stream flow gauges are not available adjacent to hatchery points of diversion and return, so quantitative values for surface flows are not available for each hatchery location. Surrogate surface water flow values from nearby U.S. Geological Survey (USGS) gauges are provided for perspective. The analyses in this EIS provide qualitative assessment of the impacts of the differences in water use between alternatives. "

Section 4.1 corrections relating to water quantity

Please correct the descriptions and evaluations of Alternatives 1 and 3 as they relate to water quantity throughout section 4.1 (pages 78 through 89) of the DEIS to clarify that there will be no reduction of water use. For example, change language at page 78 lines 22-28; page 79 lines 9-10 and 20-24; page 82 lines 3-4, 8-9, 17-18, and 25-31; page 83 lines 9-10, 23-26, and 31-33; and etc. through page 89, and in Tables 14 and 16) to indicate no reduction in water use at each facility. These corrections will change the descriptions and evaluations of the alternatives throughout the document relating to water quantity effects.

Comparing water use across alternatives

Referring to Tables 4 (pages 35-36) and 14 (pages 80-81) as well as text on pages 37-40 and 78-89.

- On Tables 4 (columns 4 and 5) and 14 (columns 2 and 3), the percent of the hatchery facility used to rear steelhead cannot be applied to each individual water source, but to the aggregate of water supply entering the hatchery. So, for example, the water use to support steelhead at the Dungeness Hatchery would be 5% applied to the aggregate inflow of 48.5 (not to the sources separately). The method used on Table 4 overestimates the impact to smaller water sources used to support steelhead.
- The FEIS should clarify in although though the amount of water used to support steelhead is changed, total water use at each facility does not change.

Chapter 3 Genetic Analyses

Based on comments from the Northwest Fisheries Science Center and other NMFS staff, the Warheit method was refined and, among other changes, the confidence intervals now include consideration of sample size. See Table 1 below for the updated PEHC point estimates and 90% confidence intervals

We suggest the FEIS could be strengthened by including additional information on the genetic effects of summer steelhead hatchery programs with past hatchery practices. Our Appendix Table 1 includes estimates of PEHC for historical practices, and our Appendix Table 2 provides demographic gene flow (DGF) estimates updated to include three additional years of wild and hatchery data.

18

The public may mistakenly surmise that Table 7 and Appendix B provide the projected gene flow for the proposed programs. The PEHC values provided in Table 7 represent the effect of past hatchery practices, which are different from the programs proposed in the WDFW HGMPs. For example, Table 7 reports a PEHC value of 4% for the Snoqualmie River Winter population. The Department has proposed a 40% reduction in onstation releases and the elimination of offstation releases for the Tokul Creek Hatchery Early Winter Steelhead program. In addition, it appears that the values in the final column of Table 7 are a worst case scenario. Projected PEHC and DGF values for the proposed early winter steelhead programs are provided in our Appendix Table 3.

Chapter 3 and 4 References to Appendix B

19

It is unclear why Appendix B is included as an appendix to the DEIS. The material in the appendix appears to be comprised of an internal NMFS synthesis of implementation questions.

Because the appendix does not add to the environmental evaluation being presented in the DEIS, the Department suggests excluding it from the FEIS.

Chapter 3 And 4 Corrections Relating to Water Intake Structures and Fish Screens

20 For the Dungeness, the project providing fish passage on Canyon Creek is nearly complete - this fact is not clearly articulated in the DEIS. Also, there is an error on Table 9 (page 56): On the Dungeness Hatchery row, the table indicates Dungeness screens meets current screening criteria, and weirs are compliant with current fish passage criteria, so the conclusion should be "yes" under the column "Are all water intake structures compliant with NMFS fish passage criteria?" not "no."

Chapter 4 Outcomes Relating to Fisheries

21 At page 94 lines 33-34 (and page 95 lines 1-2) the DEIS indicates that "*there would be*" harvest-oriented steelhead fisheries… and "*therefore, negative incidental fishing effects*." The Department suggests that, under alternative 4, harvest would not occur until production using wild broodstock became robust enough to support harvest and its associated incidental fishing effects. Discussing harvest effects for alternative 4 is premature and speculative.

Chapter 4 Socioeconomic Effects and Environmental Justice

22 The Department notes on Page 75, line 8 a reference to over 1,000 years of cultural context for Native Americans and salmon. The DEIS at page 121, line 16 refers to 8,000 years of human occupation on the shores of the Salish Sea. Citations notwithstanding, we suggest that the 1,000 figure could be updated by an order of magnitude or more.

Chapter 4 Environmental Consequences

23 Page 94 lines 33 and 34: Replace language beginning at "Unlike under…" with the following: *"An objective of Alternative 2 production is to support harvest in the Dungeness, Nooksack, Stillaguamish, …"*

Chapter 6 Literature Cited

24 The reference cited as "Scott and Gill 2008" in the DEIS text (Table 7 footnote) is presented as "Washington Department of Fish and Wildlife 2008" in the Chapter 3 references on page 152. Please correct that reference to "Scott, J.B. and W. Gill" etc.

Following is the reference regarding angling participation and stewardship behaviors:

> *McMullin, et al. (2007) Does Angling or Boating Improve the Stewardship Ethic of Participants? Amer. Fish. Soc. Symposium 55:145-155.*

Appendix B Genetic effects analysis of early winter steelhead programs proposed for the Nooksack, Stillaguamish, Dungeness, Skykomish, and Snoqualmie River Basins of Washington

25 Notwithstanding the Department's suggestion to remove the appendix from the DEIS, following are some important corrections:

Page B-9, Lines 1-2. Ken Warheit's current title is Supervisor, Genetics and Health Laboratories at Washington Department of Fish and Wildlife.

Page B-10, Lines 15-19. Based on comments from the Northwest Fisheries Science Center and other NMFS staff, the Warheit method was refined and, among other changes, the confidence intervals now include consideration of sample size. See Table 1 below for updated PEHC point estimates and 90% confidence intervals.

Page B-12, Lines 1-6 (Table B-2). Table needs to be updated with new PEHC values (see comment above and Table 1 below).

Page B-13, Lines 6-9 & 27-28. Where it was necessary to calculate PEHC values for some DIPs, samples were pooled from multiple years and multiple life stages. However, Warheit 2014a does include separate PEHC estimates for different life stages and for single year collections (referred to in Warheit (2014a) as "*Operation Units*"). See Tables 7, S9, and S13-S22 in Warheit 2014a. Updated PEHC values for DIPs are provided in Table 1 below.

Page B-21, Line 16. As stated above, Dr. Warheit has continued to work, since the fall 2014, to further develop these analytical methods. The updated PEHC estimates now include improved confidence intervals (Table 1 below).

Appendix Table 1. Updated PEHC point estimates and 90% confidence intervals for DIPs in the Nooksack, Samish, Skagit, Stillaguamish, Snohomish/Skykomish, Snoqualmie, and Green rivers.

Basin and Population	PEHC - Early WINTER Hatchery					PEHC - SUMMER Hatchery				
	Program	Test	Estim	90% L	90% U	Program	Test	Estim	90% L	90% U
Nooksack										
Nooksack River Winter Run	Kendall	Kendall	1%	0%	4%	None	Reiter Ponds	0%	0%	2%
S.F. Nooksack River Summer Run	Kendall	Kendall	0%	0%	7%	None	Reiter Ponds	0%	0%	7%
Samish										
Samish Winter Run	Kendall	Kendall	5%	0%	17%	None	Reiter Ponds	0%	0%	5%
Skagit										
Skagit River Summer Run & Winter Run	Marblemount	Marblemount	4%	1%	10%	None	Reiter Ponds	1%	0%	5%
Sauk River Summer Run & Winter Run	Marblemount	Marblemount	3%	0%	11%	None	Reiter Ponds	0%	0%	4%
Nookachamps Creek Winter Run	Marblemount	Marblemount	2%	0%	17%	None	Reiter Ponds	0%	0%	9%
Stillaguamish										
Canyon Creek Summer Run	Whitehorse	Tokul Ck	0%	0%	5%	Whitehorse	Reiter Ponds	0%	0%	5%
Deer Creek Summer Run	Whitehorse	Tokul Ck	0%	0%	3%	Whitehorse	Reiter Ponds	0%	0%	5%
Snohomish/Skykomish										
Snohomish/Skykomish River Winter Run	(Tokul Ck)	Tokul Ck	0%	0%	20%	Reiter Ponds	Reiter Ponds	5%	0%	31%
N.F. Skykomish River Summer Run	(Tokul Ck)	Tokul Ck	1%	0%	5%	Reiter Ponds	Reiter Ponds	95%	88%	99%
Snoqualmie										
Snoqualmie River Winter Run	Tokul Ck	Tokul Ck	4%	1%	12%	Reiter Ponds	Reiter Ponds	3%	1%	10%
Tolt River Summer Run	Tokul Ck	Tokul Ck	0%	0%	7%	Reiter Ponds	Reiter Ponds	68%	55%	79%
Pilchuck River Winter Run	Tokul Ck	Tokul Ck	2%	0%	16%	Reiter Ponds	Reiter Ponds	2%	0%	14%
Green										
Green River Winter Run	Soos Ck	Soos Ck	8%	3%	17%	Soos Ck	Soos Ck	1%	0%	6%

Appendix Table 2A. Estimated DGF for the Nooksack River Winter Run steelhead population for the years 2001-2002 through 2014-2015 under six alternative cases and for the proposed release of 150,000 smolts. (NA – Not Available)

Spawn Year	Case 1 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.20		Case 2 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.20		Case 3 Natural: Nooksack Hatchery: Kendall Stray Rate = 0.20		Case 4 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.30		Case 5 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.30		Case 6 Natural: Nooksack Hatchery: Kendall Stray Rate = 0.30	
	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13
2001-2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2002-2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2003-2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2005-2006	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2006-2007	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2007-2008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2008-2009	0.07%	0.16%	0.03%	0.15%	0.07%	0.18%	0.12%	0.27%	0.05%	0.26%	0.12%	0.31%
2009-2010	0.08%	0.17%	0.03%	0.16%	0.07%	0.19%	0.13%	0.29%	0.05%	0.28%	0.13%	0.33%
2010-2011	0.13%	0.30%	0.05%	0.29%	0.13%	0.34%	0.23%	0.51%	0.09%	0.49%	0.22%	0.58%
2011-2012	0.13%	0.30%	0.05%	0.29%	0.13%	0.34%	0.23%	0.51%	0.09%	0.49%	0.22%	0.58%
2012-2013	0.05%	0.10%	0.02%	0.10%	0.05%	0.12%	0.08%	0.18%	0.03%	0.17%	0.08%	0.20%
2013-2014	0.17%	0.37%	0.07%	0.36%	0.16%	0.42%	0.28%	0.63%	0.12%	0.61%	0.27%	0.72%
2014-2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Through 2011	0.09%	0.21%	0.04%	0.20%	0.09%	0.24%	0.16%	0.36%	0.07%	0.34%	0.15%	0.41%
All Years	0.10%	0.23%	0.04%	0.22%	0.10%	0.26%	0.18%	0.39%	0.07%	0.38%	0.17%	0.45%
2009-10 through 2014-15 No Offstation	0.11%	0.25%	0.05%	0.24%	0.11%	0.28%	0.19%	0.42%	0.08%	0.41%	0.18%	0.48%
Release 150,000	0.13%	0.30%	0.06%	0.29%	0.13%	0.35%	0.23%	0.52%	0.09%	0.50%	0.22%	0.59%

Appendix Table 2B. Estimated DGF for the Samish River Winter Run steelhead population for the years 2001-2002 through 2014-2015 under six alternative cases and for the proposed release of 0 smolts. (NA – Not Available)

Spawn Year	Case 1 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.20		Case 2 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.20		Case 3 Natural: Samish Hatchery: Kendall Stray Rate = 0.20		Case 4 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.30		Case 5 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.30		Case 6 Natural: Samish Hatchery: Kendall Stray Rate = 0.30	
	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13
2001-2002	1.04%	2.53%	0.47%	2.52%	1.04%	2.79%	1.17%	2.86%	0.53%	2.87%	1.17%	3.17%
2002-2003	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2003-2004	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2004-2005	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2005-2006	0.50%	1.16%	0.21%	1.13%	0.48%	1.27%	0.57%	1.32%	0.24%	1.29%	0.55%	1.44%
2006-2007	0.52%	1.21%	0.22%	1.19%	0.50%	1.32%	0.59%	1.38%	0.25%	1.35%	0.57%	1.51%
2007-2008	0.63%	1.46%	0.27%	1.44%	0.60%	1.60%	0.71%	1.66%	0.31%	1.64%	0.69%	1.82%
2008-2009	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2009-2010	0.22%	0.49%	0.09%	0.47%	0.20%	0.53%	0.25%	0.56%	0.10%	0.54%	0.23%	0.60%
2010-2011	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2011-2012	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2012-2013	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2013-2014	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2014-2015	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Through 2011	0.58%	1.37%	0.25%	1.35%	0.57%	1.50%	0.66%	1.56%	0.29%	1.54%	0.64%	1.71%
All Years	0.58%	1.37%	0.25%	1.35%	0.57%	1.50%	0.66%	1.56%	0.29%	1.54%	0.64%	1.71%
2009-10 through 2014-15 No Offstation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Release 0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Appendix Table 2C. Estimated DGF for the Stillaguamish River Winter Run steelhead population for the years 2001-2002 through 2014-2015 under six alternative cases and for the proposed release of 130,000 smolts. (NA – Not Available)

Spawn Year	Case 1 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.20		Case 2 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.20		Case 3 Natural: Stillaguamish Hatchery: Whitehorse Stray Rate = 0.20		Case 4 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.30		Case 5 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.30		Case 6 Natural: Stillaguamish Hatchery: Whitehorse Stray Rate = 0.30	
	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13
2001-2002	0.82%	1.95%	0.36%	1.93%	0.75%	2.27%	1.11%	2.70%	0.50%	2.69%	0.91%	3.07%
2002-2003	0.05%	0.12%	0.02%	0.12%	0.09%	0.17%	0.08%	0.18%	0.03%	0.18%	0.13%	0.26%
2003-2004	0.17%	0.39%	0.07%	0.38%	0.25%	0.52%	0.25%	0.56%	0.10%	0.54%	0.33%	0.73%
2004-2005	0.54%	1.26%	0.23%	1.24%	0.57%	1.52%	0.73%	1.72%	0.32%	1.69%	0.69%	2.02%
2005-2006	0.27%	0.61%	0.11%	0.59%	0.35%	0.79%	0.41%	0.95%	0.17%	0.92%	0.47%	1.18%
2006-2007	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2007-2008	0.22%	0.49%	0.09%	0.47%	0.30%	0.64%	0.33%	0.75%	0.14%	0.73%	0.41%	0.96%
2008-2009	0.27%	0.62%	0.11%	0.60%	0.35%	0.80%	0.42%	0.96%	0.18%	0.93%	0.48%	1.19%
2009-2010	0.22%	0.49%	0.09%	0.47%	0.30%	0.65%	0.33%	0.76%	0.14%	0.74%	0.41%	0.96%
2010-2011	0.24%	0.54%	0.10%	0.52%	0.32%	0.71%	0.36%	0.83%	0.15%	0.80%	0.43%	1.04%
2011-2012	0.24%	0.55%	0.10%	0.53%	0.32%	0.72%	0.41%	0.93%	0.17%	0.90%	0.47%	1.15%
2012-2013	0.12%	0.28%	0.05%	0.27%	0.19%	0.38%	0.21%	0.47%	0.09%	0.46%	0.29%	0.63%
2013-2014	0.18%	0.40%	0.07%	0.38%	0.26%	0.54%	0.30%	0.68%	0.12%	0.66%	0.38%	0.87%
2014-2015	0.09%	0.21%	0.04%	0.20%	0.15%	0.29%	0.16%	0.35%	0.06%	0.34%	0.23%	0.48%
Through 2011	0.28%	0.65%	0.12%	0.63%	0.33%	0.81%	0.40%	0.94%	0.17%	0.92%	0.43%	1.14%
All Years	0.28%	0.64%	0.12%	0.62%	0.33%	0.80%	0.40%	0.94%	0.17%	0.92%	0.43%	1.14%
2009-10 through 2014-15 No Offstation	0.16%	0.36%	0.07%	0.35%	0.23%	0.49%	0.27%	0.62%	0.11%	0.60%	0.35%	0.79%
Release 130,000	0.19%	0.43%	0.08%	0.42%	0.26%	0.57%	0.32%	0.73%	0.14%	0.72%	0.39%	0.93%

Appendix Table 2D. Estimated DGF for the Snohomish/Skykomish River Winter Run steelhead population for the years 2001-2002 through 2014-2015 under six alternative cases and for the proposed release of 256,000 smolts. (NA – Not Available)

Spawn Year	Case 1 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.20		Case 2 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.20		Case 3 Natural: Skykomish Hatchery: Reiter-Wallace Stray Rate = 0.20		Case 4 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.30		Case 5 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.30		Case 6 Natural: Skykomish Hatchery: Reiter-Wallace Stray Rate = 0.30	
	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13
2001-2002	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2002-2003	0.32%	0.73%	0.13%	0.71%	0.55%	1.05%	0.42%	0.96%	0.18%	0.93%	0.65%	1.32%
2003-2004	0.22%	0.50%	0.09%	0.49%	0.43%	0.76%	0.30%	0.69%	0.13%	0.67%	0.53%	1.00%
2004-2005	0.20%	0.44%	0.08%	0.43%	0.39%	0.67%	0.27%	0.61%	0.11%	0.59%	0.49%	0.90%
2005-2006	0.12%	0.27%	0.05%	0.26%	0.26%	0.42%	0.17%	0.38%	0.07%	0.37%	0.35%	0.59%
2006-2007												
2007-2008												
2008-2009												
2009-2010	0.48%	1.10%	0.20%	1.07%	0.71%	1.48%	0.68%	1.59%	0.29%	1.57%	0.88%	2.05%
2010-2011	0.31%	0.71%	0.13%	0.68%	0.54%	1.01%	0.46%	1.07%	0.20%	1.04%	0.70%	1.45%
2011-2012	0.99%	2.40%	0.45%	2.39%	1.11%	2.93%	1.56%	3.95%	0.74%	4.01%	1.46%	4.62%
2012-2013	0.84%	2.00%	0.37%	1.98%	1.00%	2.50%	1.34%	3.32%	0.62%	3.34%	1.32%	3.93%
2013-2014	0.47%	1.09%	0.20%	1.07%	0.71%	1.48%	0.78%	1.83%	0.34%	1.81%	0.96%	2.32%
2014-2015	1.24%	3.04%	0.57%	3.05%	1.26%	3.63%	1.91%	4.97%	0.94%	5.11%	1.68%	5.73%
Through 2011	0.23%	0.53%	0.10%	0.52%	0.41%	0.77%	0.33%	0.76%	0.14%	0.74%	0.51%	1.04%
All Years	0.47%	1.12%	0.21%	1.10%	0.63%	1.45%	0.72%	1.76%	0.33%	1.77%	0.82%	1.49%
2009-10 through 2014-15 No Offstation	0.67%	1.61%	0.30%	1.60%	0.83%	2.04%	1.07%	2.66%	0.50%	2.69%	1.20%	3.55%
Release 256,000	0.97%	2.40%	0.45%	2.41%	1.05%	2.91%	1.50%	3.92%	0.74%	4.02%	1.52%	5.09%

Appendix Table 2E. Estimated DGF for the Pilchuck River Winter Run steelhead population for the years 2001-2002 through 2014-2015 under six alternative cases and for the proposed release of 0 smolts. (NA – Not Available)

Spawn Year	Case 1 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.20		Case 2 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.20		Case 3 Natural: Pilchuck Hatchery: Reiter-Wallace Stray Rate = 0.20		Case 4 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.30		Case 5 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.30		Case 6 Natural: Pilchuck Hatchery: Reiter-Wallace Stray Rate = 0.30	
	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13
2001-2002	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2002-2003	0.32%	0.74%	0.14%	0.72%	0.55%	1.05%	0.32%	0.74%	0.14%	0.72%	0.55%	1.05%
2003-2004	0.16%	0.35%	0.06%	0.34%	0.32%	0.55%	0.16%	0.35%	0.06%	0.34%	0.32%	0.55%
2004-2005	0.29%	0.66%	0.12%	0.64%	0.51%	0.95%	0.29%	0.66%	0.12%	0.64%	0.51%	0.95%
2005-2006	0.22%	0.50%	0.09%	0.49%	0.42%	0.75%	0.22%	0.50%	0.09%	0.49%	0.42%	0.75%
2006-2007	0.05%	0.12%	0.02%	0.11%	0.13%	0.20%	0.05%	0.12%	0.00%	0.11%	0.13%	0.20%
2007-2008	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2008-2009	0.70%	1.63%	0.30%	1.61%	0.88%	2.08%	0.70%	1.63%	0.30%	1.61%	0.88%	2.08%
2009-2010	0.50%	1.16%	0.21%	1.13%	0.72%	1.55%	0.50%	1.16%	0.21%	1.13%	0.72%	1.55%
2010-2011	0.40%	0.92%	0.17%	0.90%	0.63%	1.27%	0.40%	0.92%	0.17%	0.90%	0.63%	1.27%
2011-2012	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2012-2013	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2013-2014	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
2014-2015	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Through 2011	0.33%	0.76%	0.14%	0.74%	0.52%	1.05%	0.33%	0.76%	0.14%	0.74%	0.52%	1.05%
All Years	0.29%	0.68%	0.12%	0.66%	0.46%	0.93%	0.29%	0.68%	0.12%	0.66%	0.46%	0.93%
2009-10 through 2014-15 No Offstation	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Release 0	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Appendix Table 2F. Estimated DGF for the Snoqualmie River Winter Run steelhead population for the years 2001-2002 through 2014-2015 under six alternative cases and for the proposed release of 0 smolts. (NA – Not Available)

Spawn Year	Case 1 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.20		Case 2 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.20		Case 3 Natural: Snoqualmie Hatchery: Tokul Creek Stray Rate = 0.20		Case 4 Natural: Snow Creek Hatchery: Tokul Creek Stray Rate = 0.30		Case 5 Natural: Clearwater R. Hatchery: Tokul Creek Stray Rate = 0.30		Case 6 Natural: Snoqualmie Hatchery: Tokul Creek Stray Rate = 0.30	
	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13	K_1= 0.02	K_1= 0.13
2001-2002	5.35%	17.49%	3.75%	19.22%	4.52%	19.93%	6.18%	20.78%	4.61%	22.95%	5.38%	23.67%
2002-2003	1.62%	4.12%	0.77%	4.19%	1.45%	4.76%	1.97%	5.16%	0.98%	5.30%	1.68%	5.90%
2003-2004	2.08%	5.50%	1.05%	5.68%	1.76%	6.28%	2.63%	7.29%	1.41%	7.64%	2.15%	8.28%
2004-2005	1.36%	3.38%	0.63%	3.41%	1.28%	3.94%	1.81%	4.68%	0.88%	4.79%	1.58%	5.38%
2005-2006	1.26%	3.11%	0.58%	3.12%	1.21%	3.64%	1.68%	4.30%	0.81%	4.38%	1.49%	4.96%
2006-2007	2.12%	5.64%	1.07%	5.82%	1.79%	6.43%	2.70%	7.51%	1.46%	7.88%	2.20%	8.53%
2007-2008	3.46%	10.20%	2.03%	10.90%	2.79%	11.58%	4.23%	13.11%	2.69%	14.21%	3.45%	14.91%
2008-2009	2.23%	5.97%	1.14%	6.18%	1.86%	6.80%	2.83%	7.97%	1.55%	8.40%	2.30%	9.04%
2009-2010	1.63%	4.16%	0.78%	4.24%	1.46%	4.81%	2.09%	5.53%	1.05%	5.71%	1.77%	6.32%
2010-2011	1.36%	3.40%	0.63%	3.42%	1.28%	3.96%	2.09%	5.53%	1.05%	5.71%	1.77%	6.32%
2011-2012	1.34%	3.32%	0.62%	3.35%	1.26%	3.88%	2.05%	5.42%	1.03%	5.59%	1.74%	6.19%
2012-2013	1.41%	3.52%	0.66%	3.55%	1.31%	4.09%	2.15%	5.72%	1.09%	5.91%	1.81%	6.53%
2013-2014	0.71%	1.68%	0.31%	1.66%	0.81%	2.06%	1.15%	2.80%	0.52%	2.80%	1.13%	3.30%
2014-2015	0.81%	1.92%	0.36%	1.90%	0.88%	2.33%	1.29%	3.19%	0.59%	3.21%	1.23%	3.73%
Through 2011	2.25%	6.30%	1.24%	6.62%	1.94%	7.21%	2.82%	8.18%	1.65%	8.70%	2.38%	9.33%
All Years	1.91%	5.24%	1.03%	5.47%	1.69%	6.04%	2.49%	7.07%	1.41%	7.46%	2.12%	8.08%
2009-10 through 2014-15 No Offstation	1.06%	2.60%	0.48%	2.60%	1.06%	3.08%	1.65%	4.27%	0.81%	4.36%	1.47%	4.92%
Release 74,000	0.53%	1.25%	0.23%	1.22%	0.64%	1.56%	0.87%	2.08%	0.39%	2.07%	0.92%	2.50%

Appendix Table 3. Estimated past practice PEHC, projected PEHC, and projected DGF for early winter steelhead programs. (NA – Not Available)

Population	Hatchery Program	Proposed Smolt Release	PEHC (%)		Projected DGF (%)
			Past Practice	Projected	
Nooksack River Winter Run	Kendall On-Station	150,000	0.70%	0.70%	0.1% - 0.6%
South Fork Nooksack Summer Run			0.00%	~0%	NA
Samish Winter Run	Kendall Off-Station	0	5.00%	~0%	~0%
Stillaguamish Winter Run	Whitehorse On-Station	130,000	NA	NA	0.1% - 0.9%
Deer Creek Summer Run			0.00%	~0%	NA
Canyon Creek Summer Run	Whitehorse Off-Station	0	0.00%	~0%	NA
North Fork Skykomish River Summer Run	Reiter/Wallace On-Station	256,000	1.04%	0.89%	NA
Snohomish/Skykomish River Winter Run			0.00%	~0%	0.4% - 5.1%
Pilchuck River Winter Run	Reiter/Wallace Off-Station	0	2.02%	~0%	~0%
Snoqualmie River Winter Run	Tokul On-Station	74,000	4.11%	1.26%	0.2% - 2.5%
Tolt River Summer Run	Tokul Off-Station	0	0.00%	~0%	NA
Dungeness River Winter Run	Dungeness On-Station	10,000	NA	NA	0.2% - 1.4%

Response to Washington Department of Fish and Wildlife Comments

Letter Dated December 28, 2015

1. Comment noted.

2. Editorial - The comment suggests that the EIS should clearly state that hatcheries are largely the result of mitigation for loss of habitat. The EIS discusses hatchery production and mitigation in the Summary section and in Subsection 1.3, Purpose of and Need for the Proposed Action. Further, the consequences of habitat degradation are discussed in Subsection 3.2.1, General Factors that Affect the Presence and Abundance of Salmon and Steelhead, and Chapter 5, Cumulative Effects.

   See also Global Comment 4d.

3. Editorial - The comment requests the benefits of fisheries on early winter steelhead to rural communities be added, especially in the winter months when other sources of recreation-related income are limited. As described in Subsection 3.5, Socioeconomics, and Subsection 4.5, Socioeconomics, the EIS includes an analysis of socioeconomic benefits of the hatchery programs to rural communities (e.g., see communities identified in Subsection 3.5.1, Hatchery Operations), and broadly within the analysis area. NMFS is not aware of additional data pertaining to limited, rural population income generated from recreation sources during winter months, and the commenter did not provide a data source for NMFS to research.

4. Analysis/Socioeconomics - The comment suggests that the EIS should acknowledge that stakeholders who are provided fishing opportunities are more likely to engage and support the habitat protection and restoration efforts that are necessary to recover ESA-listed salmon and steelhead. While NMFS does not disagree that people with fishing interests can be motivated, WDFW did not cite specific studies confirming this linkage, and NMFS was unable to find any studies confirming this linkage. Therefore, NMFS did not add an analysis of the effects of fishing opportunity on participants' personal and political involvement in conservation.

5. Comment noted.

6. Analysis/Genetics - The comment asks that information on projected genetic effects that would be expected under the HGMPs be included and updated. Subsection 4.2, Salmon and Steelhead, and Appendix B have been revised to include projected genetic effects, and updated genetic information.

   See also Global Comment 4a.

7. Analysis/Genetics -The comment suggests that the presentation of genetic effects of summer steelhead should be strengthened with additional information. Additional analysis on the effects of the proposed hatchery program on summer steelhead populations has been incorporated into Subsection 3.2.3.1, Genetic Risks, and Subsection 4.2, Salmon and Steelhead.

   See also Global Comment 4a.

8. Comment noted.

9. Analysis/Water Quantity - The comment suggests it is unlikely the No-action Alternative would result in reductions in water quantity usage because the facilities not used to produce steelhead would be used to produce other species. After the draft EIS was prepared, WDFW indicated that in absence of early winter steelhead production it would use the available water for production of other species. Therefore, the analysis of water quantity in Subsection 4.1, Water Quantity, has been revised to reflect this scenario.

10. Alternatives - The comment suggests that there is existing capacity at steelhead hatchery facilities to increase production. The text noting that there is no capacity for additional steelhead production is removed from Subsection 2.3, Alternatives Considered But Not Analyzed in Detail, and is revised in Chapter 4, Environmental Consequences.

11. Alternatives - See Global Comment1a.

12. Editorial - See response to Comment 2.

13. Alternatives - See Global Comment 1a.

14. Analysis/Water Quantity - See response to Comment 9.

15. Editorial - The comment suggests that the production alternatives analyzed in the EIS do not preclude increased production options in the future. Subsection 1.6.6, Public Review and Comment, notes that HGMPs may change in the future and that additional NEPA and ESA compliance analyses may be needed. Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, has been revised to provide further clarification about changes in HGMPs.

    See also response to Comment 10.

    Subsection 3.2.2.4, Background on Existing Early Winter Steelhead Hatchery Programs, identifies risk reduction measures that have been implemented in early winter steelhead hatchery programs in recent years.

16. Analysis – The comment suggests clarifications to the description of Alternative 4 (Native Broodstock), and its effects. See Global Comment 1b. Subsection 2.4, Alternative 4 (Native Broodstock), and Subsection 4.5, Socioeconomics has been revised to clarify that a considerable transition period may be necessary for this alternative to meet harvest objectives.

17. Analysis/Water Quantity - The comment suggests improvements to the presentation and analysis of water quantity information in the EIS because readers could misunderstand the intent of terms (e.g., beneficial, dewatering) used in the analyses of water quantity in the EIS. Similar terms are used elsewhere in the context of Washington's water law (e.g., a beneficial use). Unless otherwise noted, the EIS uses terms merely for the purposes of comparative environmental review.

    Subsection 3.1, Water Quantity, is modified to clarify the terms used in analyses of water quantity in the EIS.

    See also response to Comment 9.

18. Analysis/Genetics – The comment suggests improvements to the analysis of genetic risks. Subsection 3.2.3.1, Genetic Risks, summarizes and updates the genetic risks of early winter steelhead hatchery programs on natural-origin steelhead under existing conditions. Appendix B provides more detailed information on these genetic risks.

    See also response to Comment 6, and Global Comment 4a.

19. Analysis/Genetics – The comment suggests removal of Appendix B from the EIS. Appendix B has been retained because it contains useful information for the reader regarding the details of how genetic risks were evaluated.

    See also responses to Comment 6 and Comment 18.

20. Editorial – The comment asserts that the Canyon Creek fish passage structure is nearly complete, but that the EIS fails to provide a completion date. While the commenter did not provide sufficient information for NMFS to update EIS information, Subsection 3.2.3.3, Hatchery Facilities Risks, states that work is in progress and is due to be completed in 2017.

    The comment also notes an error in Table 9 located in Subsection 3.2.3.3, Hatchery Facility Risks. Table 9 has been corrected to indicate that the screens for the program in the Dungeness River basin meet current criteria.

21. Analysis - See response to Comment 16 and Global Comment 1b.

22. Editorial – The comment notes an inconsistency in use of a reference and text regarding the span of cultural context for Native Americans and salmon. Subsection 3.5.2, Fisheries, Subsection 3.6, Environmental Justice, and Subsection 5.2, Past Actions, have been revised for consistency.

23. Comment noted.

24. Editorial – The comment suggests that the Scott and Gill (2008) reference used (e.g., as Table 7 footnote) in Chapter 3, Affected Environment is incorrectly shown in Chapter 6, References. NMFS has checked this citation information, and concludes that the reference is correctly described in Chapter 6, References. It is not clear what the comment intended by suggesting the McMullin et al. (2007) reference.

25. Analysis/Genetics – The comment suggests some edits to improve Appendix B. The appendix has been revised with updated and corrected information.

See also response to Comment 6, and Global Comment 4a.

JAMESTOWN S'KLALLAM TRIBE

1033 Old Blyn Highway, Sequim, WA 98382 360/683-1109 FAX 360/681-4643

December 22, 2015

William W. Stelle, Jr.
Regional Administrator
National Marine Fisheries Service, West Coast Region
7600 Sand Point Way NE, Building 1
Seattle, WA 98115-0070

Dear Mr. Stelle,

The Jamestown S'Klallam Tribe appreciates the opportunity to review and submit the following comments on the Draft Environmental Impact Statement (DEIS) for five Early Winter Steelhead (EWS) hatchery programs in Puget Sound. The Dungeness, Nooksack, Stillaguamish, Skykomish and Snoqualmie River hatchery programs are essential to protect the treaty rights of the Puget Sound Treaty Tribes as well as aiding in the recovery of salmon and the ESA-listed species that depend on them. The Jamestown S'Klallam Tribe has submitted a list of technical comments relating to the Dungeness River EWS program to the Northwest Indian Fisheries Commission (NWIFC) which will be incorporated into the NWIFC DEIS comment letter.

1 In this letter, we would like to take the time to convey the importance of the Tribe's treaty right to harvest winter steelhead. The Jamestown S'Klallam Tribe is signatory to the Treaty of Point No Point, which reserved the right to harvest salmon and other natural resources within their Usual and Accustomed areas in exchange for the ceding of their lands. Jamestown tribal citizens depend on these natural resources as part of their economy and cultural identity. The treaty right has been and remains to be of the utmost importance to the Jamestown S'Klallam Tribe and for those rights to have meaning there must be salmon available to harvest.

While the end goal of the EWS work is to re-establish a natural steelhead run with harvestable numbers, the current state of the river is far from supporting healthy salmon populations. Currently the freshwater and marine environments are not capable of producing harvestable runs of steelhead. The Dungeness hatchery program is a crucial component to steelhead survival in the Dungeness River and ensures our ability to exercise the Tribe's treaty right to harvest these fish. The same is true for all hatchery programs listed in the DEIS. Without hatchery programs, salmon production will not meet sustainable harvest levels for Puget Sound Treaty Tribes to exercise their treaty rights.

1 Until habitat conditions improve to the point where salmon and steelhead are at natural sustainable levels, we urge you to not eliminate the hatchery programs. While the DEIS incorporates treaty rights throughout the analysis, our comments are intended to emphasize the importance of the treaty right for our tribe as well as all Puget Sound Treaty Tribes. Thank you for your time and consideration.

Sincerely,

W. Ron Allen,
Tribal Chairman/CEO
Jamestown S'Klallam Tribe

Response to Jamestown S'Klallam Tribe Comments

Letter Dated December 22, 2015

1. Comment noted.

LUMMI INDIAN BUSINESS COUNCIL
2665 KWINA ROAD BELLINGHAM, WASHINGTON 98226 (360) 312-2000

December 28, 2015

Mr. William W. Stelle, Jr.
Regional Administrator
National Marine Fisheries Service, West Coast Region
National Oceanic and Atmospheric Administration
7600 Sand Point Way NE, Building 1
Seattle, WA 98115
Ecopy: EWSHatcheriesEIS.wcr@noaa.gov

RE: Draft Environmental Impact Statement Early Winter Steelhead Hatcheries

Dear Mr. Stelle:

The Lummi Nation (Lummi) appreciates the effort that has gone into the preparation of the Draft Environmental Impact Statement (DEIS) to guide the National Environmental Act (NEPA) evaluation of the National Marine Fisheries Service (NMFS) action to consider that Early Winter Steelhead (EWS) Hatchery Genetic Management Programs (HGMPs) in the Dungeness River, Nooksack River, Stillaguamish River, Skykomish River and Snoqualmie River for an Endangered Species Act (ESA) Section 4.d rule Limit 6, from Section 9 provisions. Lummi supports the adoption of Alternative 2 as the preferred alternative in the final EIS, which is the only alternative that would provide fish for harvest without further impeding the treaty reserved right to take fish. We offer the following comments and observations in an effort to support the NMFS in meeting its statuary responsibilities under the ESA and its fiduciary responsibility as trustee for protecting treaty reserved resources in the Treaty of Point Elliott.

1

The crux of the issue is clearly illustrated in the analysis of cumulative effects in Chapter 5. The decline in critical habitat associated with the economic development in the Puget Sound watershed since treaty times mentioned several times throughout the DEIS. The inability to reverse the loss of critical habitat further supports the need for carefully managed hatchery production to meet the needs of the general public and trust responsibility for the treaty right to take fish for meaningful harvest opportunity. The analysis concludes that the impact of past, current and future actions on natural production of steelhead and other ESA listed salmon would not be affected by any of the Alternatives analyzed says volumes about the causes of the current state of the salmon and steelhead resources .

2

Notes:

3 1) Results of the Cumulative Effects analysis conclusion that there was little impact from any of the Alternatives analyzed suggests that the impact of an increased production could have been analyzed with little additional effort.

4 2) The theme throughout the DEIS emphasizes the effect of hatcheries on genetic introgression, competition, predation and disease on other valued ecosystem goods and services while ignoring the elephant in the room that is the loss of critical habitat to sustain viable salmonid populations sufficient to meet the treaty reserved right to take fish in usual and accustomed fishing grounds and stations. It is alleged that hatchery production has been a key factor in the listing of salmon and steelhead when it has been shown to be due to habitat loss and degradation.

5 3) The analysis of Alternative 4, replacing EWS with local natural origin ignores the likelihood that transition to harvests comparable Alternative 2 will require a significant transitional period, and therefore would not be comparable to harvests under Alternative 2.

4 4) Despite many efforts to reduce loss of critical habitat, is it clear that habitat is being lost at rate faster than it can be protected or restored.

6 5) While not a fan of the pHOS or PNI statistics as indicating the risk of hatchery steelhead production on natural steelhead production, it should be clear that these proportions are a function of natural production which is a function of properly functioning habitat conditions over the entire life history of the fish.

6) While a population specific approach to managing genetic risk that may be associated with hatchery production may be appropriate, it should be noted that higher rates of gene flow in some populations might be consistent with the survival of the Puget Sound Steelhead Distinct Population Segment (DPS)

7 7) The socioeconomic analysis of the benefits from Alternative 2 should indicate that the current benefits are low during its transition from an out of basin smolt release to a local hatchery broodstock, which when fully established should provide returns comparable to the early 90s.

8 8) The DEIS seems to pay more attention to past hatchery practices than changes in hatchery practices that have taken place in recent years to ensure minimizing impacts on natural origin steelhead.

9 9) It is unlikely that the no action alternative will result in changes in water quantity because facilities would be used for alternate salmonid production requiring water.

10 10) We are not aware of steelhead being a significant component of the diet of listed Southern Resident Killer Whales (SRKW)

Thank you for the opportunity to provide comments on the DEIS, We hope that these comments help strengthen the final EIS. If you need further information contact Alan Chapman at alanc@lummi-nsn.gov

Sincerely yours,

Merle Jefferson
Executive Director, Lummi Natural Resources

Response to Lummi Nation Comments

Letter Dated December 28, 2015

1. Alternatives - See Global Comment 1a.

2. Comment noted.

3. Alternatives - See Global Comment 3a.

4. Analysis - See Global Comment 4d.

5. Alternatives - See Global Comment 1b.

6. Analysis - See Global Comment 4a.

7. Comment noted.

8. The comment suggests that the EIS needs to acknowledge changes in past hatchery practices. Subsection 3.2.2.4, Background on Existing Early Winter Steelhead Hatchery Programs, describes risk reduction measures that have been implemented in early winter steelhead hatchery programs in recent years.

9. Analysis/water quantity - The comment suggests it is unlikely the No Action alternative would result in reductions in water quantity usage because the facilities not used to produce steelhead would be used to produce other species. After the draft EIS was prepared WDFW indicated that in absence of early winter steelhead production they would use the available water for production of other species. Therefore, the analysis of water quantity is revised (Subsection 3.1, Water Quantity, and Subsection 4.1., Water Quantity) in the EIS.

10. Comment noted.

THE TULALIP TRIBES

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The Tulalip Tribes are the successors in interest to the Snohomish, Snoqualmie, and Skykomish tribes and other tribes and band signatory to the Treaty of Point Elliott

COMMENT FOR NOAA FISHERIES
EARLY WINTER STEELHEAD HATCHERIES DRAFT EIS

William W. Stelle, Jr. December 28, 2015
Regional Administrator
NMFS West Coast Region
7600 Sand Point Way NE
Seattle, WA 98115
RE: Early Winter Steelhead Hatcheries DEIS

1 This is a response to your agency's request for public comments on the draft environmental impact statement (DEIS) toward NOAA Fisheries' development of a preferred alternative in the final environmental impact statement (FEIS) for five early winter steelhead (EWS) hatchery programs in Puget Sound. Please see the comments prepared by the Northwest Indian Fisheries Commission that have been reviewed, and are in agreement with, the positions of Tulalip and the other Tribes. Also please refer to numerous previous comments we have provided on this and related subjects. Also, as pointed out by many commenters, while this effects analysis ultimately resulted in very little effects found, particularly in light of the degraded and rapidly worsening environmental conditions largely believed to drive natural population viability, those effects resulted from earlier programs before significant improvements were made that are reflected in the actual Hatchery and Genetic Management Plan (HGMP) actions proposed for take exemptions, that are expected to significantly further reduce potential negative program effects (e.g., program size reductions, discontinuance of off-station plants and adult recycling, etc.).

2 Need for Habitat Reform; Incorporating Habitat Status into Alternatives Analysis and Management: The Tulalip Tribes has developed an extensive paper trail in recent years leading up to, and during, the ongoing hatchery Endangered Species Act (ESA) and National Environmental Policy Act (NEPA) consultations. We have provided more than a dozen related policy letters to date to Federal and State governmental fishery management agencies, with more than half of those going to NOAA Fisheries. We have clearly stated our positions regarding not only the prerequisite critical need for effective habitat reform in comprehensive hatchery and harvest management, but have emphasized the critical need to evaluate habitat condition relative to population status and incorporate both into comprehensive, integrated hatchery and harvest management, including this scoping process.

The DEIS failed to incorporate habitat status into the alternatives analysis (see our comments re: DEIS scoping); and only considers hatchery production levels, which we believe is a myopic, flawed approach that we do not support.

2

It is critically important for the FEIS to acknowledge the strong connection between wild and hatchery steelhead production on the one hand, and the condition of freshwater and marine habitat on the other. While we believe an improved NEPA alternatives analysis must incorporate habitat condition into the analyses, if forced to choose among the four proposed alternatives, we support Alternative 2, the Proposed Action, because we believe the co-manager's HGMPs as proposed are adequately protective to listed fish to meet ESA 4(d) rule criteria and exempt proposed actions from take prohibitions, while proposed monitoring and evaluation would be iteratively improved and adaptively managed to incorporate BMPs and new findings, providing further protections.

3

Meanwhile, the downward trajectory of net habitat condition has been extensively documented, e.g. see Treaty Rights at Risk (http://nwifc.org/w/wp-content/uploads/downloads/2011/08/whitepaper628finalpdf.pdf) and State of our Watersheds (http://nwifc.org/publications/sow/), and continues due to local and large-scale effects from pollution, unchecked development, and environmental degradation that have outpaced active restoration efforts largely due to inadequate local enforcement of habitat protections and unchecked climate change. NMFS' 2011 Implementation Status Assessment Final Report stated that habitat has continued to decline while habitat protection strategies and actions in the Puget Sound Salmon Recovery Plan are "largely nonexistent". NOAA Fisheries noted in its steelhead listing document of 2011 (76 FR 1392, January 10, 2001), "The continued destruction and modification of steelhead habitat is thought to be the principal factor limiting the viability of the Puget Sound steelhead into the foreseeable future."

4

Federal Trust Responsibility, Treaty Rights, and Restricting Hatchery Production and Harvest:
The DEIS does not accurately reflect the relationship between the Federal Government's conservation mandate under the ESA and its treaty trust responsibilities. NOAA Fisheries cites Secretarial Order 3206 as being a basis for the DEIS; however, we believe NMFS policy opinion ignores crucial provisions of the Secretarial Order. Secretarial Order 3206 reflects the intent of the Departments of Interior and Commerce to strive "to ensure that Indian tribes do not bear a disproportionate share of the conservation burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation." The Order prescribes five principles to assure that restrictions on treaty-reserved fisheries are both necessary and non-discriminatory, which we note have been included in several sets of comments at this point (see our previous comments or current comments from NWIFC). Briefly, restrictions on Treaty Indian harvest, which include all of the alternatives other than the proposed action, must be reasonable and necessary for conservation while non-discriminatory and least restrictive to achieve the conservation purpose and *must not be possible to achieve by reasonable regulation of non-Indian activities*.

5

None of the five conditions in the Secretarial Order necessary for the Federal Government to meet its ESA and Treaty Trust responsibilities are being met. Other than production as proposed in the HGMPs, this analysis does not include scoping of an increased production alternative and only considers reductions in hatchery production levels that translate to reduced Treaty and non-Treaty harvest. However, the continued loss in net freshwater and marine habitat condition from non-Indian development, destruction and modification of steelhead habitat (that is outpacing active restoration efforts due to inadequate protections and enforcement), along with other environmental factors that are also completely unrelated to these hatchery programs, are not only widely recognized as the principal limiting factors driving population and DPS viability, but are exactly what we mean when we state that the Federal Government is placing Treaty Rights at Risk by not meeting its ESA and Treaty Trust responsibilities through reasonable regulation of non-Indian activities. The need to reduce or eliminate these hatchery programs and resultant harvest has never been shown to be reasonable or necessary for steelhead conservation. In addition, we find it to be highly discriminatory and restrictive, it would place disproportionate burden on hatcheries and harvest including treaty-reserved tribal harvest, we are very confident it will not achieve the conservation purpose, which would be much more effectively addressed through reasonable regulation of non-Indian activities related to habitat degradation.

5

It is our conviction that freshwater and marine environmental conditions that include everything not harvest- or hatchery-related are by far the primary factors negatively impacting Puget Sound steelhead population and DPS abundance, productivity, distribution, and diversity; and *not* hatchery effects. Just within the last year in our region, we have seen local salmonid populations get pulverized by landslides and the resultant deluge of fine sedimentation, followed by the most severe drought documented, extreme temperature and streamflow fluctuations from large-scale (e.g., climate change-related) processes that had major negative impacts on all of the main rivers entering Puget Sound that support all of the wild- and hatchery-origin steelhead and possibly even more dire effects on marine foodweb shifts resulting in lack of an adequate prey base that clearly negatively affected hatchery- and natural-origin fish alike, or on physiological (e.g., immunological, nutritional, metabolical, etc) and behavioral processes that directly negatively impacted the fish. Management policy and environmental conditions conducive to exacerbated pinniped and other sources of increased predation have been routinely observed in steelhead outmigration studies, and then all of that was followed by at least four major flooding events to date this fall that further degraded productivity and fitness of the remaining survivors – all within the last year. Still, we have to read about the proportion of hatchery-origin spawners ("pHOS") and hatchery influence as main drivers of productivity, which frankly, is ridiculous.

4

We are in complete agreement with the NWIFC comments that note that effects on fitness discussed in the DEIS from introgression with hatchery-origin spawners, or the degree of hatchery influence on the target natural populations, are inadequate and predisposed toward advocating for methods that

6

only aim to reduce hatchery influence – and will only result in false conclusions if the environment has a major effect on population and DPS productivity, fitness, and reproductive success (as commonly understood by basically the entire fisheries science community), which is largely absent from discussion in the DEIS. If gene flow, fitness loss, or ecological interactions have anything to do with hatchery influence or the proportion of hatchery-origin fish ("pHOS" = HOS/(HOS+NOS), at any life stage, then elementary school math lessons about fractions tell us that a fraction can be reduced not only by decreasing the numerator (reducing the number of hatchery-origin fish in Alternatives 2 and 3, which is completely unacceptable), but also obviously by increasing the denominator (e.g., by increasing self-sustaining natural production through tough, adequate habitat protections and restoration measures that actually result in net gains in habitat toward recovery goals). Not fully addressing this more sustainable, long-term approach of increasing natural production driven by habitat improvements to reduce hatchery influence is not only biased, but will not achieve ESA recovery goals or meet Treaty Rights, which are consistent with each other and both negatively impacted by degraded environmental conditions. 6

The DEIS does a better job of acknowledging the historical context for hatchery production as mitigation for lost natural production, but does not do an adequate job of realistically describing the ongoing decline in net habitat condition that is a direct result of aquatic, riparian, and upland habitat degradation and development and ongoing degradation of estuarine and marine environmental conditions, that largely do not meet Properly Functioning Conditions and are worsening every year under the lack of consistent, meaningful environmental protection and enforcement. The need for hatchery production as mitigation for lost natural production has not lessened, but to the contrary, has greatly *increased*. Yet, we sit here debating circular arguments involving further hatchery reductions while NOAA makes unfounded conclusions contrary to the ongoing, well-documented decline in net habitat quality and extent that we all see in the real world (e.g., in Chapter 5 in the DEIS where statements are made alluding to some environmental regulations in place that will somehow materially diminish the effects of development and pollution and result in net gains in habitat). Any accurate description of historical conditions must provide the context of how we got to the current conditions and any future projection of effects from the proposed actions relative to habitat condition must be a realistic assessment of the likelihood of making net gains in habitat quality and quantity given the current inadequacy of environmental protection mechanisms, rather than habitat condition somehow magically frozen in time when examining projected future impacts. 7

As many have commented, it is critical that NOAA Fisheries conduct the EWS hatchery program NEPA and ESA consultation within a timeframe that will allow steelhead smolt releases next spring to occur on a schedule that meets their biological requirements. Due to the unilateral settlement agreement between Wild Fish Conservancy (WFC) and WDFW that ignored tribal co-management authority, failure of NOAA to approve the EWS HGMPs under the 4(d) rule in a timely manner next spring will effectively finish off all of the Puget Sound steelhead hatchery programs, which we believe are all likely to result in No Jeopardy determinations after all of the lawsuits and other 8

attempts aimed solely to kill these programs have run out of hot air. It is plain to everyone that WFC will do whatever it can to try to thwart releases of these fish, regardless of how the hatchery programs are run, how little harm they cause to other salmon, or how great their permanent closures would further harm the citizens of this state as well as its natural resources that benefit from these programs, while doing essentially nothing for steelhead recovery under existing management regimes. At a minimum, this means not only must there be no stalling tactics such as time extensions granted on comment periods or allowing last-minute injunctions next spring so WFC can run to the courthouse and try to run out the clock. If they succeed in that which we all know they are going to attempt, the damages that have already accrued into the millions of dollars that have also impacted the treaty right to take fish at all Usual and Accustomed fishing places, which has no monetary value, would become particularly egregious and possibly an unbearable burden on the tribes given they would have succeeded in killing hatchery mitigation programs based on technicalities and unilateral settlement agreements that ignored tribal co-management authority and Treaty Rights even before the programs were fairly evaluated and ultimately found to not cause jeopardy while no harm was ever proven, much less to any significant extent, and even worse, to any significant extent relative to other factors such as the extensive environmental factors that are widely recognized by NOAA and many fisheries experts to drive steelhead population viability as previously discussed.

8 Failure to release these fish on time this spring will cause the permanent termination of these stocks and will irreparably harm not only these early winter steelhead programs, but also fishers in many parts of Puget Sound who will very likely never be able to fish for steelhead ever again in Puget Sound. If NOAA does its job to expeditiously complete the consultations and in fact does come to No Jeopardy conclusions for any programs in time to release the fish on their biological schedule, any legitimate outstanding issues raised whatsoever, or more likely, non-legitimate stalling tactics introduced, at the 11th-hour next spring, should not be allowed to kill these important hatchery programs on process alone, instead of on merit.

These programs have been around for many decades and it has already been arbitrary and capricious that they have been allowed to wither away by preventing the releases as the result of legal process matters alone, under the auspices that somehow after all these years, allowing them to go on for even a couple more years while under evaluation would imminently threaten the existence of wild Puget Sound steelhead. Allowing these hatchery programs that have been around for many years to continue to release for a couple of more years until their evaluation process has been fairly completed was the only reasonable way this process should have ever occurred and it should never happen again. Despite all of the unfair damage done to date, it is still not too late to prevent final stalling tactics from eliminating these valuable programs that benefit all of the citizens of Washington State and many hundreds of aquatic and terrestrial animal and plant species and their complex ecosystems. Worst case scenario, they would release fish for one or so more years while under even further evaluation and if for some weird reason, opponents, who are clearly biased against hatcheries on principle, would actually be found to be right and all of the other objective scientists wrong, and final

8 litigation would result in jeopardy determinations, and all of the programs were to be found to cause significant harm to wild steelhead, and particularly relative to other non-Indian factors, and in consideration of legal obligations along with sound science, and in recognition of the limitations of current habitat capacity. Under this worst case scenario, anti-hatchery folks would simply have to have another champagne party, if and when they prevail.

9 Until natural production, currently limited by degraded habitat that does not meet Properly Functioning Conditions, becomes self-sustaining and meets ecological, social, and cultural needs, hatchery production will continue to play an integral part in the exercise of treaty rights. Thank you for the opportunity to provide comments on the DEIS.

Sincerely,

Daryl Williams
Environmental Liaison
Natural and Cultural Resources Dept.
Tulalip Tribes

Cc: Melvin Sheldon Jr., Chairman; Tulalip Tribes, Tulalip Tribes' Board of Directors
Ray Fryberg Sr., Executive Director of Natural and Cultural Resources, Jason Gobin, Director of Fisheries and Wildlife, Terry R. Williams, Commissioner of Fisheries and Natural Resources, Mason Morriset, Attorney; Tim Brewer, Attorney; Mike Crewson, Salmon Enhancement Sci; Tulalip Tribes
Jim Unsworth, Director, Jim Scott, Asst. Director, Washington Dept. of Fish and Wildlife
Mike Grayum, Executive Director, Northwest Indian Fisheries Commission
Rob Jones, Tim Tynan, NOAA Fisheries

Responses to The Tulalip Tribes Comments

Letter Dated December 28, 2015

1. Subsection 3.2.2.4, Background on Existing Early Winter Steelhead Hatchery Programs, acknowledges risk reduction measures for early winter steelhead hatchery programs that have been implemented since Puget Sound steelhead were listed under the ESA.

   See also Global Comment 4a, and Appendix B of the EIS, which describes projected genetic effects from the hatchery programs reviewed.

2. Analysis - See Global Comment 4d.

3. Alternatives - See Global Comment 1a.

4. Comment noted.

5. Editorial – The comment suggests that the EIS inaccurately reflects the Federal government's conservation mandate under the ESA in the context of treaty trust responsibilities. The conservation principles mentioned by the comment are part of Principle 3, as included in Subsection 1.7.7, Secretarial Order 3206. Subsection 1.7.7, Secretarial Order 3206, has been revised to include the conservation necessity principles discussed in the Secretarial Order 3206 between the Departments of the Interior and Commerce.

6. Analysis/Genetics - See Global Comment 4a.

7. Analysis - See Global Comment 4d.

8. NEPA - See Global Comment 2a.

9. Comment noted.

Northwest Indian Fisheries Commission

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December 28, 2015

William W. Stelle, Jr.
Regional Administrator
NMFS West Coast Region
7600 Sand Point Way NE
Seattle, WA 98115

RE: Early Winter Steelhead Hatcheries EIS

Dear Mr. Stelle:

1 The Northwest Indian Fisheries Commission (NWIFC) appreciates the opportunity to review and comment on the Early Winter Steelhead Draft Environmental Impact Statement (DEIS). We applaud the work of NOAA and its staff in its analysis of the Early Winter Steelhead programs in the Dungeness River, Nooksack River, Stillaguamish River, Skykomish River, and Snoqualmie River and believe the comments provided here and in the attached appendices will serve to strengthen the document further. Additionally, we take this opportunity to acknowledge our support of additional comments that may be submitted by any of the individual member Tribes of the NWIFC.

2 While it may be implied in the DEIS, we encourage NOAA to explicitly note in the DEIS that the production alternatives analyzed in detail do not preclude co-managers from proposing increased production options in the future. Based on our review of the DEIS, NOAA's decision to eliminate an alternative considering higher production levels because "the submitted HGMPs, as proposed, minimized risk such that any increase in production would not be consistent with meeting ESA guidelines"[1], is not explicitly supported by the current analysis.

3 The current effects analysis indicates little variation in risk to the evaluated resources across the production alternatives analyzed, particularly when Alternatives 2 and 3 are compared to Alternative 1[2]. Further the Warheit[3] report that the EWS DEIS utilizes as part of the effects analysis on gene flow, was conducted under higher production levels, such that certain conclusions of the current DEIS are already based on higher production levels.

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[1] See p. 28, lines 12-24.

[2] See Appendix B (attached).

[3] Warheit, K.I. 2014. Measuring reproductive interaction between hatchery-origin and wild steelhead (*Oncorhynchus mykiss*) from northern Puget Sound populations potentially affected by segregated hatchery programs. Washington Department of Fish and Wildlife. Olympia, WA. October 10, 2014.

The DEIS misrepresents treaty rights and usual and accustomed (U&A) fishing areas. Under Alternatives 1 and 3, the Socioeconomics analysis suggests that tribal fishers can simply travel to participate in other steelhead fisheries[4]. This, however, is not accurate and further perpetuates an unfounded assumption that tribal fishing practices can operate similar to sport and non-treaty commercial fishing. In their treaties with the federal government, the tribes specifically reserved the right to take fish at their usual and accustomed fishing areas. *See e.g.*, *United States v. Winans*, 198 U.S. 371, 381 (1905) (tribes reserved the right to cross over and occupy land as necessary to take fish at usual and accustomed sites); *see also Washington v. Washington State Commercial Passenger Fishing Vessel Assn'*, 443 U.S. 658, 667, modified on other grounds, 444 U.S. 816 (1979) (tribes relied on federal assurances that their right to utilize usual and accustomed fishing places would be protected); *United States v. Oregon*, 718 F.2d 299, 304 (9th Cir. 1983) (the right to take fish at all usual and accustomed fishing places may not be qualified by the state). Similarly, neither the federal government nor the state may limit the right to take fish at a usual and accustomed site on the basis that a tribe can take its fair share elsewhere. *See Muckleshoot v. Hall*, 698 F. Supp. 1504, 1514-15 (W.D. Wash. 1988). The only basis on which the right to take fish at all usual and accustomed fishing places can be qualified is as necessary for conservation. *See e.g., United States v. Oregon*, 718 F.2d at 304-05. In the context of managing early winter steelhead, no such showing has been made.

4

As the Departments of the Interior and Commerce have noted as part of their trust responsibility to the Commission's member tribes, restrictions on the right to take fish must be based on findings that: (1) the restriction is reasonable and necessary for conservation of the species at issue; (2) the conservation purpose of the restriction cannot be achieved by reasonable regulation of non-Indian activities; (3) the measure is the least restrictive alternative available to achieve the required conservation purpose; (4) the restriction does not discriminate against Indian activities, either as stated or applied; and, (5) voluntary tribal measures are not adequate to achieve the necessary conservation purpose[5]. Under the treaties, hatchery fish are considered fish to the same extent as naturally-spawning fish. *United States v. Washington*, 759 F.2d 1353, 1358-60 (9th Cir.), cert. denied, 474 U.S. 994 (1985). Accordingly, the conservation necessity principles, developed in the treaty case law and discussed in the Secretarial Order, apply to hatchery fish no less than they do to naturally spawning fish. The DEIS fails to mention, let alone address, these key aspects of the Secretarial Order and related treaty rights case law.

The DEIS implies that treaty harvest restrictions may need to occur depending upon which alternative is selected. If that is so, any such alternative must first demonstrate how the conservation necessity principles, enumerated above, have been met before restrictions on treaty fisheries may be contemplated. The DEIS fails to provide any such consideration or analysis.

[4] See pg 108, lines 9-11 and pg 119, lines 9-11.

[5] See Departments of the Interior and Commerce, Secretarial Order No. 3206 (June 5, 1997) at Principle 3(C).

5 Under Alternative 4 – Native Broodstock, the assessment of Indirect Fishery impacts indicates that fisheries targeting hatchery origin steelhead would not be implemented until returns of natural-origin steelhead are large enough[6]. Yet the Socioeconomics analysis for Alternative 4 concludes harvest related effects would not differ from existing conditions, Alternative 2 – Proposed Action, where harvest opportunities are allowed. The DEIS needs to be consistent in the assumptions it applies within its analysis across the alternatives considered.

6 On multiple occasions, the DEIS refers to decisions and actions Washington Department of Fish and Wildlife (WDFW) will make in regards to the early winter steelhead programs[7]. These statements are incorrect as such decisions are bound to *U.S. v Washington* and the Puget Sound Salmon Management Plan through a co-management process. We encourage NOAA to correctly represent the aspects of such decisions requiring co-management agreement. Additionally, the DEIS should be clear when referring to tribal co-managers within the watersheds where the proposed actions occur and when referring to all Puget Sound Treaty Tribes as co-managers.

7 This DEIS is inconsistent in its portrayal of habitat conditions and habitat restoration. While Section 3.2.1 concludes 'habitat continues to suppress prospects for recovery', Section 5.4 argues that many plans and regulations are in place to minimize effects of development and to restore habitat function. Section 5.4.2 further concludes 'some environmental degradation (is expected) in the future from development, but to a lesser extent as a result of environmental regulations in place'. The conclusions are not only inconsistent within this DEIS, they are inconsistent with both NOAA's own conclusions[8] and those of the Puget Sound Treaty Tribes[9,10]. Both NOAA and the tribes have found that habitat degradation continues at a higher rate than habitat restoration. The DEIS needs to consistently and accurately portray past, present, and future habitat limitations and risks to listed salmon and steelhead.

8 Populations fitness, as defined in the DEIS, has a significant component that is determined by the environment, yet analysis and consideration of environmental effects on fitness are largely absent from the DEIS. Consequently, the DEIS is biased and incomplete in its analysis of fitness effects. A key HSRG conclusion is:

> Productive habitat, in which a salmon population conducts the various phases of its life cycle, is necessary to the success of any hatchery program. *The fitness of*

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[6] See pg 100, lines 21-23.

[7] For instance see p. 26, lines 12-14 and p. 27, lines 8-9 and lines22-24.

[8] NMFS. 2011. 2011 Implementation status assessment – Final Report. A qualitative assessment of implementation of the Puget Sound Chinook salmon recovery plan. Prepared by Millie M. Judge, Lighthouse Natural Resource Consulting, Inc. for the National Marine Fisheries Service, Northwest Region, Portland, OR. 45 pages.

[9] Treaty Indian Tribes in Western Washington. 2011. Treaty Rights at Risk – Ongoing habitat loss, the decline of the salmon resource, and recommendations for change. July 14, 2011. 35 pgs.

[10] Northwest Indian Fisheries Commission. 2012. 2012 State of our watersheds Reports – WRIAs 1-23. 336 pgs.

the naturally-spawning population, its productivity, and the number of adult salmon (artificially or naturally produced) returning to the watershed ultimately depend on the natural habitat, not on the output of the hatchery[11].

The next DEIS needs to address this shortcoming. NMFS, for example, found that survival rates of hatchery and natural origin Hood Canal summer chum were similar.[12] This could be because selection intensity is low when hatchery chum salmon spend little of their juvenile life history in the hatchery environment or because environmental effects overwhelm any genetic effects.

Additionally, the DEIS presents a biased representation of factors influencing percent hatchery-origin spawner (pHOS) levels, by focusing explicitly on changes in hatchery-origin spawner abundance. The DEIS failed to recognize the importance of natural-origin spawner abundance in relation to pHOS levels. It can be argued that improving natural production through sufficient habitat protection and restoration actions would increase natural-origin spawners, and therefore reduce pHOS levels. By ignoring such considerations in the DEIS, NOAA is presenting a biased representation of influential factors on pHOS levels.

8

In some locations the DEIS differentiated between census or demographic pHOS and effective pHOS by recognizing the importance of relative reproductive success. However, the DEIS is not consistent in differentiating census and effective pHOS, particularly where such a distinction would be of critical importance for the reviewer[13]. As such, the DEIS should ensure that when pHOS is referenced, it specifically distinguishes whether referring to census or effective pHOS.

The intent of the HSRG is "to *advise* fishery managers, agency scientists, legislators, and the public about the benefits and risks of alternative actions that could be undertaken to meet goals for salmonid resources." The tribes reaffirm the role of the HSRG and other science panels as sources of scientific advice. However, neither the HSRG nor any other panel, has a monopoly on scientific wisdom. Legal obligations, along with sound science and recognition of the limitations of current habitat capacity, are essential considerations in decisions regarding natural resources. The DEIS needs to be clear that HSRG recommendations are a factor to be considered, but by no means the only sources of science to consider.

The purpose of the NEPA process is to make an informed decision regarding the environmental consequences of the proposed action. The current analysis of Chapter 3, arbitrarily focuses consideration of impacts on a single wildlife species and fails to adequately consider the impacts on the 137 species of fish and wildlife that rely on salmon and steelhead for

9

[11] Hatchery Scientific Review Group. 2004. Hatchery Reform: Principles and Recommendations of the HSRG. Long Live the Kings, 1305 Fourth Avenue, Suite 810, Seattle, WA 98101 (www.hatcheryreform.org).
[12] Berejikian, B.A., D.M. Van Doornik, J.A. Scheurer, & R. Bush. 2009. Reproductive behavior and relative reproductive success of natural- and hatchery-origin Hood Canal summer chum salmon (*Onchorynchus keta*). Can. J. Fish. Aquat. Sci. 66: 781-789
[13] For instance see p. 51 lines 9-22.

nourishment and survival[14]. Among these species are marine mammals such as harbor seals (*Phoca vitulina*) and sea lions (*Eumetopias jubatus* and *Zalophus califonianus*) which have seen population increases of seven to ten-fold in recent years.[15] The discussion of any alternative that would permanently reduce steelhead production must also include a thorough discussion of potential ecosystem impacts, including impacts to other prey species which would likely see higher predation rates. Focus should be on the ecological effects that a reduced production action would trigger within the Nooksack, Stillaguamish, Dungeness, Skykomish, and Snoqualmie watersheds as well as the broader Puget Sound ecosystem brought about by this proposed reduction in salmonid production. The current analysis fails to assess this. In particular, the focus of this analysis is arbitrarily limited to a species (Southern Resident killer whales) that spends the majority of the year outside of Puget Sound and for which Puget Sound steelhead and Chinook only represent a very small fraction of their annual diet[16].

9

Alternative 3 calls for reduction in hatchery production by 50 percent, while acknowledging that hatchery production currently represents 70 to 80 percent of Puget Sound's salmonid production. The assessment currently concludes that this level of reduction would have a "negligible effect" on other fish and wildlife species by reference to the fact that this production level is within the range of past variability. However, past performance was the result of natural variability and not the result of a permanent reduction in production capacity. The ecological impact is much different between these two scenarios and should be clearly identified for the readers. An ecosystem can withstand short-term depressions in production, but long term reductions will force changes and this should be clearly outlined in the discussion of Alternatives 1 and 3. Reductions in hatchery production put ecosystems reliant on these salmon and steelhead, including marine and terrestrial mammals, birds, insects, and other fish species at risk. These ecosystem affects are not addressed within the DEIS and need to be.

Currently, the DEIS assesses the impact of hatchery maximum surface water withdrawal relative to minimum stream flow conditions. However, as the DEIS acknowledges, maximum water withdrawal at hatchery facilities does not coincide with low flow conditions. The DEIS needs to appropriately align temporal flow data with maximum hatchery withdrawal for its analysis. Likewise, the current impact assessment for hatchery groundwater usage is compared in regards to the permitted water right for each facility's well(s), such that facilities pumping a greater proportion of their permitted water right have a greater impact. This analysis is flawed and should be reconsidered. At the least, the impact of groundwater withdrawal should be measured relative to all permitted and permit-exempt well water withdrawals or at best in relation to total aquifer availability recognizing senior water rights.

10

While we recognize that the DEIS referenced the Tribal Policy for Salmon Hatcheries, it is necessary to re-affirm the importance of hatchery production in meeting treaty fishing rights and federal trust responsibilities in light of diminished natural production. Until natural

11

[14] Cedarholm et al. 2000

[15] See http://www.westcoast.fisheries.noaa.gov/publications/protected_species/other/rockfish/rockfish_in_pinniped_diet.pdf

[16] Hilborn et al. 2012

11 production, currently limited by degraded habitat, achieves sustainable levels to meet ecological and cultural needs, hatchery production will continue to play an integral part in the exercise of treaty rights.

Thank you for the opportunity to provide comments on the DEIS. We look forward to continuing to strengthen this document as it develops.

Sincerely,

Mike Grayum,
Executive Director

cc: NWIFC Commissioners

Enclosures: Appendix A and Appendix B.

Appendix A:

Pg4, lines 21-22: The text suggests that HGMPs have only recently been submitted. An honest review of RMP and HGMP submittals is warranted to provide an adequate description of co-managers lengthy involvement in seeking 4(d) coverage!
Pg 11, lines 19-20: The text mistakenly states that the Proposed Action is for salmon and steelhead hatchery programs. The proposed action under review in the DEIS is only for 'early winter steelhead' programs. This should be consistent throughout the document.
Pg22, line 11: Delete space between steel and head.
Pg30, line10: Insert 'if' between determine and the.
Pg32, line11: Add 'evaluated in this EIS' after 'resources'.
Pg32, lines 27-32: the effects categories are not very descriptive allowing sufficient understanding of level of effect.
Pg 39, line 1-2: Insert Monthly NPDES monitoring and reporting requirements for Whitehorse Ponds.
Pg41, line1 (Table 5): Listed fall Chinook in Nooksack. No sockeye salmon in Dungeness, but there are fall chum.
Pg 41, line 17: Marine habitats have also been modified and affect salmon and steelhead in the Puget Sound.
Pg41, line18: Edit 'steam' to 'stream'.
Pg42, line4: Acknowledge endemic and introduced predator impacts.
12 Pg43, lines12-15: Provide a table describing the summary of production level difference.
Pg 47, line 1-9: Dungeness River pink salmon conservation program has been on hold since 2013 given recent strong returns, while population is monitored.
Pg49, line31: Delete the term 'spawn' and replace with 'mature'.
Pg 52, line 2: Redds are not useful in measuring pHOS. Suggest an edit that describes expansion of redds to estimate spawner abundance.
Pg53, lines10-12: Competition is only apparent when space and/or food resources are limited.
Pg54, line9: Delete 'upstream'.
Pg54, lines12-15: Predation risk is also dependent on the piscivorous nature of the predator. The paragraph alludes that all hatchery fish are exclusively piscivorous in nature and have no other prey selection items. Piscivory may be low, due to lack of piscivory tendencies, predator success, and/or other prey item (aquatic insects/invertebrates) availability.
Pg57, line1: Should note that weirs allow passage through the use of trapping components.
Pg 62, Table 11: Escapement for Dungeness natural origin winter steelhead in 2015 totaled 615 for an average of 530 (Aaron Brooks, Jamestown S'Klallam Tribe Fisheries Biologist, Personal Communication).
Pg69, line32: ')' after Wallace River Hatchery.
Pg70, line21: Replace 'Stillaguamish Indian Tribe' with 'Stillaguamish Tribe of Indians'.

Pg71, line5: Replace 'caught' with 'harvested'. Appendix C evaluated harvested fish.
Pg79, line23-24: Insinuates that if the hatchery doesn't exercise its water rights, it can be taken by somebody else. This is not completely accurate.
Pg93, Table15: Dungeness natural escapement should be an average of 530 with 2015 escapement. Snohomish/Skykomish Avg Natural origin winter run=1,683 not 1.683.
Pg 103, lines31-33: Should sentence read "…and increase in the risk of predation on hatchery-origin steelhead by other fish species and a potentially measurable increase in the number of prey eaten by steelhead…"? See also pg 104, lines 27-28.
Pg107, line1-3: Why would a decrease in production under Alternative 3 have a positive impact on SRKW relative to Alternative 2? Wouldn't a decrease in prey availability be a negative impact?
Pg107, line1-2: What is a 'less pronounced negligible positive effect'? If an affect is negligible, can it really be pronounced?
Pg107, line10-12? Run timing would have an effect on predation rates. This is analogous to the concept applied to predation of hatchery origin fish on natural origin fish; it required spatial and temporal overlap in resources for predation (and competition) to occur.
Pg108, lines22-24: Indicates Alternative 2 would increase jobs by 19.3FTE relative to alternative 1. However Alternative 1 (pg107, lines29-30) indicates that none of the 19.3FTEs would be affected.
12 Pg109, lines20-21: How is a decrease in expenditures on goods and services in Alternative 3, relative to Alternative 2 a negligible *positive* impact on personal income and jobs in the regional economy. It should be a negligible *negative* impact.
Pg111, line25: Replace 'Stillaguamish Indian Tribe' with 'Stillaguamish Tribe of Indians'.
Pg112, line16: Replace 'Stillaguamish Indian Tribe' with 'Stillaguamish Tribe of Indians'.
Pg 112, line 31: Should be referring to Alternative 3 not Alternative 2.
Pg113, line8: Replace 'Stillaguamish Indian Tribe' with 'Stillaguamish Tribe of Indians'.
Pg113, line14: Replace 'Stillaguamish Indian Tribe' with 'Stillaguamish Tribe of Indians'.
Pg 123, lines 31-32: Provide citations supporting this conclusion.
Pg129, line1: Add 'faster than it has been restored' after 'decline'.
Pg130, lines31-32: Delete. This statement implies that hatchery production has been the primary factor in the listing of salmon and steelhead, despite the critical role that habitat degradation played in the decline of salmon and continues to play in preventing recovery of naturally spawning populations. As of 2005, NMFS noted that "Collectively, artificial propagation programs in the [Puget Sound Chinook] ESU provide a slight beneficial effect to ESU abundance and spatial structure, but neutral or uncertain effects to ESU productivity and diversity." 70 F.R. 37160, 37185 (June 28, 2005).

Appendix B:

Comparison of degree (negligible, low, moderate, high) and direction (positive [+] or negative [-]) impacts for evaluated resources across all alternatives. Highlighted cells indicate inconsistency in the determination.

12

Water Quantity –

Water Quantity	Water Source (SW=Surface Water, GW=Ground Water)	Alternative Comparisons				
		Alt 1 vs. Alt 2	Alt 2 vs. Alt 1	Alt 3 vs. Alt 1	Alt 3 vs. Alt 2	Alt 4 vs. Alt 1
Dungeness River	Dungeness River SW	Low +	Mod -	Mod -	Low to Negligible +	Same as Alt 2 vs. Alt 1
	Canyon Cr. SW	Mod +	Mod -	Mod -		
	Hurd Cr. SW	Mod +	Mod -	Mod -		
	Hurd Cr.GW	Low +	Low -	Low -		
Nooksack River	Kendall Cr. SW	Negligible +	Low -	Low -		
	Kendall Cr. GW	Low +	Low -	Low -		
	McKinnon Pond SW (Peat Bog Cr.)	Negligible +	Negligible -	Negligible -		
Stillaguamish River	Whitehorse Spring Cr. SW	Negligible +	Negligible -	Negligible -		
	Whitehorse Ponds GW	Low +	Negligible -	Negligible -		
Skykomish River	Wallace River SW	Negligible +	Negligible -	Negligible -		
	May Cr. SW	Negligible +	Negligible -	Negligible -		
	Austin Cr. SW	Negligible +	Mod -	Low -		
	Hogarty Cr. SW	Negligible +	Mod -	Low -		
Snoqualmie River	Tokul Cr. SW	Negligible +	Negligible -	Negligible -		
	Tokul Cr. Hatchery GW	Negligible +	Negligible -	Negligible -		

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Salmon and steelhead resources

Salmon Steelhead	Alt 1 vs. Alt 2	Alt 2 vs. Alt 1	Alt 3 vs. Alt 1	Alt 3 vs. Alt 2	Alt 4 vs. Alt 1	Alt 1 vs. Alt 2
Gene Flow	Low + (Dung., Nook., Still., Skyk.) Low-Mod + (Snoq.)	Low - (Dung., Nook., Still., Skyk.) Low-Mod - (Snoq.)	Low - (Dung., Nook., Still., Skyk.) Low-Mod - (Snoq.)	Low	Low	Low -
Predation	Low +	Low -	Low -	Low	Low -	Same
Competition	Low +	Low -	Low -	Low	Low -	Same
Facility Effects	Same	Same	Same	Same	Same	Same
Masking	Neg. +	Neg. -	Neg. -	Neg. -	Low -	Low -
Incidental Fishing	Low +	Low -	Low -	Low	Low -	+
Disease Transfer	Same	Same	Same	Same	Same	Same
Mining	None	None	None	None	Low	Neg.
Pop Viability	None	None	None	None	+	+
Nutrient Cycling	None	None	None	None	None	None

Other fish species

Other Fish Species	Alt 1 vs. Alt 2	Alt 2 vs. Alt 1	Alt 3 vs. Alt 1	Alt 3 vs. Alt 2	Alt 4 vs. Alt 1	Alt 1 vs. Alt 2
Competition	-	+	+	-	Same as 2vs1	Same
Predation	-	+	+	-	Same as 2vs1	Same
Overall	Neg. (+/-)	Neg. (+/-)	Neg. (+/-)	Neg. (+/-)	Same as 2vs1	Same

Southern Resident Killer Whales

SRKW	Alt 1 vs. Alt 2	Alt 2 vs. Alt 1	Alt 3 vs. Alt 1	Alt 3 vs. Alt 2	Alt 4 vs. Alt 1	Alt 1 vs. Alt 2
Diet, surv, dist. And listing status	Neg -	Neg. +	Neg. +	Less pronounced negligible +	Same as 2 vs 1	Same

12

Socioeconomics and environmental justice (EJ)

	Alt 1 vs. Alt 2	Alt 2 vs. Alt 1	Alt 3 vs. Alt 1	Alt 3 vs. Alt 2	Alt 4 vs. Alt 1	Alt 1 vs. Alt 2
Socioeconomics	Mod. -	Mod. +	Mod. +	-	*Assume Same as 2 vs. 2	Same
Tribal-SE	Mod. -	Mod. +	Low +	-	*Assume Same as 2 vs. 2	Same
EJ-Communities	Low -	Low +	Low +	Same	Low +	Same
EJ-Tribes	Mod. -	Mod +	Mod +	Mod. -	Mod +	Same

Responses to Northwest Indian Fisheries Commission Comments

Letter Dated December 28, 2015

1. Comment noted.

2. Editorial - The comment asks that the EIS explicitly acknowledge that the production alternatives analyzed in the EIS do not preclude increased production options in the future. Subsection 1.6.6, Public Review and Comment, notes that HGMPs may change in the future and that additional NEPA and ESA compliance analyses may be needed. Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, has been revised to provide further clarification about changes in HGMPs.

3. Alternatives - See Global Comment 3a.

4. Editorial – The comment suggests that the EIS misrepresented treaty rights and use of usual and accustomed fishing areas in the socioeconomic analysis, with regard to mobility of tribal fishers. Subsection 4.5.1, Alternative 1 (No Action), and Subsection 4.5.3, Alternative 3, have been revised to address this comment. The comment further suggests that the EIS should at least mention the conservation necessity principles discussed in the Secretarial Order of the Departments of the Interior and Commerce (see Subsection 1.7.7, Secretarial Order 3206) as part of the trust responsibility to member tribes of the Northwest Indian Fisheries Commission.

   Subsection 1.7.7, Secretarial Order 3206, has been revised to include the conservation necessity principles discussed in the Secretarial Order 3206 between the U.S. Departments of the Interior and Commerce.

   The impacts of the alternatives on treaty fishing is addressed in the analysis of socioeconomic impacts. Should NMFS ultimately select an alternative other than the preferred alternative, and that alternative was found to have impacts on treaty fishing, NMFS would comply with the Secretarial Order as relevant.

5. Editorial – The comment suggests that there is inconsistency in effects associated with Alternative 4 (Native Broodstock) whereby there would be lag time for the benefits of indirect fishery effects (for the salmon and steelhead resource), but that the socioeconomic effect would be the same as under Alternative 2 (Proposed Action). Socioeconomics, Subsection 4.2.4, Alternative 4 (Native Broodstock), has been modified to clarify that there may be a lag time for natural-origin returns to be large enough for fisheries to occur, but not necessarily a socioeconomic impact over the long-term.

   See also Global Comment 1b for more information on potential steelhead native broodstock hatchery programs.

6. Editorial – The comment suggests there are inconsistencies in how the EIS describes WDFW and the treaty tribes with respect to their co-management roles. Although the WDFW operates the hatchery programs described by early winter steelhead HGMPs and is party to the Consent Decree in *Wild Fish Conservancy v. WDFW* (W.D. Wash.) on early winter steelhead programs, it co-manages the programs with the affected treaty tribes. Accordingly, Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, has been modified to define the term "co-managers" as applied to the HGMPs under the Proposed Action.

7. Editorial – The comment suggests there is an inconsistency between Subsection 3.2.1, General Factors that Affect the Presence and Abundance of Salmon and Steelhead, and Subsection 5.4, Future Actions and Conditions, with regard to treatment of habitat conditions and habitat restoration. The referenced subsection 3.2.1 is in Chapter 3, Affected Environment, which describes factors that lead to the existing condition of the environment, and states that impaired habitat conditions continue to suppress recovery, citing NMFS (2011). This is not inconsistent with the language in in Subsection 5.4.2, Development, because it is reasonable to expect that habitat would be further degraded if current and continuing regulatory actions were not in place.

8. Analysis/Genetics – To clarify, NMFS considered the available science from multiple sources, not just the HSRG.

   See Global Comment 4a.

9. Analysis/Wildlife - The comment suggests that the EIS analyzed environmental effects for only one wildlife species in the analysis area. As described in Chapter 3, Affected Environment, (Introduction), four available, recent NEPA reviews involving salmon and steelhead hatchery programs in Puget Sound indicate that most wildlife species are unlikely to have the potential to be substantially impacted by the Proposed Action or alternatives. Further, note that the EIS incorporates by reference the 2014 Puget Sound Hatcheries DEIS, which reviewed extensive information on other wildlife species in the analysis area and effects associated with Puget Sound hatchery programs and found that effects on most wildlife species were not substantial. Consequently, further analyses of potential effects from HGMP implementation on these species was not warranted.

10. Analysis/Water Quantity – The comment suggests the analysis of water quantity could be improved by (1) comparing surface flow conditions at the time of maximum water use, not under low streamflow conditions, and by (2) comparing hatchery groundwater use to overall aquifer conditions rather than assuming maximum use under available water rights. After considering alternative approaches, NMFS feels the analysis in the EIS is reasonable for the reasons discussed below.

    Because stream gauging and water use by hatchery facilities are not measured at each location, the analysis requires use of surrogate locations (e.g., nearest gauging station to facilities, with a record spanning at least 5 years). The analysis of surface flows at facilities uses the low flow period for the purposes of comparison, which provides a conservative approach in light of

uncertainties associated with local stream flows and water use at facilities. Similarly, overall availability of groundwater is not available at each location, or in the context of total aquifer availability in the context of all permitted and permit-exempt wells.

11. Comment noted.

12. Editorial - The comment identifies a number of detailed editorial inconsistencies and suggested revisions in two appendices. NMFS has considered the suggested edits and revised the EIS as warranted.

Wild Fish Conservancy
NORTHWEST
SCIENCE EDUCATION ADVOCACY

December 28, 2015

Via Email
William W. Stelle, Jr.
Regional Administrator
National Marine Fisheries Service, West Coast Region
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Re: Draft Environmental Impact Statement to Analyze Impacts of a NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound

Dear Honorable Civil Servants:

Please accept these comments submitted on behalf of the Wild Fish Conservancy on the Draft Environmental Impact Statement to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound (Nov. 2015) ("Chambers Creek DEIS").

Very truly yours,

Kurt Beardslee, Executive Director
Wild Fish Conservancy

I. INTRODUCTION.

The context in which the National Marine Fisheries Service's ("NMFS") Chambers Creek DEIS has arisen is remarkable and deserves a brief discussion. It is beyond all reasonable dispute that the highly-domesticated Chambers Creek steelhead programs at issue adversely affect the Puget Sound steelhead distinct population segment ("DPS")—a threatened species under the Endangered Species Act ("ESA"). Puget Sound wild steelhead numbers are approximately 1 to 4% of their historical abundance. NMFS has identified Chambers Creek steelhead programs as one of the causes of the decline in wild Puget Sound steelhead. The current proposal to approve five of the six or seven such programs in Puget Sound with minimal opportunity for public participation and without any quantitative analysis of the harm posed by these programs appears to be driven by political considerations without regard to the harm caused to threatened salmonids and the other costs of these hatcheries.

1

NMFS listed the Puget Sound Chinook salmon evolutionary significant unit ("ESU") as a threatened species in 1999. 64 Fed. Reg. 14,308 (March 24, 1999). The State of Washington was required at that time to bring its hatcheries into compliance with the ESA. After failing to do so, Wild Fish Conservancy initiated litigation against the Washington Department of Fish and Wildlife ("WDFW") in 2002 alleging that the hatchery programs were harming protected fish in violation of the ESA. The parties settled that lawsuit with an agreement in 2003 under which WDFW committed to diligently pursue approval of its hatchery programs from NMFS under 50 C.F.R. § 223.203(b)—the "4(d) Rule."

WDFW, along with Puget Sound Treaty Tribes, submitted two joint resource management plans ("RMPs") and approximately 114 appended hatchery and genetic management plans ("HGMPs") for hatchery programs throughout Puget Sound in 2003 and 2004. NMFS announced its intent to prepare a full environmental impact statement ("EIS")

under the National Environmental Policy Act ("NEPA") rigorously evaluating the effects of and alternatives to all these programs in 2004. 69 Fed. Reg. 26,364 (May 12, 2004).

The Puget Sound steelhead DPS then became a threatened species under the ESA in 2007. 72 Fed. Reg. 26,722 (May 11, 2007). Chambers Creek hatchery steelhead were excluded from the listed species because of the extent to which these hatchery fish have diverged from their wild counterparts through domestication in a hatchery environment. *See id.* at 26,722, 26,726. Moreover, NMFS identified these hatchery fish as a specific concern when it listed Puget Sound steelhead under the ESA:

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> The [Biological Review Team ("BRT")] concluded that efforts by hatchery managers to prevent natural spawning by Chambers Creek winter-run…hatchery fish were unlikely to be completely effective, with potentially adverse consequences. The BRT concluded that opportunities for genetic and ecological interactions between hatchery and wild steelhead in Puget Sound were substantial, **with significant potential to reduce natural productivity.**

Id. at at 26,728 (emphasis added). Nonetheless, the Chambers Creek hatchery programs continued in Puget Sound without the EIS that NMFS had committed to complete and without any ESA authorization.

NMFS again expressed concern regarding Chambers Creek hatchery programs when it reviewed the status of Puget Sound steelhead in 2011, finding "increasing empirical evidence" demonstrating that "[g]enetically diverged and/or exogenous…Chambers Creek stocks pose threats to natural origin steelhead population viability." 5-Year Review: Summary & Evaluation of Puget Sound Chinook, Hood Canal Summer Chum, Puget Sound Steelhead, p. 29 (2011). NMFS' status review further found that "[m]ost populations within the [Puget Sound steelhead] DPS are showing continued downward trends in estimated abundance, a few sharply so." The estimated mean population growth rates for all but a few populations within the Puget Sound steelhead DPS are declining—typically at rates of 3 to 10% annually. Still, the Chambers Creek programs continued without any NEPA review or ESA authorization.

Shortly after the status review was issued, NMFS provided a second notice of its intent to prepare an EIS under NEPA rigorously evaluating the effects of and alternatives to the Puget Sound hatchery programs in 2011. 76 Fed. Reg. 45,515 (July 29, 2011).

Over ten years after settling the previous ESA lawsuit, Chambers Creek hatchery steelhead continued to be released into Puget Sound without the required ESA authorization and without the EIS that NMFS had committed to complete. With Puget Sound steelhead at critically low levels, Wild Fish Conservancy filed another citizen suit against WDFW under the ESA in early 2014, in an effort to prevent the unlawful releases of these hatchery fish. The parties settled that lawsuit through a Consent Decree entered by the Court on April 28, 2014. The Consent Decree prevented WDFW from releasing Chambers Creek hatchery fish into Puget Sound in 2014 and 2015 from seven of its eight programs (releases were allowed in the Skykomish River). The Consent Decree will impose the same restrictions on the 2016 releases unless NMFS authorizes the hatchery programs under the ESA.

1

NMFS provided notice of the long-awaited draft EIS for its review and proposed approval of hatchery programs throughout Puget Sound on July 25, 2014 ("Puget Sound Hatchery DEIS"). NMFS extended the comment period on the Puget Sound Hatchery DEIS twice, providing approximately six months for public comment—through January 23, 2015. Numerous commenters, including Wild Fish Conservancy, expended significant resources providing detailed comments on the Puget Sound Hatchery DEIS. The Puget Sound Hatchery DEIS noted the significance of the process as the first NEPA analysis that would comprehensively address the effects of all hatchery programs operating within the geographic boundaries of the ESA-listed species—the Puget Sound steelhead DPS and the Puget Sound Chinook salmon ESU.

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Remarkably, after enormous efforts by all those involved, NMFS announced that it was withdrawing the Puget Sound Hatchery DEIS on March 26, 2015. 80 Fed. Reg. 15,986 (March 26, 2015). NMFS simultaneously announced its intent to approve three Chambers Creek steelhead hatchery programs and the availability of a draft environmental assessment ("Chambers Creek DEA") for a thirty-day public comment period. 80 Fed. Reg. 15,984 (March 26, 2015). After providing six months to comment on the subsequently-withdrawn Puget Sound Hatchery DEIS, NMFS refused requests from several entities for a thirty-day extension of that comment period, indicating that WDFW has a "compelling need to complete the process…by May 22." Numerous individuals and entities hurriedly provided comments on the Chambers Creek DEA during the minimal thirty-day comment period.

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NMFS then determined that an EIS was appropriate for the Chambers Creek steelhead programs and issued the Chambers Creek DEIS on November 13, 2015. This new NEPA document addresses the three programs included in the Chambers Creek DEA plus another two programs that also operate in Puget Sound. The inclusion of these two additional programs more than doubles the size of hatchery releases contemplated for approval by NMFS. NMFS indicated that it would accept comments on the Chambers Creek DEIS for only a forty-five day period over which the Thanksgiving, Hanukkah, Christmas, and other December holidays fell. NMFS has rejected several requests for a reasonable extension of time to review the Chambers Creek DEIS and related materials and formulate thoughtful comments thereon.

This truncated comment period during the holiday season undermines NEPA's objective of fostering democratic decision-making. It is apparent that these rushed NEPA efforts are politically driven. NMFS has explained that the reason for its refusal to provide a more reasonable opportunity for public comments is that there is a "public interest" in having

these programs approved under the ESA in time for this spring's hatchery releases. This is disingenuous given that there are over one hundred hatchery programs operating in Puget Sound without any ESA review or authorization. Yet, the programs that NMFS is prioritizing and rushing through for approval based on a supposed "public interest" are the Chambers Creek steelhead programs—programs that release fish excluded from the Puget Sound steelhead DPS because of the extent to which they have diverged from their wild counterparts through hatchery domestication. Chambers Creek steelhead will not be released this spring absent NMFS approval and would therefore not harm threatened wild steelhead. There is a thus a strong public interest that NMFS instead prioritize its reviews of the other 100 hatchery programs in Puget Sound that are operating and will unlawfully release fish this spring without any ESA authorization.

Further frustrating an adequate evaluation of the Chambers Creek steelhead hatcheries—programs that NMFS has identified as harmful to wild steelhead—is the lack of a recovery plan for the Puget Sound steelhead DPS. Despite listing the species as threatened in 2007 and assigning it a recovery priority number of 1—the highest priority for preparation and implementation of a recovery plan under section 4 of the ESA—NMFS has yet to complete such a plan for the Puget Sound steelhead DPS and has indicated that the plan will not be complete until 2019. NMFS should not approve massive releases of harmful Chambers Creek steelhead hatchery fish into Puget Sound before it has even evaluated what is needed to recover wild Puget Sound steelhead.

II. NMFS' PROPOSED ACTION.

NMFS proposes to approve five HGMPs under Limit 6 of the 4(d) Rule. Such approval would exempt from liability "take" of threatened salmonids resulting from the hatchery operations described in the HGMPs. The HGMPs address Chambers Creek

steelhead programs operating in several Puget Sound tributaries—the Nooksack River (Kendall Creek), the Stillaguamish River (Whitehorse Spring Creek), the Dungeness River, the Skykomish River, and the Snohomish River (Tokul Creek/Snoqualmie River).

The HGMP for the Nooksack River programs proposes annual releases of 150,000 smolts. The Stillaguamish River HGMP proposes annual releases of 130,000 smolts. The Dungeness River program would release 10,000 smolts annually. The Skykomish River HGMP proposes annual releases of 256,000 smolts. Finally, the HGMP for the Snohomish River proposed an annual release of 74,000. If approved by NMFS, 620,000 Chambers Creek hatchery steelhead smolts would be released into Puget Sound tributaries each year under these programs.

NMFS has described the development of the Chambers Creek steelhead stock as follows:

> The Chambers Creek winter-run steelhead stock was founded in the 1920s from the collection and spawning of native adult fish trapped in Chambers Creek, a south Puget Sound tributary. The propagation of Chambers Creek steelhead at this location occurred through 1945, when a new steelhead rearing program was initiated, leading to marked changes in this stock. In this new program, adult steelhead captured in Chambers Creek were transferred to the South Tacoma Hatchery in the upper watershed, where relatively warm water (12ºC) was available to accelerate spawning maturation time. Additionally, the earliest maturing fish were selected for propagation. Continuous year-to-year use of these practices, combined with the warmer water and nutritional advances provided by newly developed dry diets, allowed the production of smolts in one year instead of two. The first hatcheries outside the Chambers Creek watershed to use this stock were located on the Green and Puyallup rivers and on Tokul Creek. The progeny of adult returns established through transplants of Chambers Creek hatchery fish to these and other Puget Sound hatchery release sites were transferred back to Chambers Creek when needed to offset egg take shortfalls, and were incorporated back into the winter-run steelhead population maintained at the site. However, as a standard practice, Chambers Creek was maintained as the sole annual source of eggs for other hatcheries.
>
> Chambers Creek Hatchery, originally a private trout hatchery, was purchased by the Washington Department of Game in 1972 and rebuilt. This hatchery was subsequently used to propagate and further develop the Chambers Creek

> winter-run steelhead stock and became the major source of winter-run steelhead broodstock for western Washington. Chambers Creek-derived winter-run steelhead have been propagated and released from most Puget Sound steelhead facilities, including Reiter Ponds, Tokul Creek, Wallace River, Dungeness, Bogachiel, Hurd Creek, Eells Springs, Kendall Creek, McKinnon Ponds, Samish, Lake Whatcom, Puyallup, Soos Creek, Voights Creek, Marblemount, Barnaby Slough, Grandy Creek, Fabors Ferry, Baker River, Davis Slough, Whitehorse Ponds, Arlington, and the Chambers Creek facilities. Most of the programs using this transplanted stock are still active.
>
> The original goal of the Chambers Creek program was to produce an early returning adult steelhead that smolted after one year. By the mid 1970s, it was concluded that the advanced adult spawn timing selected to meet the yearling smolt objective created temporal separation in natural spawning areas between Chambers Creek hatchery winter-run and native late- winter-spawning steelhead, reducing the likelihood of interbreeding.

3 WDFW submitted an additional HGMP for a Chambers Creek steelhead program simultaneously with those subject to the Chambers Creek DEIS. That HGMP covered a program operating in in the Duwamish/Green River (Soos Creek, Icy Creek, and Green River) that proposes annual releases of 70,000 smolts. It is unclear why this HGMP is not addressed in the Chambers Creek DEIS with the other Chambers Creek programs in Puget Sound.

III. <u>THE PURPOSE AND NEED OF NMFS' PROPOSED ACTION</u>.

The purpose and need statement is a crucial part of crafting and evaluating a reasonable range of alternatives because only a sufficiently broad statement will allow full development of an adequate range of alternatives. *See, e.g., Simmons v. U.S. Army Corps*, 120 F.3d 664 (7th Cir. 1997); *Davis v. Mineta*, 302 F.3d 1104, 1118 (10th Cir. 2002). Agencies cannot unnecessarily limit or interpret their purpose and thereby place unnecessary limits on the range of alternatives to be considered. *Id.*; *see also Van Abbema v. Fornell*, 807 F.2d 633, 638 (7th Cir. 1986), *see also 'Ilio'ulaokalani Coalition v. Rumsfeld*, 464 F.3d 1083 (9th Cir. 2006).

4 NMFS' description of the purpose and need is too vague to conduct any meaningful analysis of the alternatives. NMFS describes its purpose of the action as to:

> …ensure the sustainability and recovery of Puget Sound salmon and steelhead by conserving the productivity, abundance, diversity, and distribution of listed species of salmon and steelhead in Puget Sound.

NMFS describes the need for the action as:

- Respond to the co-managers' request for an exemption from take prohibitions of section 9 of the ESA for their hatchery programs triggered by submission of HGMPs as RMPs under Limit 6 of the 4(d) Rule;

- Provide, as appropriate, tribal and non-tribal fishing opportunities as described under the state and tribal co-managers' Puget Sound Salmon Management Plan implemented under *United States v. Washington*.

NMFS describes WDFW and the Tribes purpose as:

> …to operate their hatcheries to meet resource management and protection goals with the assurance that any harm, death, or injury to fish within a listed [ESU] or [DPS] does not appreciably reduce the likelihood of a species' survival and recovery and is not in the category of prohibited take under the ESA's 4(d) Rule.

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NMFS describes the co-managers' need as:

> …to continue to maintain and operate salmon and steelhead hatchery programs using existing facilities for conservation, mitigation, and tribal and non-tribal fish opportunities pursuant to the Puget Sound Salmon Management Plan implemented under *United States v. Washington*, and treaty rights preservation purposes while meeting ESA requirements.

Nowhere does NMFS provide any quantitative description of what is necessary to achieve any of these objectives. This stems, in part, from the absence of an approved recovery plan for Puget Sound steelhead and the failure to complete the Puget Sound Hatchery DEIS with an attendant comprehensive cumulative effects analysis. NMFS' failure to adequately define the purpose and need of the programs prevents any meaningful evaluation of the alternatives.

NMFS has indicated that "as a matter of policy, [NMFS] will accept some impacts that may result in increased risk to the listed species to provide limited tribal fishing opportunity. This approach recognizes that the treaty tribes have a right to conduct their fisheries within

the limits of conservation constraints." *Puget Sound Hatchery DEIS*, p. 1-9. However, the Chambers Creek DEIS does not provide any quantitative criteria related to risk to the ESA-listed species at issue nor any description of quantitative criteria by which NMFS determines how tribal fisheries contribute to such "increased risk," nor how that incremental level of risk is determined and how it is further determined that the incremental risk falls within the "conservation constraints." Similarly, the Chambers Creek DEIS provides no description, quantitative or otherwise, of what level of "fishing opportunities" are necessary or appropriate.

4 As we noted in our comments to the Puget Sound Hatchery DEIS on these issues, in order to evaluate the alternatives for hatchery production, there needs to be a common currency in terms of which each alternative is measured in order that the probable outcomes of adopting one or another of the alternatives can be estimated and compared to one another. The requisite currency must be objective and quantitative if the comparison is to provide a basis for sound and responsible public decision making, as intended by NEPA. Where several objectives are to be pursued—for example, avoiding extinction, preserving the genetic diversity, fitness, and evolutionary potential of the extant wild salmon and steelhead populations, meeting Federal trust responsibilities to treaty tribes—these objectives must also be interpreted in terms of a common currency that is directly relevant to ESA concerns and evaluated accordingly. The Chambers Creek DEIS fails to approach the comparison of alternatives in this way.

Further, the State of Washington has taken the position that the Stevens Treaties do not provide any right to a certain volume of fish for harvest, but instead provide for a fair share of the fish available for harvest. *E.g.,* Reply Brief of Appellant State of Washington,

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Ninth Circuit No. 13-35474, pp. 6–7 (March 24, 2014). Under this position, it is unclear what extent, if any, treaty rights are implicated by NMFS' proposed approval of hatchery programs.

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It is also unclear what is meant when NMFS describes the purpose and need of the underlying action as encompassing conservation and recovery of ESA-listed species. The Chambers Creek steelhead are not part of the Puget Sound steelhead DPS and NMFS and found that this hatchery stock plays no role in recovery of the ESA-listed species. Authorizing and enabling these hatchery programs therefore does not further the conservation and recovery of Puget Sound steelhead, but rather can only impede recovery.

IV. <u>ALTERNATIVES CONSIDERED AND NOT CONSIDERED</u>.

"NEPA requires an EIS to describe and analyze 'every reasonable alternative within the range dictated by the nature and scope of the project.'" *Alaska Survival v. Surface Transp. Bd.*, 705 F.3d 1073, 1087 (9th Cir. 2013). The "touchstone" for evaluating the adequacy of an agency's NEPA efforts is whether the "selection and discussion of alternatives fosters informed decision-making and informed public participation." *California v. Block*, 690 F.2d 753, 767 (9th Cir. 1982); *see also Nat'l Highway Traffic Safety Admin.*, 538 F.3d at 1217 (describing the alternatives analysis as the "heart" of a NEPA evaluation). "[A]gencies should 'rigorously explore and objectively evaluate all reasonable alternatives' that relate to the purpose of the project." *Alaska Survival*, 705 F.3d at 1087.

The Chambers Creek DEIS is deficient for failing to fully consider an adequate range of alternatives. For example, alternatives that should be fully evaluated include:

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- An alternative that will maximize recovery potential for ESA-listed species;
- An alternative to approve only the hatchery programs that demonstrate census pHOS (*sensu* HSRG 2015) less than 2%, with specific quantitative criteria for how census pHOS and effective pHOS are to be monitored and measured;

- An alternative to require compliance with all HSRG recommendations with specific timelines and benchmarks for attaining compliance, and corrective measures if benchmarks are missed; and

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- An alternative to approve only the HGMPs that fully meet all of the requirements of the 4(d) Rule.

Notably, the Chambers Creek DEIS recognizes that at least one of the programs—the Snoqualmie River program—does not comply with the HSRG's pHOS recommendation and is therefore expected to have more than minimal effects on wild steelhead. NMFS should consider an alternative under which such a program will not be approved under the ESA.

NMFS incorrectly assumes that it lacks authority to impose limitations and restrictions on the hatchery programs through the 4(d) Rule approval process. NMFS is to ensure that any HGMPs approved under Limit 6 of the 4(d) Rule address the criteria of Limit 5. 50 C.F.R. § 223.203(b)(6)(iii). The Limit 5 criteria provide NMFS with the authority to impose implementation and reporting requirements in approving HGMPs. 50 C.F.R. § 223.203(b)(5)(i)(J). Moreover, the only documents before NMFS for review and approval are HGMPs signed by WDFW for hatcheries operated by WDFW. There are no joint state-tribal resource management plans before NMFS. NMFS should therefore review the HGMPs under Limit 5 of the 4(d) Rule.

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V. <u>ENVIRONMENTAL CONSEQUENCES</u>.

"NEPA requires that a federal agency 'consider every significant aspect of the environmental impact of a proposed action…[and] inform the public that it has indeed considered environmental concerns in its decision-making process.' In order to accomplish this, NEPA imposes procedural requirements designed to force agencies to take a 'hard look' at environmental consequences." *Earth Island Inst. v. U.S. Forest Serv.*, 351 F.3d 1291, 1300 (9th Cir. 2003) (internal citations omitted). An EIS must provide full and fair discussion of

significant environmental impacts and shall inform decision-makers and the public of reasonable alternatives which would avoid or minimize adverse impacts or enhance the quality of the human environment. 40 C.F.R. § 1502.1.

"The 'hard look' must be taken objectively and in good faith, not as an exercise in form over substance, and not as a subterfuge designed to rationalize a decision already made." *W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 491 (9th Cir. 2011). The EIS must include a discussion of adverse impacts that does not improperly minimize negative side effects. *Id.* "Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA. General statements about possible effects and some risk do not constitute a hard look absent a justification regarding why more definitive information could not be provided." *Id.* (internal citations omitted).

The Chambers Creek DEIS does not comply with these NEPA requirements because it does not consider all of the significant impacts of the hatchery programs and it does not take a hard look at the consequences of the programs. The Chambers Creek DEIS improperly minimizes adverse effects and lacks accurate and comprehensive scientific analyses.

A. **The Chambers Creek DEIS Fails to Appropriately Address the Approval Criteria of the 4(d) Rule.**

The Chambers Creek DEIS is deficient because it does not evaluate whether any of the alternatives will satisfy all the requirements for approval under the 4(d) Rule. The Ninth Circuit Court of Appeals has observed:

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> "In order to decide what kind of an environmental impact statement need be prepared, it is necessary first to describe accurately the 'federal action' being taken." Thus, just as "where an action is taken pursuant to a specific statute, the statutory objectives of the project serve as a guide by which to determine the reasonableness of objectives outlined in an EIS," so too do the statutory objectives underlying the agency's action work significantly to define its analytic obligations. Put differently, because "NEPA places upon an agency the obligation to consider every significant aspect of the environmental impact

> of a proposed action," the considerations made relevant by the substantive statute driving the proposed action must be addressed in the NEPA analysis.

Or. Natural Desert Ass'n v. Bureau of Land Mgmt., 625 F.3d 1092, 1109 (9th Cir. 2010) (internal citations omitted). NMFS' proposed approval of the HGMPs is governed by Limit 6 of the 4(d) Rule—50 C.F.R. § 223.203(b)(6). Under this regulation, NMFS may approve the HGMPs where:

> (i) The Secretary has determined pursuant to 50 CFR 223.209 and the government-to-government processes therein that implementing and enforcing the joint tribal/state plan will not appreciably reduce the likelihood of survival and recovery of affected threatened ESUs.
>
> (ii) The joint plan will be implemented and enforced within the parameters set forth in *United States v. Washington* or *United States v. Oregon*.

50 C.F.R. § 223.203(b)(6). Further, NMFS evaluates HGMPs submitted under Limit 6 of the 4(d) Rule for compliance with the criteria of Limit 5, which are codified at 50 C.F.R. § 223.203(b)(5). This requires that the HGMP: clearly state goals and performance

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indicators, utilize concepts of viable and critical salmonid population threshold, appropriately reflect priorities through the broodstock collection programs, include specified protocols, evaluate, minimize, and account for genetic and ecological effects on natural populations, describe the interrelationships and interdependencies with fisheries management, apply to adequate artificial propagation facilities, include adequate monitoring and evaluation that exists to detect and evaluate the success of the program and any risks to the recovery of listed ESU, and provide for evaluating monitoring data and making revisions to assumptions, management strategies, or objectives. 50 C.F.R. § 223.203(b)(5)(i).

There are thus extensive regulatory criteria that apply to the proposed "federal action"—NMFS' review and evaluation of the RMPs and HGMPs under the 4(d) Rule. The Chambers Creek DEIS does not adequately address these criteria and whether or how any of the alternatives or the RMP and HGMPs meet the criteria. Remarkably, the DEIS does not

include an analysis of whether the alternatives will appreciably reduce the likelihood of survival and recovery of threatened salmonids. In fact, the Chambers Creek DEIS states that it will not document whether the RMP and HGMPs meet the requirements of the 4(d) rule, but that those issues will be addressed in ESA documents. This does not fulfill the requirements of NEPA and it frustrates the ability of the public to understand and comment on NMFS' proposed action and alternatives thereto.

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The Chambers Creek DEIS should make more extensive use of the four Viable Salmonid Population (VSP, sensu McElhany et al. 2000) parameters in its analyses of the impacts of specific hatchery programs on individual populations within the Puget Sound Chinook ESU and steelhead DPS. These parameters are population abundance, population growth rate, population spatial structure and population diversity. The latter includes diversity in life history parameters such as age-at-smolting, age-at-first maturation, frequency of repeat spawning (steelhead), fecundity, run timing, morphology, and genetic diversity (VSP, pp. 12-20). Assessments of the impacts of each alternative on specific populations should include analyses of the probable impacts of hatchery programs on each of the four parameters of individual wild populations likely to be directly and indirectly affected by the program. Such analyses would provide critical information of particular relevance to the ESA-related impacts of the programs, and thus to the assessment of the likelihood of take and jeopardy resulting from NMFS' approval of particular HGMPs and RMPs. In addition, such analyses of the impacts of alternatives on specific populations would also facilitate the analysis of the impacts of alternatives on the listed species under climate change impacts, as well as the analysis of cumulative effects.

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B. **The Chambers Creek DEIS Inappropriately Assumes that Chambers Creek Hatchery Steelhead are being Released under Baseline Existing Conditions.**

The Chambers Creek DEIS assumes that Chambers Creek steelhead are being released under existing baseline conditions. This is factually inaccurate and masks the impacts of the proposed ESA authorization of the programs and thereby undermines the intent of NEPA. Moreover, the assumption that these programs are operating now without ESA authorization is inconsistent with the Chambers Creek DEIS' determination that these programs would cease operating under the "no action" alternative under which NMFS would not issue an ESA authorization.

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As noted above, a Consent Decree has prevented WDFW from releasing Chambers Creek hatchery fish into Puget Sound in 2014 and 2015 from seven of its eight programs—all but the Skykomish River program. The Consent Decree will impose the same restrictions on the 2016 releases unless NMFS rushes to authorize the programs under the ESA. Although the prohibition of the Consent Decree will expire at the end of 2016, it is not reasonable to assume that the Chambers Creek steelhead hatchery programs would unlawfully resume releasing fish that harm threatened steelhead in the absence of NMFS' proposed ESA approval. First, it is unclear whether the programs would have the needed broodstock. Second, the enforcement provisions of the ESA provide for injunctive relief to prevent unauthorized harm to ESA-listed species.

C. **The Chambers Creek DEIS is Inadequate for Failing to Include Quantitative Assessments of the Risks, Harms, Costs, and Benefits.**

A complete and accurate quantitative risk assessment is necessary to fulfill NEPA's mandate to take a "hard look" at the environmental consequences of the hatchery programs. The Chambers Creek DEIS is deficient for failing to conduct any quantitative risk assessment of the various alternatives.

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Risks to listed salmon and steelhead are neither described in an appropriately quantitative manner, nor in terms clearly related to relevant categories of the ESA, such as take, recovery, risk of extinction, or jeopardy, that are the categories directly relevant to NMFS' evaluation of the RMPs and specific HGMPs. Nor are risks described quantitatively in terms of the VSP parameters or in terms of critical or viable thresholds of abundance as these terms are employed in the Puget Sound Chinook Recovery Plan or the Puget Sound Chinook Salmon Harvest RMP. The scientifically credible approach to risk assessment in the face of uncertainty (including "inadequate" or "insufficient data") is provided in the recent Report by the National Research Council "Assessing Risks to Endangered and Threatened Species from Pesticides" by the Committee on Ecological Risk assessment under FIFRA and ESA (FIFRA Report), National Academy Press 2013, Chapter 1 pages 14-15, and Chapter 5 pages 148-152.

11 The so-called "risk assessments" contained in the Chambers Creek DEIS are not *bona fide* quantitative risk analyses, nor summaries of such analyses. They are at best qualitative characterizations of suspected levels of risk and, consequently, provide no way to determine whether or how future events would confirm or disconfirm the estimated "levels of risk." Most significant to the ESA context that the Chambers Creek DEIS should be assessing, these vague, qualitative assessments of risk fail altogether to account for uncertainty and its impact on the (quantitative) risk. The greater the absence of quantitative data and the more qualitative inference must be relied on to estimate the risk posed to listed populations of salmon and steelhead by specific hatchery programs and facilities, the greater the uncertainty and hence the greater the risk involved. Only an appropriate quantitative risk assessment framework, as discussed for example in the FIFRA Report, can accomplish this. By falsely contrasting quantitative data and analysis with "qualitative inference," the Chambers Creek DEIS fails to

recognize the need for, much less to employ, a quantitative risk assessment framework to conduct the risks assessments required and the subsequent specific evaluation of RMPs and HGMPs that NMFS must make, and for which it is the purpose of the Chambers Creek DEIS to provide the necessary analytic framework. Moreover, it is not likely that the requisite quantitative risk analysis could be conducted in the absence of a final recovery plan for the Puget Sound steelhead DPS.

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The Chambers Creek DEIS fails to adequately define the objectives of the action or to conduct any meaningful assessment of the likelihood of the various alternatives at achieving the vague objectives that are stated. The Chambers Creek DEIS is deficient for failing to conduct any quantitative risk assessment of the various alternatives.

The Chambers Creek DEIS fails to provide an appropriately detailed cost-benefit analysis of the subsidy of tribal harvests that is to be provided by the hatchery programs in the five rivers that are the subject of the HGMPs. This is surprising in light of the very low tribal harvest numbers provided in Tables 3.3.1.1, Section 3.3 of each of the HGMPs. Average tribal steelhead harvests in each of the five rivers since 2000/2001 have averaged less than 38 fish for average smolt release levels at or near the levels proposed in each of the HGMPs. This surely warrants a substantive economic cost-benefit analysis that can only occur in the context of an alternatives analysis in an EIS.

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The Chambers Creek DEIS fails to account for the significant "high to moderate" risk of extinction (low to intermediate viability) of the majority of Puget Sound steelhead populations, including the Dungeness, Stillaguamish Rivers, and Snohomish system populations (Pilchuck, Snohomish/Skykomish, and Snoqualmie winter-run, North Fork Skykomish and Tolt summer-run) described by NMFS' own Puget Sound Technical Recovery Team (PSSTRT 2015), and the likely similar extinction risk of the Nooksack in view of the

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lack of spawner and run size trend data noted by the PSSTRT. All have probabilities of extinction within the next 100 years of 40% or greater based on population viability analyses conducted with the MARSS program (Appendix A, figures A-3, A-4, A-5, A-6, A-7, A-19). The TRT summarized the results of several of its viability analyses as follows:

13 "Consistent with its status as a threatened species under the ESA, the Puget Sound Steelhead DPS is not considered to be viable by the TRT. Using a comprehensive set of BNs that incorporate factors influencing all four VSP criteria (abundance, productivity, diversity, and spatial structure), nearly all of its 32 constituent DIPs and all 3 of its constituent MPGs are at low viability. Nearly all DIPs in the Central and South Puget Sound MPG and the Hood Canal and Strait of Juan de Fuca MPG are not viable. Most of the DIPs score low for all four VSP criteria and nearly all DIPs have insufficient current abundance and productivity scores to be considered viable. Most DIPs also have low scores for diversity and intermediate scores for spatial structure. The pattern of low viability is widespread throughout Puget Sound, across all three MPGs, and includes both summer-run and winter-run populations" (page 127).

Thus the DEIS does not appropriately consider or address the best currently available scientific data.

D. <u>The Action Area is Too Narrow</u>.

NMFS' proposed action area is drawn too narrowly because it ignores the effects that hatchery fish will have outside of the area where the hatchery steelhead would be released.

14 The hatchery fish will travel beyond these areas and harm wild fish far outside of the action area. NMFS should have drawn the action area to include the full range of the hatchery fish to ensure that all of the true effects of the proposed action were considered. At a minimum, NMFS should have considered the recommendation in the recent HSRG Report to Congress

(Hatchery Scientific Review Group. 2014. On the Science of Hatcheries: An updated perspective on the role of hatcheries in salmon and steelhead management in the Pacific Northwest) that segregated hatchery programs acclimate and release smolts in lower river reaches to concentrate fishing for returning hatchery adults and reduce the likelihood of uncaught hatchery adults straying onto upstream wild spawning grounds.

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E. <u>NMFS Has Relied Upon Faulty Assumptions</u>.

NEPA requires that agencies provide high quality information before making decisions and taking actions. *W. Watersheds Project v. Kraayenbrink*, 632 F.3d 472, 492 (9th Cir. 2011). The Chambers Creek DEIS does not fulfill this NEPA requirement because it relies upon a series of false assumptions and questionable scientific conclusions to analyze and eliminate alternatives from consideration. It is not possible to analyze and comment on each of these inadequacies individually given the minimal comment period NMFS has provided. Wild Fish Conservancy therefore provides NMFS with notice that the Chambers Creek DEIS is inadequate because it contains many false assumptions and questionable scientific conclusions.

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One concern is that the Chambers Creek DEIS relies on monitoring, evaluation, and adaptive management—much of which is described in the HGMPs as not funded and not reasonably likely to occur. In particular, NMFS ignores recent information from WDFW regarding its budget for the next biennium that indicates the agency will have to cut its current budget and will have to reduce or eliminate funding for monitoring hatchery impacts.

Another concern relates to the extent of interactions between Chambers Creek steelhead and wild steelhead assumed by NMFS. The description of the possible impacts of early winter (EW) hatchery steelhead on the spawning grounds with wild fish, from competition for spawning sites and genetic and demographic impacts on wild populations

from hatchery fish spawning with wild fish (HW spawning) is controversial, as noted in our previous comments. The Chambers Creek DEIS further contributes to this controversy by dismissing the only actual observational field data on the presence of EW hatchery fish on spawning grounds with wild fish provided in comments submitted by ourselves and others on the Chambers Creek DEA.

The document by McMillan (McMillan, Bill. 2015, The reproductive ecology of *Oncorhynchus mykiss* in tributary streams of the Mid Skagit River Basin) and comments submitted by Tout Unlimited on the Chambers Creek DEA (authored by John McMillan) provide clear evidence that EW hatchery steelhead spawn in the wild after the mythical March 15 brightline that WDFW and the Chambers Creek DEIS accept as separating wild from EW hatchery spawn timing, thereby casting significant doubt on WDFW's reliance on this date. Further, the data provided by the McMillan report and in the comments from Tour Unlimited show that wild steelhead often spawn prior to March 15, often one or more months earlier and so have a considerably higher probability of encountering EW hatchery fish on the spawning grounds than assumed by WDFW and NMFS.

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In response to this information, NMFS merely asserts (Chambers Creek DEIS, pg. 58, lns. 28-30): "However, for the purposes of this analysis, due to the separation in spawning timing, NMFS concludes that the negative effect of early winter hatchery-origin steelhead on determining the status of natural-origin steelhead is negligible." This is an arbitrary dismissal of highly credible data that directly casts doubt on the assumptions regarding the spawn timing of EW hatchery and wild steelhead and the temporal scope for overlap on the spawning grounds of wild steelhead.

This is further compounded by NMFS discussion in Appendix B of the Chambers Creek DEIS of the potential impact of EW hatchery-wild steelhead spawning on the status

and prospects for recovery of wild steelhead. NMFS asserts (Chambers Creek DEIS, pg. B-3, lns. 9-12) "…under the assumption that the reproductive output of a natural-origin fish mating with a hatchery-origin fish is a complete loss, the impact to the population in terms of demographic and effective population size would be less than 2%." NMFS implies that such an impact will have no meaningful impact on the current status or the prospects for recovery of the affected wild steelhead population, but NMFS does not provide any associated quantitative risk assessment to support such a claim. Further, NMFS fails to follow the logical implications of this level of demographic impact. The 2% or less loss of wild reproduction at issue here would be an annual loss since the level of hatchery straying associated with the estimated level of EW hatchery-wild steelhead spawning would occur every year on average. Consequently, this annual demographic impact will be cumulative and will thus result in a continual annual decline in the wild population. NMFS should have extended this analysis to include estimates of the cumulative demographic (numeric) loss of a wild population affected by this level of EW hatchery-wild spawning interaction. The deleterious genetic and demographic impact of such spawning ground interactions on wild populations is likely even greater due to the fact that many current wild, i.e. natural-origin steelhead involved in these interactions may carry EW hatchery genes from past introgression of the wild populations and thus already have compromised fitness relative to non-introgressed wild adults.

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Such harmful genetic and demographic impacts will be further compounded by spawning of residualized EW hatchery juveniles with wild adults. NMFS seems to imply that current levels of residualism of EW hatchery steelhead are negligible citing estimates by Tippling et al 2003 of 1 to 5 percent (page B-4). However, neither NMFS nor WDFW in the HGMPs provides any current data on residualsim rates for any of the EW hatchery programs

that are the subject of the DEIS. Nor does NMFS recommend any requirements for monitoring residualism rates. Yet, because any reproductive interactions between residualized hatchery steelhead (typically males) and wild steelhead will likely have deleterious demographic and genetic impacts on wild populations that will be additive to those from adult EW steelhead, NMFS should provide quantitative standards for residuism for each EW hatchery program and require associated monitoring.

Related to NMFS general dismissal of the potential harmful impacts of reproductive interactions in the wild between EW hatchery and wild steelhead that arise from NMFS uncritical acceptance of WDFWs unverified assumption about the extent of overlap in spawn timings of EW and wild steelhead is NMFS ignoring of the loss of components of Puget Sound wild steelhead populations that had an early river-entry timing. This timing extended from November through February, and was in addition to the components with later time of entry from March to June. Several historical sources documenting early time of river entry by wild Puget Sound steelhead are provided in the Puget Sound Steelhead Technical Recovery Team (PSSTRT) document Identifying Historical Populations of Steelhead within the Puget Sound Distinct Population Segment (Myers et al 2015). Similarly, the TRT identified recovery of historical river entry timing as a key aspect of achieving the Viable Salmonid Populations (VSP) parameter of diversity in its companion document Viability Criteria for Steelhead within the Puget Sound Distinct Population Segment (Hard et al 2015). The Chambers Creel DEIS does acknowledge that "fishermen may have inadvertently harvested the earliest-returning natural-origin steelhead, which may have changed the overall run timing of the population (i.e., evidence suggests that, historically, the natural-origin winter-run steelhead population had a larger proportion of adult fish returning prior to February [Myers et al. 2015]; see also McMillan 2015)" (page 60). Yet, the Chambers Creek DEIS fails to

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recognize the significance for the recovery of Puget Sound DPS of the loss of these early river-entry and/or early spawn-timing components of the historic diversity of the DPS, in contrast to NMFS Puget Sound Steelhead TRT as evidenced in the cited recovery documents. This again reveals the significance a final recovery plan to determining the allowable impacts of EW hatchery programs.

15 The Chambers Creek DEIS' dismissal of the importance of early river entry/spawn timing components of wild Puget Sound steelhead to the recovery of the DPS is also revealed in the assertion that EW hatchery steelhead that spawn in the wild will have lower reproductive success than wild steelhead because they will spawn "early" (i.e., prior to March) and therefore during a suboptimal time insuring reproductive success. This is entirely conjectural on the part of the authors of the Chambers Creek DEIS and in conflict with NMFS own conservation science staff and other members of the PSSTRT, and in any case is entirely devoid of any empirical evidence, as indicated by NMFS failure to provide of any citations to peer reviewed or agency grey literature in support of this assertion.

F. **The Chambers Creek DEIS Does not Adequately Describe Adverse Effects.**

NMFS recognizes that hatchery programs can adversely affect natural-origin salmon and steelhead and their habitat through genetic risks, competition and predation, facility effects, natural population status masking, incidental fishing effects, and disease transfer.

16 Despite acknowledging these adverse effects, the Chambers Creek DEIS generally fails to provide a detailed discussion of the effects of hatchery programs on salmon, steelhead, and their habitat that is based on an appropriately quantitative analysis of known or potential impacts and such discussion as does occur does not employ terms appropriate to the ESA context to which the Chambers Creek DEIS applies. A more robust discussion is needed about the effects of hatchery operations on wild fish.

G. **<u>The Chambers Creek DEIS Does Not Adequately Address Mitigation Measures</u>.**

"An EIS must contain 'a reasonably complete discussion of possible mitigation measures' and a record of decision must state whether 'all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.'" *Cal. ex. rel. Imperial Cnty. Air Pollution Control Dist. v. U.S. Dep't of the Interior*, 767 F.3d 781, 797 (9th Cir. 2014) (internal citations omitted); *and see* 40 C.F.R. § 1505.2(c). "Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects." *Robertson*, 490 U.S. at 352. "Perfunctory descriptions or mere lists of mitigation measures are insufficient." *Alaska Survival*, 705 F.3d at 1088.

The Chambers Creek DEIS is deficient for failing to adequately describe mitigation measures such as monitoring, evaluation, and adaptive management. The Chambers Creek DEIS relies on monitoring, evaluation, and adaptive management plans that currently do not exist for most hatchery programs and that are not described in any detail for the few that might have identified monitoring needs. Funding for monitoring, evaluation, and adaptive management is either nonexistent, insufficient to accomplish the objective of the monitoring (particularly with respect to timely and accurate measurement of levels of take of listed species) and for the majority of hatchery programs is not reasonably likely to occur. In addition, the Chambers Creek DEIS refers to adaptive management plans as central to evaluating and monitoring the impacts of hatchery facilities operations and programs on listed species; yet the plans are not described in any detail whatsoever, are entirely prospective, and have yet to be created much less evaluated for their scientific adequacy with respect to the ESA. This is clear in the descriptions of adaptive management and monitoring as risk mitigation in several sections of the HGMPs and the Chambers Creek DEIS.

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The description of adaptive management in the Chambers Creek DEIS is inappropriately general. It fails to provide specific, quantitative guidelines and criteria related to the risks posed to ESA-listed salmon and steelhead by hatchery programs and facilities. In general, this is the result of the Chambers Creek DEIS' reliance on the vague language of "minimization" and the use of vague qualitative characterizations of the several categories of risk as "negligible," "low," "moderate," and "high" as a substitute for the specification of risk-averse quantitative thresholds for parameters like competition, predation, genetic effects, and facility effects applied to specific populations of ESA-listed salmon and steelhead. Moreover, as already noted, none of these qualitative characterizations of risk are related to relevant terms of the ESA, which is the legal framework to which they should be related in order to satisfy NEPA.

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Placed in the context of a quantitative risk assessment framework as described in comments above and the NRC FIFRA Report referenced above, risk-averse thresholds for the listed risk parameters would reflect relevant uncertainties that may affect the effectiveness of risk avoidance measures. This would also include uncertainty regarding the ability of hatchery programs to secure adequate funding for the necessary monitoring that would be required to conduct a bona fide adaptive management program. In short, the Chambers Creek DEIS altogether fails to provide any indication of how any specific levels of a risk factor are related to the maintenance and recovery requirements of affected populations.

H. <u>The Chambers Creek DEIS Fails to Take a Hard Look at Genetic Risks</u>.

NMFS notes the HSRG's finding that "any natural spawning by fish from these [genetically diverged] broodstocks may be considered unacceptable because of the potential genetic impacts on natural populations…to minimize these risks, isolated hatchery programs need to be located in areas where virtually all returning adults can be harvested or recaptured,

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or where natural spawning or ecological interactions with natural-origin fish are considered minimal or inconsequential." NMFS finds that a pHOS of 2% for the Chambers Creek programs pose an acceptably low risk to wild steelhead. NMFS then concludes that the five hatchery programs at issue do not pose unacceptable genetic risks because "WDFW's current statewide steelhead management plan…states that isolated programs will result in average gene flow levels of less than 2 percent." However, NMFS finds that "gene flow into the Snoqualmie River basin is above 2 percent…" There are several significant concerns with NMFS' conclusions. Notably, the Estimates of Hatchery-to-Wild Gene Flow and related impacts of segregated steelhead hatchery programs on wild steelhead in the HGMPs and Chambers Creek DEIS are problematic and incomplete.

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There are at least six mechanisms whereby segregated hatchery steelhead programs may cause harm to local wild steelhead populations or other ESA-listed salmonids: 1) direct gene flow (introgression) from returning hatchery-origin adults spawning with wild adults; 2) reduction in the adult abundance of the wild population that results from progeny of hatchery-wild mating surviving to return as adults at lower rates than progeny from wild-wild mating; 3) competitive interactions between wild and hatchery adults on the spawning ground that may result in wild adults spawning in less optimal locations than were no hatchery-origin adults present on the spawning grounds; 4) competitive interactions in juvenile rearing habitats between progeny of wild-wild mating and progeny of hatchery-wild and hatchery-hatchery mating in the wild resulting in reduced growth and survival of progeny of wild-wild mating; 5) competition and predation from residualized (non-migrating) hatchery smolts on smaller wild juvenile steelhead, Chinook and coho salmon; and, 6) spawning of precocial residulized hatchery smolts with wild adults.

Any of these mechanisms alone or in combination with one another lead to reduced fitness of wild born individuals and reduced abundance and productivity of the local wild population. Each can contribute to preventing or inhibiting the rebuilding of early-returning and/or early spawning wild winter-run steelhead life histories that have been impacted by the past release of Chambers Creek hatchery smolts and harvest directed at returning hatchery-origin adults. The Chambers Creek DEIS and the HGMPs are generally silent on the issue of the loss of the early returning component of Puget Sound wild winter-run steelhead populations and fail to account for and address this impact.

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The Chambers Creek DEIS and the individual HGMPs attempt to address the first mechanism by estimating the extent of past gene flow from each of the Chambers Creek hatchery programs to the respective local wild populations. They do so by relying on two methods developed and employed by WDFW for this purpose, a complex method of analyzing genetic tissue sample data developed by Dr. Ken Warheit and described in a Report by Dr. Warheit dated November 14, 2014 (Warheit Report) and an indirect method based on estimates of wild and hatchery adult return data described by Scott and Gill (2007) in the Washington State Steelhead Management Plan (Scott-Gill method). There are several reservations and potential problems with both methods that render reliance on them by the HGMPs and the Chambers Creek DEIS questionable with regard to estimating the degree of risk the three programs pose to their respective wild populations. We devote the remainder of this section of comments to describing the basic concerns with both methods.

1. <u>The Scott-Gill Method</u>.

The Scott-Gill method estimates the maximum potential gene flow from hatchery-wild mating by estimating the proportion of the total number of matings in the wild that occur between wild and stray returning hatchery adults. The total number of matings in the wild

include stray hatchery adult males and females mating with one another (HH), wild males and females mating with one another (WW), wild females mating with stray hatchery males and stray hatchery females mating with wild males (HW). Thus, the Scott-Gill method estimates HW/(HH + HW + WW). HW mating can only occur between the proportion of the total spawning time of stray hatchery fish that overlaps in time with the total spawning time of wild fish. The method then assumes (not unreasonably) that the actual proportion of the wild spawning escapement that actually mates with stray hatchery fish will be the result of random mating of between the fraction ON of the total wild spawning escapement that occurs within the period of overlap and the fraction OH of the total stray hatchery escapement that occurs within this period. Where pHOS is the proportion of the total natural spawning escapement that are hatchery strays the proportion PW of the total wild spawning escapement that actually mates with stray hatchery-origin fish is

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(pHOS*ON*OH)/[pHOS*OH + (1-pHOS)*ON] (equation (1) on page 107 of the EA). The actual amount of gene flow from hatchery fish to the wild population from these matings will then depend on the fitness of the offspring produced, the rate at which the progeny survive to return and spawn as adults.

Controversially, WDFW, the authors of the HGMPs, assume that the period of overlap is a small proportion of the total period of spawning of both stray hatchery fish and wild fish. Conventionally and as a matter of recent policy, WDFW (and the HGMPs) assume that wild winter steelhead begin spawning no earlier than March 15 and may extend into early June. The spawning of stray hatchery fish begins in December with the majority of spawning occurring in December and January. Consequently, the HGMPs estimate that ON and OH are each relatively small, on the order of 5%. If pHOS is 5% (the maximum recommended for segregated hatchery programs by the HSRG) and OH and ON are also 5%, the proportion of

HW mating would be (0.05*0.05*0.05)/(0.05*0.05 + 0.95*0.05) = 0.000125/0.05 = 0.0025 (.25%, one quarter of one percent).

As the HGMPs and others have noted, it may be very difficult to conduct field surveys of steelhead spawning during the entire span of time of spawning by winter steelhead. But WDFW's assumption that no wild spawning occurs in Puget Sound rivers and streams prior to March 15 is not based on strong empirical evidence because no effort has been expended in the recent past or currently to survey steelhead spawning streams between December and the middle of March and to attempt to determine the origin (hatchery or wild) of steelhead spawning during this period. After March 15, spawning surveys are either aerial surveys or estimates based on estimates of total returns and harvest, not systematic ground-base surveys intended to document actual spawning activity much less attempt to identify spawning involving stray hatchery males and females.

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We have previously submitted two documents with data pertaining to this issue: a monograph titled "The reproductive ecology of *Oncorhynchus mykiss* in tributary streams of the mid Skagit River Basin" by Mr. Bill McMillan, and a Master of Science thesis at the School of Fisheries and Aquatic Sciences at the University of Washington "Hatcheries, phenology, and families: juvenile steelhead ecology in Forks Creek, Washington" by Ms. Marissa H. Jones, on whose Committee Dr. Warheit served. The McMillan monograph provides data for tributaries of the middle Skagit River showing significant spawning of wild steelhead as early as January, spawning by female hatchery steelhead with resident and/or wild males. Chapter 1 of the Jones thesis provides data based on genetic samples from 602 juvenile steelhead sampled from rearing locations throughout the Forks Creek basins showing that over 30% were hybrid offspring of Chambers Creek origin hatchery fish from the Forks Creek hatchery and wild steelhead. The comments submitted by Tout Unlimited (authored by

John McMillan) on the Puget Sound Hatchery DEIS present additional data that cast doubt on the unverified assumption of a narrow period of overlap between the spawning times of stray CC hatchery and wild steelhead.

The Scott-Gill method also does not account for spawning by precocial (sexually mature) male residual hatchery smolts that become resident fish that spawn as "sneaker males" with wild female steelhead. The method also treats all "wild" or natural-origin steelhead that are assumed to be in the post-March 15 period of spawning as pure wild fish, that have not recently been introgressed by hatchery genes. But surviving progeny of either HH or HW mating in the previous generation may return and spawn within the same period of time as do wild steelhead, whether or not this period extends prior to March 15. Some or all of these putatively wild fish will spawn within the period of wild spawning that does not overlap with stray hatchery spawning, whatever that latter period may truly be, but they will be erroneously classified by the method as "wild" spawners.

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Finally, the Scott-Gill method does not recognize the demographic impact to wild steelhead populations from HW spawning and the lower fitness that progeny of these matings are likely to have. Wild steelhead that spawn with hatchery fish at the expense of spawning with wild steelhead (the only mechanism after all by which hatchery gene flow to the wild population can occur) will produce fewer returning adult offspring to contribute to the productivity and abundance of the wild population in the future than they would have had they instead spawned with a wild steelhead. The HGMPs acknowledge (as does Dr. Warheit in the Warheit Report) that progeny of HW (and also HH) mating will survive at a lower rate than progeny of WW mating. This rate is most likely no greater than 50% the rate of progeny of WW mating and perhaps as low as 5% (The Warheit Report employs a lower estimate for this rate of 8.4%; the HGMPs adopt this value for progeny of HH spawners and adopt a range

between 8.4 and 54% for progeny of HW spawners). The absolute number of wild adults that are lost to this process will certainly depend on the extent of the period of overlap between hatchery and wild spawning times. But that does not at all alter the fact that this is a numeric loss to the wild population that affects both the abundance and the productivity of the wild population and must be accounted for as one of the impacts from hatchery-to-wild gene flow. And as the data we provide in supporting documents and comments submitted by others shows, the harmful impact from this process alone is likely to be considerable. It will be particularly damaging to small populations like the Dungeness.

18 The HGMPs employ this method (in section 2) to provide estimates of gene flow from the hatchery to the wild steelhead population. They rely upon the policy assumption that no wild spawning occurs prior to March 15 and that little if any hatchery spawning occurs after March 15. This assumption is not supported by any appropriately detailed on-the-ground surveying of steelhead spawning prior to March 15 or the composition of spawners as to hatchery or wild origin of any surveys that are conducted prior to March 15. As described in McMillan 2015 and comments submitted by Trout Unlimited (authored by John McMillan) on the Chambers Creek DEA, this assumption is false and the magnitude of the error may be considerable. Any such error would result in an under-estimation of gene flow from the hatchery to the wild population.

The extent of gene flow estimated by the Scott-Gill method is likely to be under-estimated even were the period of overlap is narrow as assumed by WDFW policy. This is because the timing of river-entry and spawning of natural-origin (F1 or later generation) spawners that were progeny of HH spawning in the wild and those that were progeny of HW spawning will be similar if not identical to that of wild (WW) spawners. While returning adults produced in the hatchery may return early and may spawn in the wild early (in

December or January), the return timing of progeny from natural spawning will be determined to a significant extent by the water temperatures they experienced during incubation and early rearing in the river. This will result in the majority of such (HH and HW) progeny returning later than fish produced in the hatchery. If, in fact, it were true that all wild, natural-origin spawning does not occur prior to March 15, it will be highly probable that progeny of HH and HW mating in the wild will also not spawn earlier than March 15, and thus will overlap completely with the wild population. However, the Scott-Gill method ignores this by simply assuming that any spawner that spawns after March 15 is wild fish (the result of WW spawning in the preceding generation). By relying on these assumptions, the HGMPs under-estimate the potential gene flow from the hatchery to the wild population.

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For these reasons, the Scott-Gill method as employed in each of the HGMPs and Chambers Creek DEIS is very likely to under-estimate hatchery-to-wild gene flow in addition to failing to account for the demographic impact of the lower reproductive success of progeny of HH and HW mating in the wild.

2. <u>The Warheit Method</u>.

The Warheit Report is a technically complicated analysis aimed at improving the accuracy of estimates of hatchery-to-wild gene flow (introgression) based on genetic sample data used in the model-based genetic clustering program STRUCTURE. The analysis is creative and certainly holds promise to improve the accuracy of estimates of gene flow when, as is currently the case, reliance must be placed on less-than-ideal data. However, the methods developed by Dr. Warheit remain to be perfected and currently there are shortcomings to the analyses that need to be addressed before the estimates reported in Section 3 of the Report and the HGMPs, and relied upon in the Chambers Creek DEIS, can be taken at face value. In addition, the method has not yet been subjected to a proper

independent peer review. We note several issues that warrant further examination. Our primary concern with the methods developed in the report is that they do not take a complete account of the key uncertainties in the estimated values of gene flow estimated by the method and as a consequence are insufficiently risk-averse with respect to the viability of the affected wild steelhead populations.

First, the method described in Section 1 to estimate the level of genetic diversity between the original wild Chambers Creek steelhead populations (from which the segregated hatchery stock was founded) and northern Puget Sound wild steelhead populations at the time of the development of that hatchery stock in 1950 likely under-estimates that diversity. As Dr. Warheit explains, it is important to estimate the level of genetic diversity between wild Puget Sound steelhead populations immediately prior to the widespread release of Chambers Creek origin hatchery fish in order to estimate the extent to which that diversity has been reduced by gene flow from the segregated hatchery stock to wild steelhead populations. If this "historic" level of diversity can be credibly estimated, the assignment error that arises when STRUCTURE is used to estimate gene flow and that is caused by the genetic similarity resulting from post-1950 hatchery gene flow can be corrected. Dr. Warheit undertakes to accomplish this by simulating ancestral populations and their divergence from one another at various points in time, beginning with a single post-glacial parental population and terminating in 1950 with three wild populations representing 1) northern Puget Sound winter steelhead, 2) Chambers Creek winter steelhead, and 3) lower Columbia River summer-run steelhead. From these three populations, three introgressed populations created from pairings of the three base populations are created. These six simulated populations are used in Section 2 to test the accuracy of STRUCTURE in estimating introgression.

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The main problem with this exercise is the basis on which the target level of genetic diversity (measured by Fst between the three populations across all SNP loci used in the simulation) at the end of the simulation (representing 1950, the "pre-hatchery" phase) is determined. The critical level of diversity is that between the simulated northern Puget Sound and Chambers Creek populations. Dr. Warheit appears to use the level represented by recent empirical samples from northern Puget Sound populations that likely have had their historic diversity reduced by introgression by Chambers Creek hatchery steelhead since 1950 and also, perhaps, from genetic drift due to reductions in effective from reductions in census populations since 1950.

The reported level of diversity between Chambers Creek hatchery and northern Puget Sound wild steelhead of Fst approximately 0.02 is likely much smaller than it was in 1950. The lower the true pre-hatchery phase Fst between Chambers Creek and North Puget Sound wild steelhead the more difficult it will be for STRUCTURE to estimate admixture (introgression by hatchery genes) and the more difficult it will be to account and correct for assignment error. The greater the true pre-hatchery phase level of Fst between the two populations is, the more accurate STRUCTURE estimates of admixture will be and the easier it will be to identify and correct the assignment error.

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A preferable approach would be to examine other data for wild steelhead to determine the general pattern of Fst versus distance-between-populations. At the very least a sensitivity analysis should be conducted that repeats the simulations of section 1 using a number of historically plausible Fst values greater than 0.02, up to at least 0.08. For example, the recent papers by Garza et al 2014 on the genetic diversity of California steelhead (cited in the Warheit Report) and by McPhee et al 2007 and 2014 on Kamchatka steelhead provide information of Fst between wild steelhead populations and distances. Both provide evidence

that Fst values between steelhead populations separated by distances equal to those by which northern Puget Sound populations are separated from Chambers Creek are generally greater than 0.02 or 0.03.

Section 1 of the report then employs the simulated population data from Section 1 to estimate various error rates when STRUCTURE is used to estimate introgression. By identifying the errors (since the true values of every individual in each of the simulated populations is known with certainty) one can then consider how best to correct the nominal STRUCTURE assignments to minimize if not eliminate the errors. Essentially, Dr. Warheit identifies a cutoff point for the level of introgression estimated by STRUCTURE for each individual above which to consider an individual as introgressed and below which to consider it as pure wild or pure hatchery.

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This approach to correcting STRUCTURE assignments for known or estimable kinds of estimation error is important. However, what is not discussed by Dr. Warheit or by NMFS in its discussion of the report is that any criterion for determining a cut-off point for determining introgression will involve a *policy decision*. This policy decision should reflect the priority managers assign to making or not making one or another kind of error. Dr. Warheit chooses a standard statistical criterion to reduce the mean squared overall assignment error (OER) (including a weighted "No Call" error rate that can be ignored in this context). This criterion treats each type of assignment error as equally good or bad. For example, failing to assign a hatchery fish to the hatchery group is as bad as failing to assign and admixed (HW) individual to the HW group. When the primary conservation issue is to protect wild steelhead from introgression from hatchery fish, and when perfect correction of all possible types of assignment error is not possible, a *management policy* choice must be made regarding the most appropriate way to minimize the worst kind of error. This is

unlikely to be minimizing OER. In any event an explicit sensitivity analysis of several different criteria for identifying the cutoff threshold needs to be examined. This, of course, requires repeating much of the analysis of the entire report for each different candidate criterion. But, given the approach of the report, this simply must be done to identify the best approach to correcting the errors that are of concern.

Section 2 of the report is technically the most difficult. Its principal objective is to develop an approach to using the estimates of expected assignment errors from the simulated data in Section 1 to adjust STRUCTURE estimates of introgression from actual empirical genetic samples. The method relies on resampling data simulated using actual sample data from Puget Sound steelhead populations and estimate assignment errors (using the cutoff value estimated in Section 1) for these data using a linear regression on the re-sampled simulated data and maximum likelihood estimation of the regression parameters. Confidence limits on the Maximum likelihood value (MLE) of the estimated error rates are also estimated. What is produced is a MLE point estimate of the level of introgression for each individual in each sample analyzed. This is the estimated level of introgression (from the STRUCTURE analysis) using the cutoff value estimated in Section 1, but now with a set of confidence limits attached.

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Our concern with Section 2 is twofold. First, the maximum likelihood approach does not properly represent the uncertainty of the estimate of the level of introgression. The confidence limits surrounding the MLE point estimate only reflect how well the point estimate is estimated. It says nothing about the probability of the MLE, other than that it is a maximum given all of the assumptions surrounding the particular statistical procedure that produced the point estimate. It does not provide information, for example, about the probability that the actual level of introgression is 10% greater or less than the MLE point

estimate. To properly judge the uncertainty of the estimated level of introgression – and thus the risk to wild steelhead posed by introgression – a probability distribution of the level of introgression (whose maximum value may be the MLE point estimate) is needed. The second concern we have is that the report considers to "call" any MLE point estimate of introgression whose 90% confidence intervals (C.I.) are greater than 0.25 "uncertain". But no explicit description of what this actually means in a management context accompanies this decision.

The implication in the context of the use of this approach to the actual population data is that any such point estimate is equivalent to zero (i.e., no introgression), and certainly any point estimate whose lower CI is equal to or less than 0. While Dr. Warheit does not explicitly state this, it is left open to managers to do so. Again, such a management interpretation requires an explicit *policy decision*, one which would be highly debatable, and one which NMFS should therefore question and scrutinize very closely – but does not. Further, an alternative probabilistic analysis of the error of estimating the level of introgression would permit a more informed management decision of how to treat estimates of introgression level that have broad distributions. Consider, for example, an error-corrected estimate of introgression with a most probable value of 0.15 that had a normal distribution with 5% of the left tail of the distribution below 0 and 5% of the right tail above 30%. It would make sense to ask, "what is the probability that the level of introgression is less than 10% or greater than 25%". The likelihood method developed in section 2 and employed on the real data in section 3 simply does not adequately reflect the remaining uncertainty and permit it to be accounted for in a risk-averse way. These shortcomings are correctable, but require considerably more research and exploratory analyses. In view of the risk that introgression poses to wild Puget Sound steelhead, NMFS should be more cautious in its acceptance of the results reported in section 3 of the report and in the two HGMPs.

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I. **<u>The Chambers Creek DEIS Fails to Consider Connected and Cumulative Actions</u>.**

NMFS is required to consider actions that are connected to or cumulative with the proposed action in a single NEPA document. 40 C.F.R. § 1508.25. The Chambers Creek DEIS is deficient for failing to evaluate the other hatchery programs operating throughout Puget Sound. The DEIS should, at a minimum, evaluate all of the Chambers Creek steelhead hatchery programs in Puget Sound, including that in the Duwamish/Green River (Soos Creek, Icy Creek, and Green River) that proposes annual releases of 70,000 smolts.

Hatchery fish released into Puget Sound Rivers interact with each other and wild fish during migration to and from the ocean, and when hatchery fish from stray beyond their intended range. These hatchery programs have similar effects on the same fish populations in the Puget Sound that aggregate over time. Indeed, the HSRG concluded based upon its review of the Elwha River HGMPs that:

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> [h]atchery fish released in each subbasin will interact with wild and hatchery fish from other subbasins as they migrate through the downstream corridor, estuary and ocean. **The effects of these interactions are heightened as the cumulative number of hatchery fish released into the Puget Sound for harvest increases.** Therefore, overall hatchery fish production should be limited to the minimum number needed to meet systemwide harvest and conservation goals of the various managers.

The Supreme Court has explained why comprehensive review of cumulative actions is important:

> [w]hen several proposals for [] actions that will have cumulative or synergistic environmental impact upon a region are pending concurrently before an agency, their environmental consequences must be considered together. **Only through comprehensive consideration of pending proposals can the agency evaluate different courses of action.**

Kleppe v. Sierra Club, 427 U.S. 390, 410 (1976) (emphasis added). Echoing this sentiment, the HSRG recommended coordination of the Elwha River hatcheries with those in surrounding areas "to account for the effects of all hatchery programs on each natural

population and each hatchery program on all natural populations." The HSRG has further concluded that: "[d]ecision making program-by-program or hatchery facility would fail to consider how best to use the hatchery system as a whole and would fail to take into account cumulative, regional effects." NMFS should prepare a comprehensive EIS that evaluates the impacts from all Puget Sound hatcheries.

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The Chambers Creek DEIS explains that the five Chambers Creek steelhead hatchery programs are being considered in a single NEPA document because they "pertain to early winter steelhead and would affect similar resources." Chambers Creek DEIS, p. 4. The DEIS nonetheless inexplicitly ignores the Chambers Creek steelhead program operating in the Duwamish/Green River. The Chambers Creek DEIS should evaluate impacts from this program.

J. <u>The Cumulative Impacts Analysis is Insufficient</u>.

The Chambers Creek DEIS is deficient because it does not adequately evaluate cumulative impacts. Notably, NMFS has not adequately addressed the cumulative impacts—such as those to the Puget Sound steelhead DPS and the Puget Sound Chinook salmon ESA—from the hatchery programs throughout the Puget Sound region or from climate change.

A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. In analyzing the cumulative effects of a proposed action, an agency must do more than just catalogue "relevant past projects in the area." *City of Carmel-by-the-Sea*, 123 F.3d 1142, 1160 (9th Cir. 1997). The EIS "must also include a 'useful analysis of the cumulative impacts of past, present and future projects.'" *Id*. This means a discussion and an analysis in sufficient detail to be "useful to a decision maker

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in deciding whether, or how, to alter the program to lessen cumulative impacts." *Id*. The cumulative impacts analysis for a proposed project must examine past, present, and proposed/reasonably foreseeable actions that have cumulatively significant impacts or are similar in timing or geography. 40 C.F.R. §§ 1508.7, 1508.25, 1508.27(b)(7); *Tomac v. Norton*, 433 F.3d 852, 864 (D.C. Cir. 2006).

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. 40 C.F.R. § 1508.7. The cumulative effects of the proposed action, combined with the cumulative effects of other proposed actions, must be described in detail and quantified. *Muckleshoot Indian Tribe v. U.S. Forest Serv.,* 177 F.3d 800, 810 (9th Cir. 1999). Broad and general statements, "devoid of specific, reasoned conclusions" are not sufficient; neither are one-sided cumulative impact statements. *Id*. at 811.

20 The Chambers Creek DEIS is deficient in its failure to subject the cumulative effects that it identifies to sufficiently detailed analyses. The Chambers Creek DEIS must do more than list a suite of general past, present, and likely future activities that may affect the listed species at issue and conjecture about the extent to which likely adverse effects may or may not be mitigated by existing law, rules and regulations. The Chambers Creek DEIS must do more than list current and proposed land use rules and regulations and conjecture that they will provide protection of habitats and ecosystems important to salmon to an extent sufficient to assure the preservation and recovery of the listed species. The Chambers Creek DEIS fails to provide any detail to demonstrate that it is at all reasonable to conclude that such protection will be secured.

The cumulative impacts discussion admits some of the significant adverse effects that climate change will pose to the environment and ESA-listed fish species. Some of these effects, such as increased incidence of disease breakouts and virulence in juveniles, will be

exacerbated by the increased effects of disease and pathogens introduced by the hatchery programs. The Chambers Creek Draft EIS's cumulative impacts conclusion is based upon the false assumption that the monitoring and adaptive management program would protect ESA-listed species and mitigate potential adverse cumulative impacts. As these comments explained, the adaptive management and monitoring programs are insufficient and unfunded, and therefore unlikely to occur at all or in a timely enough manner to identify adverse impacts on listed species and take appropriate corrective action. Therefore, the Chambers Creek DEIS has wrongly relied on these programs to ignore the significant impact of cumulative impacts. As a result, the Chambers Creek DEIS fails to propose any limitations on the proposed actions or less harmful alternatives.

20 NMFS discussion of the significance of climate change to its evaluation of the EW hatchery programs that are the subject of the Chambers Creek DEIS is inadequate. In Section 4.1 (pp. 78-89) and Table 14 (pp. 80-81), NMFS describes the reductions in surface and groundwater use by each of the EW hatchery facilities under alternative 1 and 3 relative to current conditions (alternatives 2 and 4), but dismisses the significance of these reductions for the ecological conditions of the affected stream segments. In the comments Wild Fish Conservancy provided during the scoping phase of the DEIS, we recommended the NMFS require the timely adoption of water re-use and/or recirculation technologies at the hatchery facilities at issue in order to begin addressing the threats to water quantity posed by climate change. The Chambers Creek DEIS dismisses making this either a requirement or even a recommendation on the grounds that "because the HGMPs have already incorporated best management practices identified by independent reviewers, and because the HGMPs allow for incorporation of additional best management practices in the future as a result of monitoring and evaluation activities and adaptive management, this alternative would not be measurably

different from the Proposed Action and will not be analyzed in detail." We strongly disagree and NMFS provides no good evidence that water-saving technologies will be adopted by WDFW at its EW steelhead hatchery facilities. Hatchery managers do not appear to be aware of these technologies and/or do not appear to consider these "best management practices." It falls under NMFS' jurisdiction pursuant to the ESA to recommend, if not require these technologies, as components of a comprehensive and pro-active response to the threats posed to salmon and steelhead and their ecosystems by climate change.

In Section 5 of the Chambers Creek DEIS (Cumulative Effects), subsection 5.5.1, NMFS admits "[O]verall, cumulative effects of climate change, development, and hatchery production on water quality and quantity are more likely to reduce water quantity than is described in Subsection 4.1, Water Quantity. These negative effects may be offset to some extent by habitat restoration and potential decreases in hatchery production; however, these actions may not fully, or even partially, mitigate for the greater impacts of climate change and development on water quality and quantity, although this is the goal of many of the restoration programs" (Chambers Creek DEIS, pg. 132). The Chambers Creek DEIS merely lists and briefly describes categories of impacts, but fails to provide any appropriately quantitative analysis of how these impacts—most especially increased summer and fall stream temperatures, reduced flows during summer and fall juvenile rearing time, and altered fall, winter, and spring discharge patterns—are likely to affect populations of the listed DPS in the next several years and for the next several decades. In short, NMFS provides no substantive analysis of the proximate impacts of climate change on the listed populations.

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Finally, the Chambers Creek DEIS fails to adequately account for the cumulative impacts resulting from other hatchery programs in the Puget Sound region, including other Chambers Creek steelhead hatchery programs operating in the Duwamish/Green River (Soos

Creek, Icy Creek, and Green River) that propose annual releases of 70,000 smolts. Many of these programs have been operating without 4(d) Rule approval and are currently under review by NMFS.

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K. NMFS Cannot Adequately Evaluate the Chambers Creek Programs in the Absence of a Completed Puget Sound Steelhead Recovery Plan.

It is impossible for NMFS to adequately evaluate the risks to wild Puget Sound steelhead posed by Chambers Creek r other steelhead hatchery programs in the absence of a final recovery plan for the Puget Sound steelhead DPS. A final recovery plan is needed to know how many wild populations, with what demographic characteristics and levels of abundance, with what levels and kinds of within-population diversity, and with what distribution across the Puget Sound landscape are required to achieve the recovery and long-term viability of the DPS. Absent these kinds of recovery criteria, it cannot be known what kinds and levels of steelhead hatchery production, if any, are compatible with achieving recovery. NMFS should postpone approval of the HGMPs until a recovery plan has been finalized and approved by NMFS. And as noted previously in these comments, an adequate quantitative risk analysis of hatchery and related impacts on the listed DPS cannot be properly undertaken in the absence of quantitative details that can only be provided by a final recovery plan.

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L. The Economic Analysis is Inadequate.

The Chambers Creek DEIS' economic analysis is too narrow and fails to evaluate the economic benefits of recovery of listed ESA-listed salmon and steelhead. For example, the Chambers Creek DEIS does not describe/explain the relationship between tribal gross and per capita income from commercial fishery and hatchery operations and individual tribal per capita income, which is required to understand how alternatives affecting hatchery operations will translate to per capita income of individual tribes.

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The economic analysis should also address lost opportunities from spending significant financial resources on the hatchery programs. For example, the economic analysis should address the economic and other consequences of diverting resources away from other actions that could restore wild salmonid populations and into the hatchery programs.

NMFS should also include an analysis of the risk that the Puget Sound steelhead DPS will become endangered under the ESA and an evaluation of the economic impacts of such a change in the listing status of the species.

22 The socioeconomic analysis of the alternatives is far too narrow in scope. It is confined entirely to "predicted changes in recreational trips, hatchery operational cost values (e.g., procurement of goods and services needed to operate hatcheries), and personal income and jobs associated with fisheries on early winter hatchery-origin steelhead that would contribute to economic conditions in the analysis area" (Section 4.5, page 107). The economic analysis needs to be broadened to include opportunity costs to recovery of wild steelhead from investment in EW hatchery programs. This should include the economic benefits to tribal fishers, recreational anglers, and local communities from future fisheries directed at recovered or rebuilding wild populations.

In this regard, the analyses related to impacts on tribal fishers is myopic, and NMFS' description of its trust responsibilities and the relation of the impacts of the alternatives to trust responsibilities is limited and insufficient. NMFS nowhere explains how it quantifies its obligation to provide harvest opportunities to treaty tribes in order to appropriately discharge its trust responsibilities. It neither quantifies the minimum number of fish of each salmon species and steelhead it is obligated to provide to each tribe nor how that number is to be provided (either as opportunity to fish for, or as number of fish actually landed). Nor does the Chambers Creek DEIS discuss whether and how forgoing harvest opportunities directed at

EW hatchery fish for future harvest of recovered or rebuilding wild steelhead may equally well meet trust responsibilities.

NMFS asserts (Chambers Creek DEIS, pg. 111, lns. 22-3) that "any reduction in steelhead harvest opportunities pose a disproportionate effect on Native American tribes." While this is likely true, NMFS fails to note that the actual amount of tribal harvest of EW hatchery steelhead under the Proposed Actions (Alternative 2) will result in fewer than 100 adult hatchery steelhead landed by tribal fishers (an average of 38 according to the HGMPs as noted above), as have past releases of even larger numbers of smolts. Under the proposed action the estimated average total number of adults harvested in all rivers into which smolts would be released would be 4,412 (Section 4.5.2, page 108), the overwhelming proportion of which would be caught by non-tribal sports anglers. NMFS should provide an explanation of how the modest numbers that would be expected to be caught by tribal fishers is sufficient for meeting trust responsibilities. Such low numbers (fewer than 200 (38*5) on average) could be achieved by program reductions greater than those proposed under alternative 3.

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NMFS also ignores several features of EW hatchery programs that indicate the cost effectiveness of these programs under any of the production alternatives (2 or 3) would be very low. Alternative 2 would release a total of 620,000 smolts at an average weight of 5 per pound, or a total weight of smolts of 620,000/5 = 124,000 pounds. Total brood stock requirements for the five programs based on the data in Section 7 of the HGMPs is 650 adults. Assuming no hatchery straying (pHOS = 0) the total return would be 4412 + 650 = 5062 adults. Thus the estimated smolt-to-adult survival rate would be 5062/620,000 = 0.82%. In order for the total biomass of returning adults to equal the total biomass (weight) of smolts released, the average weight of the returning adults would have to be 24.5 pounds. This is more than triple the average weight of EW hatchery steelhead. We have noted this issue in our

previous comments, but emphasize again that this indicates extreme inefficiency in all programs. NMFS should discuss this issue in detail in the DEIS.

This poor performance of EW steelhead hatchery programs is relevant for alternative 4 of the Chambers Creek DEIS, which would terminate use of EW (Chambers Creek-origin) hatchery broodstock for all programs and replace them with local wild-origin broodstock programs. Surprisingly, NMFS evaluates alternative 4 as having production characteristics identical to Alternative 2. That is, number of smolts released, number of adults used for broodstock, weight of smolts at release and – most importantly – smolt-to-adult survival. Yet, NMFS also asserts that spawning in the wild between these hatchery fish and wild fish would

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have little or no harmful genetic impacts compared to those from EW hatchery fish because of the genetic similarity of hatchery fish from an integrated, local wild broodstock program (Chambers Creek DEIS, pg. 99). Yet, a smolt-to-adult survival rate of less than 1% would indicate extremely poor fitness, such that interbreeding with local wild steelhead would have a high probability of depressing the fitness of the wild population. NMFS fails to consider this. An alternative consideration, also ignored by NMFS, is that smolt-to-adult survival of local wild broodstock programs would be higher than that expected for EW hatchery programs, in which case fewer smolts would need to be released under alternative 4 in order to achieve the same total adult return (5062). NMFS should have considered this in analyzing the alternatives and in considering which alternatives to include in the DEIS. This would not alleviate the considerable flaws in the DEIS that we believe warrant its withdrawal, but it would provide a more complete, and accurate evaluation of the alternative that have been included.

VI. The HGMPs Do Not Meet the 4(d) Rule Requirements.

A. The HGMPs do not Comply with the Limit 5 Criteria.

NMFS' regulations require that public comment be taken as to whether HGMPs submitted as part of a joint plan under Limit 6 of the 4(d) Rule meet the criteria of Limit 5. NMFS' 4(d) Implementation Guidance indicates that NMFS will evaluate HGMPs submitted under Limit 6 in the same manner as it evaluates HGMPs submitted under Limit 5. NMFS should decline to approve the joint plan because the HGMPs do meet the criteria of Limit 5 of the 4(d) Rule.

1. The HGMPs do not have Clearly Stated Objectives.

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The first criterion of Limit 5 of the 4(d) Rule requires that:

> The HGMP has clearly stated goals, performance objectives, and performance indicators that indicate the purpose of the program, its intended results, and measurements of its performance in meeting those results. Goals shall address whether the program is intended to meet conservation objectives, contribute to the ultimate sustainability of the natural population, and/or intended to augment tribal, recreational, or commercial fisheries. Objectives should enumerate the results desired from the program that will be used to measure the program's success or failure.

50 C.F.R. § 223.203(b)(5)(i)(A). The HGMPs submitted as part of the joint plan do not meet these requirements.

All HGMPs state goals and objectives in vague, general terms and phrases that ignore relevant and substantive biological issues that arise in conservation contexts.

Regarding the preservation of genetic diversity, which is a fundamental and critical performance and monitoring variable, none of the HGMPs provide specifics regarding the kind(s) of genetic markers to be measured, how many loci for each marker are to be measured, what genetic parameters are to be monitored using the markers (expected and observed levels of heterozygozity, allelic richness, etc.), and what target levels of genetic

parameters are to be achieved. As a result, none of the HGMPs can state what corrective actions will be taken when target levels of genetic diversity are not attained.

Moreover, none of the HGMPs provide any substantive text that explains the relationship of listed performance indicators to associated performance standards and goals. No proper justification is provided for the indicators and standards. Rather, goals, standards, and indicators are largely simply asserted.

2. **The HGMPs do not Utilize the Concepts of Viable Salmonid Populations.**

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The second criterion of Limit 5 of the 4(d) Rule requires that:

> The HGMP utilizes the concepts of viable and critical salmonid population threshold, consistent with the concepts contained in the technical document entitled "Viable Salmonid Populations" (NMFS, 2000b). Listed salmonids may be purposefully taken for broodstock purposes only if the donor population is currently at or above the viable threshold and the collection will not impair its function; if the donor population is not currently viable but the sole objective of the current collection program is to enhance the propagation or survival of the listed EUS; or if the donor population is shown with a high degree of confidence to be above critical threshold although not yet functioning at viable levels, and the collection will not appreciably slow the attainment of viable status for that population.

50 C.F.R. § 223.203(b)(5)(i)(B). The HGMPs submitted as part of the joint plan do not adequately utilize the Viable Salmonid Population ("VSP") concepts and do not meet these requirements.

The HGMPs (in section 2.2.2) state the preliminary critical and viable abundance thresholds identified by the Puget Sound Steelhead Technical Recovery Team. However, the HGMPs fail to note that these thresholds apply to a recovered population and do not discuss how these abundance levels should be related to the current depressed conditions of the populations. As already noted in these comments, in the absence of a Puget Sound-wide steelhead recovery plan, it is impossible to accurately relate the current abundance of wild steelhead in each of the five rivers to interim recovery thresholds and to appropriately

evaluate the impacts of the proposed Chambers Creek hatchery programs on the role each population may have in the recovery of the Puget sound steelhead DPS.

3. **The HGMPs do not Minimize Harm to Wild Populations.**

The fifth criterion of Limit 5 of the 4(d) Rule requires that:

> The HGMP evaluates, minimizes, and accounts for the propagation program's genetic and ecological effects on natural populations, including disease transfer, competition, predation, and genetic introgression caused by the straying of hatchery fish.

50 C.F.R. § 223.203(b)(5)(i)(E). The HGMPs submitted as part of the joint plan do not meet these requirements.

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The steelhead programs do not adequately acknowledge the risk of fitness loss that is likely to be caused by the steelhead program and, therefore, does not consider appropriate monitoring and measures to detect and avoid such impacts. The HGMPs are also silent on the possible impacts on wild steelhead of the fisheries targeting hatchery steelhead in each of the three rivers. The HGMPs note that recreational fisheries are catch-and-release (C&R), but do not discuss either C&R mortality or the impact of C&R on the reproductive success of steelhead, despite significant relevant literature on Atlantic salmon showing impaired reproductive success steelhead-sized adults caught and released (Richard et al. 2013 and references therein). Nor do the HGMPs acknowledge the fact that tribal net fisheries (and also perhaps hook-and-line fisheries) are non-selective and that tribal catch likely includes wild steelhead. The HGMPs do not provide any information regarding how the tribal catch is monitored, including whether or not WDFW staff are able to visually inspect any of the tribal catch that may be reported to them.

4. **The HGMPs Lack Adequate Monitoring and Evaluation.**

The eighth criterion of Limit 5 of the 4(d) Rule requires that:

> Adequate monitoring and evaluation exist to detect and evaluate the success of the hatchery program and any risks potentially impairing the recovery of the listed ESU.

50 C.F.R. § 223.203(b)(5)(i)(H). The HGMPs do not meet these requirements.

There is not adequate monitoring and evaluation of the hatchery programs' success and risks to listed species.

5. <u>The HGMPs do not Include Adequate Adaptive Measures</u>.

The ninth criterion of Limit 5 of the 4(d) Rule requires that:

> The HGMP provides for evaluating monitoring data and making any revisions of assumptions, management strategies, or objectives that data show are needed.

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50 C.F.R. § 223.203(b)(5)(i)(I). The HGMPs do not meet these requirements.

The failure of the HGMPs to identify relevant measureable genetic and life history parameters and to specify corresponding quantitative threshold or target levels to avoid risks to listed populations means that no adaptive measures exist for altering program practices in the light of data. Even were some adaptive measures provided, the absence of adequate and/or assured funding of the essential monitoring activities means that the data necessary to implement adaptive measures will not be obtained in an appropriately timely manner, which is tantamount to having no adaptive management at all. However, in general the HGMPs provide no explicit set of decision procedures or protocols by which monitoring data will be acquired, analyzed, and by which program practices are to be changed based on the results of those analyses.

B. <u>The Joint Plan Does not Meet the "No Jeopardy" Standard</u>.

The HGMPs submitted under Limit 6 of the 4(d) Rule as a joint plan may be approved only if the implementation and enforcement of the joint plan will not appreciably reduce the

likelihood of survival and recovery of affected threatened ESUs. 50 C.F.R. § 223.203(b)(6)(i). The submitted HGMPs do not meet this requirement. In the absence of an approved Puget Sound-wide steelhead recovery plan, it is arguably impossible to determine that any level of release of Chambers Creek-origin hatchery steelhead into any of the rivers for which HGMP approval is sought will not jeopardize the Puget Sound steelhead DPS.

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VII. Incorporation of Documents.

In addition to the comments provided herein, Wild Fish Conservancy hereby incorporates with this reference the following comments (and the materials attached thereto) previously submitted to NMFS on related NEPA documents:

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Wild Fish Conservancy's comments on the Puget Sound Hatchery DEIS (Jan. 22, 2015); and

Wild Fish Conservancy's comments on the Chambers Creek DEA (May 4, 2015).

These comments and materials provide further details regarding the issues and concerns addressed herein.

Thank you for your consideration of these comments.

CITED MATERIAL

Hard, J.J., J.M. Myers, E.J. Connor, R.A. Hayman, R.G. Kope, G. Lucchetti, A.R. Marshall, G.R. Pess, and B.E. Thompson. 2015. Viability criteria for steelhead within the Puget Sound distinct population segment. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-129.

HSRG 2014. HSRG (Hatchery Scientific Review Group). 2014. On the Science of Hatcheries: An updated perspective on the role of hatcheries in salmon and steelhead management in the Pacific Northwest. A. Appleby, H.L. Blankenship, D. Campton, K. Currens, T. Evelyn, D. Fast, T. Flagg, J. Gislason, P. Kline, C. Mahnken, B. Missildine, L. Mobrand, G. Nandor, P. Paquet, S. Patterson, L. Seeb, S. Smith, and K. Warheit. June 2014.

Jones, M.H. 2014. Hatcheries, phenology, and families: juvenile steelhead ecology in Forks Creek, Washington. A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science, University of Washington.

McMillan, Bill. 2015. The reproductive ecology of *Oncorhynchus mykiss* in tributary streams of the Mid Skagit River Basin.

McMillan, Bill. 2015. Excel spreadsheet: Nooksack stillaguamish dungeness harvest-hatchery history_4-27-2015.xls.

Myers, J.M., J.J. Hard, E.J. Connor, R.A. Hayman, R.G. Kope, G. Lucchetti, A.R. Marshall, G.R. Pess, and B.E. Thompson. 2015. Identifying historical populations of steelhead within the Puget Sound distinct population segment. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-128.

PSSTRT 2013. Puget Sound Steelhead Technical Recovery Team (PSSTRT).
2013. Viability Criteria for Puget Sound Steelhead. Final Review Draft. 373 p.

Richard, A., M. Dionne, J. Wang, L. Bernatchez. 2013. Does catch and release affect the mating system and individual reporductive success of wild Atlantic salmon (*Salmo salar L.*)? Molecular Ecology 22: 187 – 200.

Responses to Wild Fish Conservancy Comments

Letter Dated December 28, 2015

1. Comment noted.

2. NEPA – The comment states that NMFS provided insufficient time for meaningful public review of the draft EIS. The amount of time allotted for public review was reasonable because, as described in the final EIS (Subsection 1.6.6, Review and Comment and Appendix D, Public Comment Analysis Summary), while meeting the minimum requirement for a draft public comment period of 45 days as stated in the Council on Environmental Quality regulations (40 CFR 1506.10(c), NMFS provided an additional 10 days of public review prior to formal publication in the Federal Register.

   Further, the public had multiple opportunities to comment on analyses of the hatchery programs covered in the draft EIS in prior processes. For example, there was a nearly 6-month public comment period for the Puget Sound Hatcheries Draft Environmental Impact Statement (NMFS 2014), which reviewed all Puget Sound salmon and steelhead hatchery programs, including the five programs covered by this EIS (79 Fed. Reg. 43465, July 25, 2014; 79 Fed. Reg. 59767, October 3, 2014; 79 Fed. Reg. 69470, November 21, 2014). In addition, a draft Environmental Assessment (EA) that analyzed three of the five hatchery programs included in this EIS was available for public review and comment for a total of 5 weeks in the spring of 2015 (80 Fed. Reg. 15985, March 26, 2015; 80 Fed. Reg. 22973, April 24, 2015). Comments received on that draft EA contributed substantially to NMFS' decision to prepare this draft EIS.

   Finally, in a state process, the same five hatchery plans that are reviewed in this draft EIS available for public review and comment in a Washington Department of Fish and Wildlife process, prior to the HGMPs being submitted to NMFS for consideration under the Federal Endangered Species Act (ESA).

3. NEPA – The comment seeks clarification about why the EIS does not analyze effects from an early winter steelhead hatchery program in the Duwamish/Green River (Soos Creek), noting that that program had been submitted to NMFS for review along with the other five programs. The co-managers resubmitted HGMPs for NMFS review without including the Soos Creek HGMP. Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, has been modified to clarify the co-manager's withdrawal of the Green River early winter steelhead HGMP.

4. Analysis – The comment suggests that a quantitative approach should be used to meet objectives in the Purpose and Need statement. However, attaching a numerical value to each objective in many cases would have been arbitrary. In addition, applying a quantitative approach would result in a narrowed Purpose and Need statement, which would have constrained development of a range of reasonable alternatives.

   The comment also suggests use of a quantitative "common currency" to measure effects of each alternative. NMFS included common currencies in its comparison of effects under the

alternatives. For example: amount and percentage of surface water diverted (Subsection 3.1, Water Quantity; Subsection 4.1, Water Quantity); Viable Salmonid Population parameters for each steelhead population (Subsection 3.2, Salmon and Steelhead; Subsection 4.2, Salmon and Steelhead); and employment and the local procurement of goods (Subsection 3.5, Socioeconomics; Subsection 4.5, Socioeconomics).

5. NEPA – The comment suggests that the Purpose and Need statement associated with conservation and recovery of ESA-listed species is incompatible with the Proposed Action associated with early winter steelhead, a non-listed species. While the hatchery programs under review do not contribute to recovery, recovery is not the standard applicable under the ESA 4(d) Rule. After sufficient review and determination of effects analyses, hatchery programs for unlisted species may be approved under the ESA 4(d) Rule.

6. Alternatives – The comment suggests that the range of alternatives in the draft EIS is insufficient, and identifies four examples for other alternatives to be considered. NMFS supports its decision to not analyze three additional alternatives in the draft EIS in Subsection 2.3, Alternatives Considered But Not Analyzed in Detail. The fourth recommend alternative to be analyzed pertains to approval only of those HGMPs that fully meet requirements of the 4(d) Rule. Any and all approvals of HGMPs under the 4(d) Rule must, by definition, meet all requirements of that rule. Any approvals under the ESA are made under processes associated with the ESA, informed by, but not dictated by, impact assessments under the NEPA process.

7. NEPA – The comment states that NMFS has incorrectly interpreted its authority regarding its ability to impose restrictions on hatchery programs through the 4(d) Rule approval process. The comment does not identify specific statements in the draft EIS that support this assertion. Consequently, NMFS is unable to provide a specific response. However, NMFS will fully implement the 4(d) Rule in making its determination regarding approval of the proposed programs. The comment further states that the HGMPs are not RMPs because they were submitted solely by the State of Washington. This is incorrect; the HGMPs were submitted as an RMP by the State and the Jamestown S'Klallam Tribe, the Lummi Nation, the Nooksack Tribe, the Stillaguamish Tribe of Indians, and the Tulalip Tribes (80 Fed. Reg. 41011, July 14, 2015). Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, and Subsection 1.5.3, NMFS's Determination as to Compliance with the 4(d) Rule, describe the co-managers' request for the submitted HGMPs to be considered under Limit 6 of the 4(d) Rule, using the criteria under Limit 5.

   See also Comment 8.

8. NEPA– The comment suggests that the NEPA review should evaluate whether the alternatives will satisfy requirements for approval under the 4(d) Rule, and whether the alternatives will appreciably reduce the likelihood of survival and recovery of threatened salmonids. The purpose of the EIS analysis is to assess the significance of potential impacts to the human environment from the Proposed Action and its alternatives. Subsection 1.3, Purpose of and Need for the Proposed Action, states that the purpose of the EIS review is not to document whether ESA

requirements are met in the EIS analyses. The sufficiency of the submitted HGMPs are not the subject of this EIS; that determination is made pursuant to 50 CFR 223.203(b), and NMFS has published for comment its draft determinations that the HGMPs meet the regulatory standards. NEPA does not require NMFS to determine whether each of the alternatives meet the ESA regulatory criteria in this EIS. The comment also notes that the EIS does not include an analysis of whether the alternatives will appreciably reduce the likelihood of survival and recovery of threatened salmonids - the ESA Section 7 jeopardy standard. NMFS is consulting on the approval of the HGMPs under Section 7 and will issue biological opinions that include the required determinations regarding jeopardy and adverse modification of critical habitat. NEPA does not require NMFS to make such determinations in this EIS.

9. Analysis – The comment suggest that more extensive use of the Viable Salmonid Population (VSP) parameters in the analysis is warranted. NMFS considered viability associated with VSP parameters (including diversity) extensively and concludes that VSP parameters have been applied sufficiently for analysis purposes.

10. Analysis/existing conditions – The comment suggests NMFS has inappropriately characterized baseline (existing) conditions as including early winter steelhead hatchery programs, in spite of a 2014 Consent Decree (*Wild Fish Conservancy v. Washington Department of Fish and Wildlife*) in which early winter steelhead smolts would not be released from most of the programs until NMFS approves HGMPs, or 2 ½ years from the entry of the decree, whichever comes first. Because early winter steelhead had been released for many years prior to the decree, and because what will happen after the term of the decree ends is speculative, NMFS feels including early winter steelhead in existing conditions accurately reflects recent conditions. Analysis of a No Production Alternative provides information on relative effects on the environment without early winter steelhead.

11. Analysis - The comment suggests that a quantitative "probabilistic risk assessment should be used in the EIS to determine what alternative does the best job of balancing competing risks and management objectives. Although such risk assessments can be used to estimate types of risk, the results are often imprecise and may rely on considerable uncertainty and inherent assumptions (NRC 2013). The methods applied in the EIS analyses (e.g., Viable Salmonid Population approach) are appropriate for evaluating hatchery actions that directly affect natural populations and for which incremental increases in extinction risk may be difficult or impossible to accurately quantify (McElhaney et al. 2000). The Viable Salmonid Population approach and other approaches used in the draft EIS provide a necessarily broad scope of analysis, providing the public and the NMFS decision-maker information with which to better understand the risks and benefits of each alternative.

12. Analysis/Socioeconomics – The comment suggests a cost-benefit analysis of tribal harvests is needed. Specific economic cost-benefit analyses are not required under NEPA. As described in Box 3-2 in Environmental Justice Subsection 3.4.1.2, Approach to Identifying Native American Tribes of Concern, in the Puget Sound Hatcheries Draft Environmental Impact Statement (NMFS

2014), salmon and steelhead are important and benefit the way of life of Indian tribes in the Puget Sound region in ways other than economics.

See response to Comment 22.

13. Data – The comment suggests the analysis fails to appropriately consider or address the best currently available scientific data because information on extinction risk of certain steelhead populations is not referenced. Subsection 3.2, Salmon and Steelhead, identifies that Puget Sound steelhead are listed as threatened under the ESA. Subsection 3.2, Salmon and Steelhead, has been revised to include status information from the most recent 5-year status review (NWFSC 2015) for the steelhead populations in the project area.

14. Analysis – The comment suggests that the area analyzed should be broader than the area in which the hatchery fish would be released. To clarify, the areas analyzed in the draft EIS in Chapter 4, Environmental Consequences, address the local project area at a minimum, but are expanded for some resources (e.g., salmon and steelhead, and wildlife [Southern Resident killer whales]). The analysis area determinations for each resource depended on the extent to which the alternatives would impact the various resources outside the project area (e.g., upstream spawning areas). In the analysis of cumulative effects (Chapter 5, Cumulative Effects), the draft EIS also addresses effects in the broader area of the Salish Sea.

15. Analysis/Assumptions/Monitoring – As described below, the comment disagrees with various assumptions and related conclusions used in the analysis of effects on natural-origin steelhead associated with the Proposed Action in the draft EIS.

    The comment suggests that not all monitoring, evaluation, and adaptive management described in the draft EIS is reasonably certain to occur. The activities described in HGMPs and in the draft EIS are reasonably certain to occur if NMFS approves the programs under the 4(d) Rule because NMFS will require monitoring and evaluation as a condition of its approval. Further NEPA and/or ESA review may be needed when future activities are proposed if funding is not available.

    The comment also suggests that the extent of interactions between early winter steelhead and natural-origin steelhead is insufficiently addressed. The EIS (which is informed by documents that are incorporated by reference) discloses potential ecological effects (e.g., competition and predation) and genetic effects of the Proposed Action in Subsection 4.2, Salmon and Steelhead.

    For additional information on interactions, including potential cumulative effects from annual 2 percent gene flow impacts, effects of residuals, and relationships of the Proposed Action to early-returning natural-origin winter steelhead, see Global Comments 4a and 4b. Subsection 3.2.3, Effects of Current Early Winter Steelhead Hatchery Programs on Salmon and Steelhead, has been modified to include additional information on these topics.

    Finally, see Global Comment 4c regarding the lack of a recovery plan for Puget Sound steelhead.

16. Analysis – The comment suggests the analysis is not sufficiently quantitative, and does not employ terms appropriate to the ESA. See response to Comment 11.

17. Monitoring – The comment suggests that the description of monitoring, evaluation, and adaptive management as mitigation measures are inadequately described in the draft EIS. Subsection 1.2, Description of the Proposed Action, identifies facilities and locations at which monitoring would occur, and has been modified to further clarify monitoring and evaluation activities. In addition, Chapter 4, Environmental Consequences (Introduction) has been modified to address monitoring. See also response to Comment 15.

18. Analysis/Genetics – See Global Comment 4a.

19. NEPA – The comment suggests NMFS did not consider actions that are connected or cumulative with the Proposed Action in the draft EIS, and at a minimum should evaluate all early winter steelhead hatchery programs in Puget Sound. The draft EIS includes a Chapter on cumulative effects, which describes the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions (Chapter 5, Cumulative Effects), including other hatchery programs in Puget Sound .

    See also response to Comment 3 regarding the co-managers withdrawal of the early winter steelhead hatchery program that had been operating in the Duwamish/Green River (Soos Creek).

20. Cumulative Effects – The comment suggests the cumulative effects analysis in the draft EIS is inadequate because it does not address the effects of hatchery programs throughout the Puget Sound area or from climate change. In Chapter 5, Cumulative Effects, the analyses disclose the effects of all salmon and steelhead hatchery programs in Puget Sound and in the larger cumulative effects analysis area (Salish Sea) as well as effects of climate change. See also responses to Comment 4 and Comment 11.

    Further, the comment suggests the analysis was insufficient because the description of adaptive management and monitoring are insufficient and are unlikely to occur, and because the analysis of effects was insufficiently quantitative. The inclusion of adaptive management and monitoring as a means to track and mitigate the long-term effects on the human environment from climate change is a reasonable approach given the unknown outcomes of future conditions in the landscape. See also responses to Comment 15 and Comment 17.

21. NEPA - The comment suggests that the lack of a recovery plan for Puget Sound steelhead hampers analysis of the hatchery programs with regard to the potential contribution to recovery of early returning natural-origin steelhead. See Global Comment 4c.

22. Analysis/Socioeconomics – The comment suggests the socioeconomic analysis is inadequate because it fails to evaluate the economic benefits and opportunity costs of recovered salmon and steelhead listed under the ESA, and because it does not describe tribal gross and per capita income from fishery and hatchery operations, or individual tribal per capita income. It is NMFS'

opinion that the aspects of the socioeconomic analysis mentioned by the comment are based on available information and are, thus, adequate for the following reasons.

Recovery goals will not be available for Puget Sound steelhead until a completed recovery plan is available and, thus, it is not possible to identify where and how many fish would be present, or the socioeconomic value of a recovered landscape. See also response to Comment 15.

The existing values associated with fishery benefits, including hatchery operations and production costs are disclosed in Subsection 3.5, Socioeconomics, and relative differences under the alternatives are described in Subsection 4.5, Socioeconomics. There is limited tribal commercial and subsistence use of steelhead, as disclosed in the draft EIS in Socioeconomics Subsection 3.5.2, Fisheries, and in Subsection 3.6, Environmental Justice.

As described in the Puget Sound Hatcheries Draft Environmental Impact Statement in Subsection 3.4.2.2, Ceremonial and Subsistence Uses, members of the Puget Sound treaty tribes prioritize their ceremonial and subsistence needs over commercial sales. Additional information associated with tribal per capita income and employment is found in the Puget Sound Hatcheries Draft Environmental Impact Statement in Subsection 3.4.2, Native American Tribes of Concern.

23. NEPA – The comment suggests the HGMPs do not meet requirements of the 4(d) Rule. See response to Comment 8. These comments will be considered as comments on the Proposed Evaluations and Pending Determinations, and thus will be considered in the 4(d) approval process.

24. See Global Comment 2c.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

draft hgmp eis

1 message

Pete Soverel <soverel@msn.com> Wed, Dec 2, 2015 at 5:39 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>

Dear Mr. Stelle,

1 The Conservation Angler has provide extensive and extended comments on the DEIS process re: Puget sound hatchery steelhead management plans attached above. TCA reiterates and reaffirms the positions described in these documents which detail our concerns which describe in detail the failings of the various DEIS's and EA's which are incomplete, inadequate and fail to:

- assess accurately the risks to wild steelhead inherent in the State's steelhead hatchery plans;
- examine the option of not planting hatchery steelhead at all;
- fail to provide for effective monitoring plans; fail to establish decision threshholds in the event the impacts on wild steelhead are greater than predicted.

2 Of particular concern, this process is upside down and backwards. NOAA and co-managers have not produced a wild steelhead recovery plan and do not plan to do so for another 24-30 months or so -- TWELVE YEARS after Puget Sound wild steelhead were listed as threatened and twelve years after NOAA specifically identified hatchery practices as a

contributing factor to wild steelhead declines. It is preposterous to even consider approving HGMP for any Puget Sound watersheds in advance of developing an approved recovery plan which would provide the template against which the impact of various hatchery management plans on wild steelhead could be assessed and alternative management regimes could be evaluated/considered.

2

The Conservation Angler asks that NOAA postpone the environmental review process of all Puget Sound HGMP's until it has completed a recovery plan for wild Puget Sound Steelhead.
Sincerely, Peter W. Soverel
President, The Conservation Angler

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6 attachments

DEIS Comments -- wfc.doc
185K

DEIS comments tca.doc
113K

DEIS COMMENTS WFC -- ATTACHMENT A.doc
185K

comment on EA.docx
15K

ps_ews_deis_nov4-2015.pdf
2299K

ps_hatchery_deis_comments.pdf
14833K

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

FW: Comments on Draft EIS for Five Early Winter Steelhead Hatchery Programs in Puget Sound

1 message

Pete Soverel <soverel@wildsalmonrivers.org> Mon, Dec 28, 2015 at 5:52 PM
To: "ewshatcherieseis.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>

Mr. Stelle,
The Conservation Angler has previously submitted extensive comments on:

- original NOAA call for DEIS of Puget Sound HGMP's;
- NOAA proposal for an Environmental Assessment of Puget Sound HGMP's;
- Current request for comment on DEIS on five Puget Sound steelheads HGMP's. We here in extend those comments to align ourselves with and support of the detailed comments herein submitted by The Wild Fish Conservancy.

3

Sincerely,
Peter W. Soverel
President, The Conservation Angler

From: kurt@wildfishconservancy.org
Date: Mon, 28 Dec 2015 17:16:04 -0800
Subject: Comments on Draft EIS for Five Early Winter Steelhead Hatchery Programs in Puget Sound
To: monksend@fidalgo.net; bmbakke@gmail.com; wrredman@comcast.net; soverel@wildsalmonrivers.org; jonathanstumpf@gmail.com; Fskibum@olypen.com; jake@nativefishsociety.org; tom@nativefishsociety.org; lukedkelly@gmail.com; jmcmillan@tu.org; troutdna@gmail.com; rks57@yahoo.com

Dear Colleagues,

Please find attached comments submitted on behalf of Wild Fish Conservancy on the Draft Environmental Impact Statement to Analyze Impacts on NOAA's National

Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Puget Sound Early Winter Steelhead Hatchery Programs.

Best regards,

Kurt

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2 attachments

WFC.comments.CC.DEIS.pdf
261K

ATT00001
1K

Responses to The Conservation Angler Comments

Emails Dated December 2, 2015, and December 28, 2015

1. See Global Comment 2c.

2. See Global Comment 4c. Also see Global Comment 2b.

3. The comment attaches the December 28, 2015, comment letter from the Wild Fish Conservancy on the early winter steelhead draft EIS, and indicates support for those comments. See the response to comments made in the Wild Fish Conservancy letter.

December 28, 2015

Steve Leider
NMFS Sustainable Fisheries Division, West Coast Region
510 Desmond Drive SE, Suite 103
Lacey, WA 98503

Sent via email to: EWSteelheadHatcheries.wcr@noaa.gov

Re: Comments on DEIS for 5 Early Winter Steelhead Hatchery Programs

Dear Mr. Leider:

Trout Unlimited (TU), the nation's largest coldwater fisheries conservation organization dedicated to protecting and restoring our nation's trout and salmon resources and the watersheds that sustain them, submits this letter as comment on the Draft Environmental Impact Statement to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound, (hereafter referred to as the DEIS).

1 TU has submitted comments on previous NEPA documents regarding early winter steelhead hatchery programs in Puget Sound. Specifically, in letters dated January 23rd and May 4th of this year, TU submitted extensive comments on NEPA documents NOAA produced that covered Hatchery Genetic Management Plans for early winter steelhead hatcheries in Puget Sound. Those comments, to the extent pertinent to the current DEIS, are incorporated here by reference. In addition, by correspondence dated August 13, 2015, TU submitted comments on the proper scope of this DEIS.

At the outset, we want to thank NOAA for an improved analysis in the DEIS relative to the previously issued NEPA documents. Based on the changes we see, it is clear that NOAA considered comments TU provided and as a result the product is better. We also appreciate the improved range of alternatives. That said, we still see substantial shortcomings in the DEIS.

2 Prior to addressing the areas of analysis that still need improvement, we want to provide our take on what should be the preferred alternative. As we have discussed with the Washington Department of Fish and Wildlife (WDFW) and raised in the context of WDFWs process to identify Wild Steelhead Gene Banks in Puget Sound, TU believes that a new steelhead management approach is needed in Puget Sound both to achieve wild steelhead recovery and to improve fisheries; continuation of the status quo of segregated augmentation programs

using Chambers Creek stock is not working. Instead, we propose a variety of management approaches that we believe would better serve conservation and fisheries, as well as provide a much needed large scale experiment that enables steelhead managers to resolve critical questions such as: (1) the ability of wild populations to recover and provide fisheries in the absence of steelhead hatchery production; (2) the potential for integrated hatcheries to serve conservation and fisheries purposes; and (3) the relative performance of systems using wild-only, integrated hatchery programs, and segregated hatchery programs in light of both conservation and fishery objectives.

The determination of which Puget Sound winter steelhead basins should be managed in one of these three ways should be determined in light of a steelhead recovery plan for Puget Sound. Unfortunately, despite the passage of eight years since Puget Sound steelhead were first listed under the ESA, we still do not have a recovery plan for this DPS. This presents a challenge and calls for the need for NOAA to move forward expeditiously to complete a recovery plan.

2

Nonetheless, critical science work has been completed by the Puget Sound Steelhead Technical Recovery Team (TRT) that can be used to inform decisions about which Puget Sound winter steelhead populations could be managed in one of these ways consistent with recovery of wild populations in the DPS. In particular, the TRT's report, *Viability Criteria for Puget Sound Steelhead* (Hard et al. 2015), provides the information necessary to make informed decisions about appropriate management approaches for specific populations. For example, rivers such as the Skagit that have relatively strong wild populations relative to other populations in their respective Major Population Groups and sufficient habitat to produce abundant, diverse wild steelhead populations, should be managed for wild steelhead and not put at risk through the use of hatchery programs.

Prior to issuing the FEIS, TU respectfully requests that NOAA formulate a new, preferred alternative consistent with what we have proposed above.

<u>Shortcomings in the DEIS</u>

1. <u>The DEIS does not adequately use the critical information in the TRT's *Viability of Puget Sound Steelhead* report in its alternatives analysis.</u>

As noted above, the TRT did painstaking work analyzing the status of Puget Sound steelhead populations and what it would take to recover them considering all Viable Salmonid Population criteria (abundance, productivity, diversity, spatial distribution). Yet the DEIS only refers to this report with respect to a very narrow issue regarding broodstock management, and fails to analyze the alternatives with respect to the viability criteria established by the TRT. This needs to be remedied in the final EIS because NOAA, under 4(d) of the ESA, must determine whether hatchery operations appreciably reduce the likelihood of survival and recovery of Puget Sound wild steelhead listed as "threatened". Such a finding

3

3 can be made only if NOAA evaluates the action proposed by the co-managers and the other NEPA alternatives in light of what the TRT has determined is necessary for recovery.

2. <u>The DEIS does not address how the alternatives will enable or hinder rebuilding of early-timed wild winter steelhead, historically a large component of the winter steelhead populations in Puget Sound.</u>

The expression of life histories, including temporal and spatial variability in run and spawn timing, allows steelhead and other species to adapt to short-term and long-term environmental variability (Moore et al. 2014; Kendall et al. 2015). A major life history concern in Puget Sound is the depletion of early-timed wild winter steelhead. A substantial portion of wild steelhead historically entered rivers from late-November through January prior to the advent of the modern Chambers Creek hatchery program. Catch data from WDFW indicates that thousands of steelhead were caught annually in Puget Sound rivers in December and January (Larson and Ward 1955; WDG 1956; Taylor 1979; McMillan 2008). In fact, estimates of steelhead catch in many of the streams were higher in December and January than they were in March (WDG 1956; Royal 1972; Taylor 1979).

4 Run timing is partly heritable (Hendry et al. 2002) and early-timed steelhead spawn in different locations within a watershed than later-timed fish, thereby increasing chances of spatial isolation (McMillan et al. 2007). Simplification to such diversity and distribution have important implications for the future viability of wild steelhead in Puget Sound. Variation in life histories within and among steelhead represent the genetic and behavioral diversity that allows the species to adapt to short-term and long-term habitat changes (Moore et al. 2014). As an example, shifts in stream temperature and flow regimes related to climate change pose threats to wild steelhead (Waples et al. 2009), particularly in Puget Sound due to factors such as increased high flows during spawning and decreased summer low flows during rearing (Wade et al. 2009). Steelhead display remarkable plasticity and their life histories can change with a changing environment, but only if they have a reservoir of genetic and phenotypic diversity to draw upon (Moore et al. 2014; Kendall et al. 2014).

While early-timed steelhead and their distribution seems critical to the future viability of winter steelhead in Puget Sound, the DEIS does not address how current hatchery practices can be modified to allow their recovery. Rather, the DEIS only evaluates the effects of hatchery practices on the overall contemporary population structure, with a strong focus on abundance and lesser consideration of life histories. The flaw in this approach is that it does not account for the value of the historic breadth of entry and spawn timing that existed prior to the Chambers Creek program. A greater diversity of life histories could improve the chances and rate of recovery by reducing the influence of environmental variability, such as changes in marine survival and climate change.

4

It is perhaps unrealistic to expect full recovery of early-timed winter steelhead given all of the habitat alterations and the long history of harvest and hatcheries. However, rebuilding at least a substantial portion of this early-timed life history in populations deemed necessary to achieve viability for purposes of ESA recovery seems of critical importance. Indeed, it will likely be even more important in the face of climate change.

3. <u>The DEIS underestimates potential incidental fishing effects on early-timed wild winter steelhead.</u>

We appreciate that the DEIS (3.2.3.5 Incidental Fishing Effects) acknowledges that incidental fishing effects played a role in altering the population structure of winter steelhead by depleting the early-timed life histories (Myers et al. 2015). We agree that unmarked hatchery fish and wild fish were intermingled in mixed-stock fisheries where high harvest levels had the unintended consequence of selecting against early-timed winter steelhead. However, the DEIS also claims that the earlier run timing of hatchery steelhead enables fisheries to target hatchery steelhead with low incidental mortality to wild winter steelhead (3.2.3.5 Incidental Fishing Effects). This is an area that requires a greater level of attention because the evaluation of Incidental Fishing Effects seems to imply that those effects have been remedied to a large extent. While genetic effects receive the vast majority of attention, and are indeed important, the structure of the hatchery winter steelhead fisheries remains perhaps the biggest obstacle to recovering early-timed wild winter steelhead.

5

The effect of the fishery depends on its structure, which is a function of the hatchery program. Chambers Creek hatchery steelhead return mainly in December and January. Because they are produced solely for the purpose of a fishery, sport and tribal effort has traditionally focused intensively on the early season to maximize harvest of the hatchery steelhead. While effective in removing hatchery steelhead, the approach has also contributed to the decline of early-timed wild winter runs.

Therein lies the challenge with recovering early-timed winter steelhead. How can early-timed winter steelhead recover if they still must navigate through intensive sport and tribal fisheries? As mentioned in the DEIS, marking of hatchery steelhead allows for sport anglers to release wild fish and retain hatchery fish. Given that mortality of caught-and-released winter steelhead is often low, we agree with the NOAA opinion that marking allows a sport fishery to exist and have minimal impact on the wild steelhead. That said, it may also be that early-timed wild winter steelhead are so depleted that they cannot withstand any sport fishery. The topic requires a more detailed discussion.

The DEIS does not discuss the tribal commercial fishery, which has less flexibility than the sport fishery when it comes to minimizing effects on early-timed steelhead. As mentioned, the presence of a Chambers Creek hatchery program, by its nature, requires the commercial fishery to be most intense during

December and January. The by-catch of wild steelhead during those fisheries cannot be remedied by marking of hatchery fish because fish captured in nets cannot be distinguished until they have been harvested. Given their depleted status and the fishing intensity required to maximize harvest of hatchery steelhead, it is difficult to envision rebuilding early-timed wild steelhead in rivers where there is also a Chambers Creek hatchery program and fisheries structured to exploit those hatchery fish. 5

4. The DEIS focuses strongly on measures of genetic introgression and gene flow, but does not adequately address the loss of effective population size, diversity and distribution due to poor survival of hatchery and wild hybrids.

We appreciate the additional genetic information and analyses included in the DEIS. This was a major step forward from the prior EA. However, there are two issues that we feel require further resolution before NOAA can fully evaluate the cumulative genetic effects of Chambers Creek hatcheries on wild steelhead.

The first issue is that NOAA assumes there is minimal potential for hybridization between wild and hatchery steelhead. This is problematic for a few reasons. First, as mentioned on Pg. 243, NMFS and WDFW acknowledge an overall lack of information on the extent of early spawning by wild winter steelhead. Hence, the diagram by Scott and Gill (2008) on pg. 50 is based on theory more than empirical observations. Further, assumptions about the spawn timing are derived largely from the hatchery population in Tokul Creek and the best studied wild winter steelhead populations, including Snow Creek – which is in the Puget Sound DPS – and the Clearwater River, which is located on the Olympic Peninsula and is not part of the Puget Sound DPS. Given the overall lack of information on the full breadth of wild steelhead spawn timing in Puget Sound, it is not possible for NMFS to clearly assume that there is minimal opportunity for interbreeding. 6

As previously mentioned, we agree with NOAA that the early-timed component of the wild steelhead run has been depleted, and consequently, so have opportunities for interactions between hatchery and wild steelhead. However, there are still some early-timed wild winter steelhead returning to Puget Sound. For example, McMillan (2014) provided data from tributaries in the Skagit River that suggested the potential for a greater overlap in spawn timing than is currently assumed. Further, Seamons et al. (2004a, 2012) still found that using early-timed stock did not prevent interbreeding between wild and hatchery steelhead and that up to 80% of the offspring in a given year were from hatchery x wild matings. As a result, the authors (Seamons et al. 2012) concluded that "*Divergent life history failed to prevent interbreeding when physical isolation was ineffective, an inadequacy that is likely to prevail in many other situations.*"

Additionally, surveys last year revealed numerous redds (~120 redds) in Nookachamps Creek in the lower Skagit River revealed a large proportion of

those redds were spawned prior to mid-March (WDFW's assumed deadline for the onset of spawning by wild steelhead, and the end of spawning by Chambers Creek steelhead), indicating there was potential for overlap between hatchery and wild steelhead. This means that although there has been strong selection against early-timed wild steelhead, the opportunities for interbreeding with Chambers Creek steelhead still appear to be greater than the DEIS assumes. Accordingly, more research is necessary to document the breadth of spawning by wild and hatchery steelhead in Puget Sound, both for the purpose of updating the diagram by Scott and Gill (2008) and for identifying streams where early-timed winter steelhead still remain.

The second issue is that the DEIS focuses strongly on genetic effects, such as gene flow and introgression, but does not fully consider the erosion of genetic and life history diversity. We agree that gene flow and introgression are an important concern. However, equally as important as the hybrid HxW fish that survive are the hybrids that fail to survive and the effect that reduced survival has on the breadth of life histories and subsequent population viability. We appreciate NOAA acknowledging that loss of wild genes through poor survival of hybrid HxW individuals is a potential concern for early-timed wild winter steelhead (p. 229), but mere acknowledgment is not enough.

6

Erosion of life histories and truncation of run and spawn timing through reduced survival of HxW hybrids could have a strong effect on spatial distribution, which is an important component of population viability. For example, early-timed steelhead may spawn earlier and in different locations than later-arriving steelhead (McMillan et al. 2007). This also seems to be what was observed by McMillan (2014), where early-timed wild winter steelhead were found to predominately spawn in small tributaries where low flows in spring would otherwise restrict access to later-arriving steelhead. As a result, a loss of early-timed steelhead is likely to result in a truncation not only of life histories, but also a reduction in the spatial distribution of spawning adults. This type of effect is not discussed in the DEIS.

Changes to life history diversity and distribution have important implications for the future viability of wild steelhead in Puget Sound. Life history differences within and among steelhead provide the range of opportunities for future adaptation to the changing environment. For example, Puget Sound streams are predicted to warm considerably over the next fifty-years, and as a result, earlier entry and spawning are likely to be part of the solution for wild steelhead persistence as it is now in warmer climates of coastal Oregon and northern California (Busby et al. 1996). It would provide juvenile fish the benefit of earlier emergence and greater growth entering summer, which will be critical to maintaining an evolutionary pace with the earlier onset and greater duration of summer low flows. This will not be possible however if the genetic and phenotypic diversity of steelhead continues to be limited and constrained by the early-timed Chambers Creek stock that currently occupy the early-timed niche in Puget Sound watersheds.

5. <u>The DEIS does not address continuing, long-term effects of the Chambers Creek hatchery program and the potential for remedying those effects.</u>

7 Over the past forty years Chambers Creek hatchery programs have induced a wide array of effects on wild steelhead in Puget Sound. However, the DEIS on pg. 236 indicates that NOAA is not concerned with how much introgression and life history erosion may have occurred in the past, but rather, they are only concerned with genetic effects that are occurring or will occur in the future. The lack of a retrospective view is problematic because without it, it is not possible to determine the effects the hatchery programs have had in sculpting the current populations of wild steelhead. It is also inconsistent with the viability criteria established by the TRT.

6. <u>The DEIS does not fully consider the effects of precocious hatchery parr on potential for spawn timing overlap with wild steelhead.</u>

We appreciate that the DEIS now includes an acknowledgement that the EA did not adequately address the problem of precocious hatchery parr (Appendix B, pg. B-4). As mentioned in our EA comments, a proportion of hatchery smolts never migrate to the ocean and instead remain in freshwater as residents or "residuals" (McMichael et al. 2000). Residency is more common in males than females (Rundio et al. 2012) and a variable proportion of those males will mature rather than become smolts (hereafter referred to as precocious males: Schmidt and House 1979; Tipping et al. 2003; Hausch and Melnychuk 2012). Precocious hatchery males are released into the river during or near the peak spawn time for wild steelhead and have been observed spawning with wild female steelhead (McMillan et al. 2007). Thus, selection for timing of return by adult steelhead does not eliminate precocial males with different spawn timing, indicating the
8 potential spawn timing for Chambers Creek steelhead is broader than stated in the DEIS. This type of information needs to be included in the theoretical diagram by Scott and Gill (2008), otherwise we are left to assume that the only potential spawning interactions are those posed by returning anadromous adults.

Precocious hatchery males could be a substantial problem in Puget Sound, yet there is no numerical calculation of their potential abundance in relation to wild steelhead nor is there any quantitative evaluation of their effects. As mentioned in our comments on the original EA, we think this is important per the following rationale. A recent review of residualism by Hausch and Melnychuk (2012) found that an average of 5.6% of smolts (for all sexes) residualized Range = 0-17%). Conservatively then, if only 2% of the males are precocious, the planned release of 10,000 smolts in the Dungeness River -- of which 5,000 are male -- would produce 100 precocious males. The release of 150,000 into the Nooksack River and 130,000 smolts into the Stillaguamish River would produce, 1,500 and 1,300 precocious males, respectively. This would compare to an average of only 244 wild male steelhead in the Dungeness (mean population size of 487 from 2011-

2013) and 884 and 926 males in the Nooksack (mean population size of 1,768 males in Table 11, Pg. 37) and in the Stillaguamish Rivers (mean population size of 1,852 in Table 11, Pg. 37), respectively. The rivers also likely support wild resident rainbow trout and precocious parr (e.g., McMillan et al. 2007) that could offset the balance of hatchery males (e.g., Christie et al. 2011), but the numbers are not known. Regardless, precocious hatchery males are likely very common and may not only represent a genetic sink, but may also provide tremendous competition for wild male steelhead and trout. 8

7. <u>The DEIS analysis of the sport fishing benefits conferred by the five hatchery programs fails to consider the negative economic and fishing opportunity impacts of the existing augmentation programs and fails to consider the potential for restructured fisheries to offset and potentially even exceed the relatively small benefits provided by the current hatchery augmentation programs.</u>

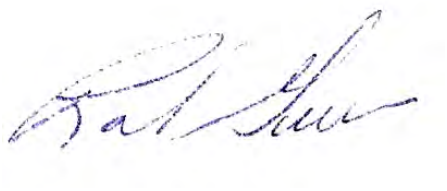
We appreciate that the socioeconomic analysis in the DEIS is much improved from the one that appeared in the DEIS early last year. Yet it still likely overestimates the economic value of the existing augmentation hatcheries in two ways. First, it fails to account for the fact that the mixed-stock (hatchery and wild) fisheries prosecuted in both the sport and tribal fisheries for many years are primary factors in the decline of wild steelhead, and, in turn, the decline in fishing opportunity as protective measures required under the ESA came into play. Thus, while the sport fishery targeting Chambers Creek hatchery fish certainly has economic value, it also restricts catch-and-release fishing opportunity and the economic activity that it did and could again provide. This trade-off is not even mentioned in the DEIS let alone analyzed, which is a serious omission. 9

Second, a related flaw is that the DEIS assumes that if no hatchery fish were available for sport harvest there would be no way to restructure fisheries either focused on wild fish or fish produced by an integrated hatchery using local broodstock (Alternative 4). The consequence of this major assumption is to assume that sport fishing-related economic activity will be reduced proportionate to the reduction in hatchery output. Thus, the potential for new fisheries to offset or even exceed the economic loss associated with elimination of the Chambers Creek augmentation programs is never addressed, resulting in a skewed analysis biased in favor of the existing augmentation hatchery programs.

In closing, TU wants to emphasize that our goal is to recover abundant, fishable populations of steelhead in Puget Sound, a goal that is broadly shared. It is our desire to work with the co-managers and NOAA to develop a new approach along the lines of the alternative we posited above, which would be a more effective approach to recovering wild steelhead, improving fishing opportunity, and increasing our understanding of the relative benefits of different management approaches, than any of the four alternatives analyzed in the DEIS. 10

10 Thank you for your consideration. We hope to have the opportunity to meet with NOAA and WDFW in the near future to discuss these topics and the alternatives for moving forward.

Sincerely,



Rosendo Guerrero
Chair, Washington Council of Trout Unlimited

John McMillan
Science Director, Wild Steelhead Initiative

Cc: Will Stelle, Jr.
Barry Thom
Jim Scott, WDFW

Citations

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Responses to Trout Unlimited Comments

Letter Dated December 28, 2015

1. Comment noted. See also Global Comment 2c.

2. Alternatives - See Global Comment 1a.

3. Analysis/Steelhead – The comment suggests that the draft EIS fails to adequately analyze the alternatives with respect to viability criteria established by the TRT. NMFS considered viability associated with VSP parameters (abundance, productivity, diversity, and spatial structure) extensively and feel it has been applied sufficiently for the purposes of the EIS. See Subsection 4.2, Salmon and Steelhead, for this analysis. Subsection 1.7.12, Recovery Plans for Puget Sound Salmon and Steelhead, will identify how the recovery criteria identified by the TRT will be applied. Finally, Subsection 1.3, Purpose of and Need for the Proposed Action, states that the purpose of the EIS review is not document whether ESA requirements are met in the EIS analysis. ESA criteria and determinations are made in the ESA determination documents

4. Analysis/Steelhead – The comment suggests that the draft EIS does not address how the alternatives will enable or hinder rebuilding of the early-timed wild winter steelhead. The effects of the alternatives on potential expression of early-timed natural-origin winter steelhead returns have been added to Subsection 4.2, Salmon and Steelhead. Also see Global Comment 4b.

5. Analysis/Steelhead –The comment suggests that the draft EIS underestimates potential incidental fishing effects on early-timed winter steelhead. Subsection 3.2.3.5, Incidental Fishing Effects, acknowledges that harvest management activities during the time when early winter steelhead are present has been protective of the majority of natural-origin winter steelhead. Although this harvest approach has the potential to hamper the rebuilding of early-timed natural-origin winter steelhead (see response to Comment 4), no new information is available to specifically examine impacts to the early-timed portion of natural-origin steelhead runs or that would indicate early-timed winter steelhead are so depleted that they cannot withstand sport or tribal fisheries as regulated.

   The following is largely summarized from the PS Hatcheries Draft Environmental Impact Statement which is incorporated by reference to this EIS. The PS Hatcheries Draft Environmental Impact Statement in Appendix B, Subsection 2.1.5, Harvest Management, clarifies that the harvest of fish in Puget Sound is managed to support conservation standards that comply with the ESA for listed fish, which includes steelhead. Where ESA-listed fish co-mingle with non-listed hatchery-origin fish, harvest is constrained so that it does not impede recovery. Harvest of fish in Puget Sound that may result in 'take' of a listed species, and associated actions to minimize the risks of adverse effects on those species, are presented in recent Puget Sound harvest management plans for Chinook salmon and steelhead (PSIT and WDFW 2010a, 2010b). As described in PS Hatcheries Draft Environmental Impact Statement Subsection 3.2.3, General

Risks and Benefits of Hatchery Programs to Fish, the effects of those fisheries on listed Chinook salmon, summer-run chum salmon, and steelhead, as well as other listed species are disclosed in a separate EIS (NMFS 2004), and are evaluated in separate ESA section 7 biological opinions and 4(d) Rule evaluations (e.g., NMFS 2015a). From these reviews, NMFS determined that harvest actions would not jeopardize the Puget Sound Steelhead Distinct Population Segment (NMFS 2015a). Because harvest impacts were previously evaluated in NMFS (2004) and incorporated by reference in this EIS, the effects of harvest on listed steelhead were not analyzed in detail in the PS Hatcheries Draft Environmental Impact Statement, or in this early winter steelhead EIS.

Additional information on the effects of tribal fisheries for steelhead are discussed in in this EIS Subsection 3.5.2, Fisheries (Socioeconomics), and Subsection 3.6, Environmental Justice, and in Subsection 4.5, Socioeconomics, and Subsection 4.6, Environmental Justice.

6. Analysis/Genetics – See Global Comment 4a and Global Comment 4b.

7. Analysis/Genetics – See Global Comment 4b.

8. Analysis/Genetics – See Global Comment 4b.

9. Analysis/Socioeconomics – The comment suggests that the draft EIS fails to address the impact to natural-origin steelhead from past fisheries on early winter steelhead, and fails to address the potential for restructured fisheries on natural-origin fish or returns from native broodstock programs in absence of early winter steelhead programs.

   The draft EIS acknowledges the effects of past actions, including harvest, in Subsection 5.2, Past Actions, and in Subsection 3.2.1, General Factors that Affect the Presence and Abundance Salmon and Steelhead, in the PS Hatcheries Draft Environmental Impact Statement (NMFS 2014). The draft EIS does not assume that no fisheries options would be possible if early winter steelhead programs were terminated. For example, in Subsection 4.2.4, Alternative 4 (Native Broodstock), the draft EIS states that fisheries targeted hatchery-origin steelhead may occur when returns of natural-origin winter steelhead are large enough. Subsection 4.2.1, Alternative 1 (No Action), has been revised to clarify that fisheries may be considered when natural-origin steelhead are recovered or are large enough to support fishing. Decision processes to structure steelhead fisheries are beyond the scope of this EIS.

10. Alternatives - See Global Comment 1a.

December 28, 2015

William W. Stelle, Jr.
Reginal Administrator
NMFS, West Coast Region
National Oceanic and Atmospheric Administration
7600 Sand Point Way, NE
Seattle, WA 98115-0070
Sent via email to: ewshatcherieseis.wcr@noaa.gov

Re: Early Winter Steelhead Hatchery EIS

Dear Mr. Stelle,

We appreciate the opportunity to submit this letter as comment on NOAA's Draft Environmental Impact Statement regarding early winter steelhead hatchery programs.

We believe there are some biological risks, economic impacts and timing issues with recovery planning that have been overlooked in this assessment. The following summarizes our key concerns.

1

No steelhead recovery plan in place yet.

It is hard to evaluate how these hatchery programs fit into the overall recovery strategy or the limits the hatchery programs will pose to recovery without the steelhead recovery plan completed. A better discussion of how the recovery plan will affect these programs, and how they will be adapted, is suggested if this analysis and the HGMPs are approved prior to the completion of the recovery plan.

Assessment of impacts to wild fish productivity

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2 When a hatchery fish spawns with a wild fish the resulting offspring have a much lower survival rate. While WDFW's introgression work estimates how much hatchery/wild pairing has taken place, there is no discussion of the projected effects on these populations by taking individual wild adults (and their offspring) out of the productivity equation resulting from spawning with hatchery origin adults. There should be an analysis of this resulting loss of productivity – especially in very small populations.

Cumulative effects

3 It is critical that your review evaluates the cumulative effect of each and all of these programs and it is questionable that you have done that sufficiently in this review

Wild steelhead management zones

4 NOAA has made an effort in the Lower Columbia to ensure that there are significant populations of wild steelhead that are managed as wild fish zones to preserve high quality genetic stock. Identifying wild fish management zones is a critical and essential step in ensuring future fisheries that are self-sustaining. More information on how the wild fish management zones will be chosen and implemented – and how decisions on these programs will affect zoning would be helpful.

The risk of predation on juvenile fall Chinook, fall chum, pink, and sockeye salmon

Your premise is that because WDFW is "releasing steelhead when they are fully smolted, and, thus, actively migrating to marine waters (WDFW 2014a; WDFW 2014b; WDFW 2014c) …it would result in a low, negative effect on predation of natural-origin fall Chinook, fall chum, pink, and sockeye salmon."

5 While this may be true when discussing relatively healthy populations where low predation has a low negative effect, in critically small populations, it seems this predation can impact a large percentage of the wild population. Given the low numbers of some of the listed Chinook populations, Dungeness River's current wild spring Chinook (150); Nooksack Chinook (SF:53, NF:211), there should be a better explanation of release timing and overlap with these juvenile populations and the abundance of each in order to evaluate the negative impact.

As an example, in 2010 WDFW estimated approximately 30,000 juvenile spring Chinook were naturally produced in the Dungeness River. WDFW proposes to release 10,000 steelhead smolts from Dungeness Hatchery. If each of these smolts ate just one naturally produced Dungeness spring Chinook juvenile, 30% of the natural production would be lost. Without timing, space and abundance of juvenile data it is difficult to evaluate the effect on these critically low populations of listed Chinook.

Compliance of instream structures with NMFS's screening and fish passage criteria

6

There are a number of facilities that are either scheduled to be updated as funding is provided or meet the standard that was in place when they were built. Standards for fish passage and protection of juvenile fish from being trapped on hatchery intake screens have been update for a legitimate reason. The continued operation of a structure that doesn't meet current standards increases the risk to listed fish. Facilities that have not met NMFS 2011 criteria should not be allowed to operate in waters with listed fish – until they meet those standards.

Economic benefits

There is an over-estimate of the economic benefit of these three winter steelhead programs. First, it lumps summer and winter steelhead populations together and states these three programs "produce 27 percent of the total hatchery-origin winter and summer steelhead released in Puget Sound annually for the purposes of augmenting fisheries harvests". The reader really has no way to assess the economic benefit of each individual hatchery program release or of the winter programs. Not all steelhead programs have the same survival from smolt to adult and not all programs contribute to fishers' at the same rate. Lumping winter and summer releases as well as a 10,000 Dungeness juvenile release with a 50,000 juvenile release in Nooksack doesn't bring clarity to the economic benefit of these individual programs in relation to their cost/risk. Each of these programs should have data presented to estimate survival (SAR) and catch in their respective watersheds.

Steelhead hatchery programs are expensive. WDFW's report on the cost per adult fish produced to the fishery doesn't seem to be discussed, nor the cost of improving these facilities to meet environmental standards.

7

Cost to produce adult steelhead

As part of WDFW's 2009 Hatchery Performance Summary Tables, WDFW estimated the following Cost of Adult produced from on-station releases:

- **Dungeness and Hurd Creek:** 55k juvenile release; 644 adults produced; $84/fish (Includes Dungeness, Hurd, western straits plants)
- **Kendall Creek Hatchery:** 150k juvenile release; 403 adults produced; $286/fish
- **Whitehorse Ponds Hatchery:** 150k juvenile release; 1,018 adults; $92/adult

Determined by: 1. Pro-rating operating budget across all on-station production at the hatchery; then prorated by species; 2. Cost of mass marking added to pro-rated cost; 3. Dividing cost by number of adults produced. 4. Costs of CWT was NOT included;

We question the economic potential of the selected Chambers Creek hatchery stock for these programs. It was noted in the recent 2013 Skagit River steelhead evaluation report that Chambers Creek origin hatchery steelhead have survival rates even lower than wild steelhead during low productivity ocean conditions. This will result in even less contribution to fisheries and an even poorer return on an invested dollar in hatchery production.

8

We recognize the state and tribal co-managers' interest in developing new fishing opportunities and are supportive of programs that are not expected to impair the productivity, life history diversity, genetic composition and spatial structure of wild steelhead populations. We also believe these programs should be cost effective for the public. Based on the information provided in this evaluation we are not fully convinced that these risks can be sufficiently minimized and encourage additional analysis and planning.

Sincerely,

Guido Rahr
President
Wild Salmon Center

Sara LaBorde
Executive Vice President
Wild Salmon Center

Responses to Wild Salmon Center Comments

Letter Dated December 29, 2015

1. Analysis/NEPA – See Global Comment 4c.

2. Analysis/Genetics - The comment noted that interbreeding between hatchery-origin and natural-origin steelhead may decrease to productivity of the natural-origin steelhead. See Global Comment 4a, and revised Appendix B.

3. Cumulative Effects - The comment questions the sufficiency of the cumulative effects analysis, but does not identify specific concerns with the analyses. The draft EIS includes a Chapter on cumulative effects, which describes the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions (Chapter 5, Cumulative Effects). In Chapter 5, Cumulative Effects, the analyses disclose the effects of all salmon and steelhead hatchery programs in Puget Sound and in the larger cumulative effects analysis area (Salish Sea) as well as effects of climate change.

4. Analysis – The comment requests more information on Washington State's Wild Fish Management Zones and their relationship to the hatchery programs reviewed in the draft EIS. As discussed in Subsection 5.4.4, Hatchery Production, a potential exists for WDFW to complete its process to identify and implement such management zones for Puget Sound steelhead, but the zones have not yet been delineated by the State.

5. Analysis – The comment acknowledges that the draft EIS identifies a risk of predation by hatchery-origin steelhead on juvenile steelhead smolts. The comment raises the potential for predation by hatchery-origin steelhead on the depressed population of Dungeness spring Chinook salmon as a concern. As discussed in Subsection 3.2.3.2, Competition and Predation, and illustrated in Table 3.2.4 in the Puget Sound Hatcheries Draft Environmental Impact Statement, the average length of natural-origin Chinook salmon yearlings is 4.7 inches (120 mm), whereas the average length of hatchery-origin steelhead smolts is 8.1 inches (206 mm). Thus, the spring Chinook salmon would not be expected to be prey of hatchery-origin steelhead because they are not less than one-third the length of the hatchery-origin steelhead smolts.

6. Comment noted. Subsection 3.2.3.3, Hatchery Facility Risks, describes the status of compliance of the hatchery programs with water intake and fish passage screening criteria. Note that Table 9 has been revised to correct an error regarding compliance of the intake screen for the Dungeness Hatchery with the older NMFS screening criteria. Subsection 4.2, Salmon and Steelhead, discusses hatchery facility effects under the alternatives.

7. Analysis/Socioeconomics - The comment suggests that the analysis of socioeconomic effects for "these three early winter steelhead programs" was inadequate. It is likely that the comment refers to the three programs that were analyzed in the Draft Environmental Assessment for Three Early Winter Steelhead Programs in the Dungeness, Nooksack, and Stillaguamish River Basins (NMFS

2015), which preceded this EIS. Based on public comments, the socioeconomics analyses in the Draft Environmental Assessment for Three Early Winter Steelhead Programs in the Dungeness, Nooksack, and Stillaguamish River Basins (NMFS 2015) were substantially revised for inclusion in the draft EIS (Subsection 3.5, Socioeconomics; Subsection 4.5, Socioeconomics; Appendix C, Socioeconomic Methods). The EIS analyses include all five of the early winter steelhead programs in Puget Sound. Information on all of the individual programs is included in the draft EIS, such as WDFW's report on cost per adult hatchery-origin fish that return (e.g., Subsection 3.5.1, Hatchery Operations).

8. Comment noted.

Hatchery Scientific Review Group
Pacific Salmon Hatchery Reform
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Lee Blankenship, Vice-Chair
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December 23, 2015

William W. Stelle, Jr.
Regional Administrator
NMFS West Coast Region
7600 Sand Point Way NE
Seattle, WA 98115

SUBJECT: Review of Draft Environmental Impact Statement to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound

Dear Mr. Stelle,

The Hatchery Scientific Review Group has reviewed the DEIS for Puget Sound Early winter Steelhead and would like to provide the following comments. We have limited our comments to the method of analysis and proposed standards for the genetic impacts of hatchery steelhead on native populations of steelhead found within those basins.

We believe the DEIS adequately identifies the general mechanisms through which hatchery programs can affect natural-origin salmon and steelhead populations (Table 6 page 44), Chapter 3, Affected Environment, and Appendix B, Genetic effects analysis of early winter steelhead programs proposed for the Nooksack, Stillaguamish, Dungeness, Skykomish, and Snoqualmie River Basins of Washington.

1 In addition the DEIS includes an accurate list of recent (last 5 years) risk reduction measures implemented by WDFW at hatcheries producing early winter steelhead in Puget Sound (Chapter 3 page 48).

The DEIS proposes a logical, scientifically based method for analysis and appropriate standards (pHOS/PEHC), for assessing the genetic risks from hatchery populations to affected natural populations (Sec 3.2.3.1). In addition the DEIS states: *"Considering all the guidance, and empirical and theoretical information currently available, NMFS concludes that gene flow from EWS into Puget Sound steelhead populations may not pose significant risk to the Puget Sound*

1 *steelhead populations, provided the gene flow rate is low, that appropriate metrics are developed to estimate gene flow, that gene flow is estimated with a reasonably high level of certainty, and that adequate monitoring is in place to ensure that gene flow criteria are met"*. (Appendix B page 7). We strongly support this statement.

We hope you find these comments useful.

Sincerely,

Andy Appleby
Co-Chair
Hatchery Scientific Review Group

Peter Paquet
Co-Chair
Hatchery Scientific Review Group

cc: Barry Thom, Deputy Regional Administrator West Coast Region, NOAA
Jim Unsworth, Director, Washington Department of Fish and Wildlife

Responses to Hatchery Scientific Review Group Comments

Letter Dated December 23, 2015

1. Analysis - Adequacy of EIS noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Draft EIS for Five Early Winter Steelhead Hatchery Programs in Puget Sound

rgarner755@aol.com <rgarner755@aol.com> Mon, Dec 28, 2015 at 10:20 PM
To: will.stelle@noaa.gov, EWShatcheriesEIS.wcr@noaa.gov, Robyn_Thorson@fws.gov, bob.turner@noaa.gov
Cc: rob.jones@noaa.gov, scottjbs@dfw.wa.gov, Irene.Goldenberger@dfw.wa.gov, Bradley.smith@wwu.edu, larryc@mastermarine.com, mwecker@wwest.net, mahnkenconradvw@q.com, alsenyohl@aol.com, nello.picinich@ccapnw.org, randyk@lummi-nsn.gov, rayfryberg@tulaliptribes-nsn.gov, sschuyler@upperskagit.com, mcrewson@tulaliptribes-nsn.gov, Andy-Appleby@comcast.net, lee.blankenship@nmt.us, urabeck@comcast.net, gregmueller@centurylink.net

William W. Stelle, Jr.
Regional Administrator
NMFS West Coast Region
7600 Sand Point Way NE
Seattle, WA 98115

Dear Will:

1 Please find Frank Urabeck's DEIS comment letter that is fully supported by the Puget Sound Anglers State board. We appreciate the meaningful opportunity you provided for our input. The Puget Sound Anglers is Washington State's largest fishing club. It is comprised of 16 statewide chapters and we have been involved many, many years-working on our fisheries. We are true conservationist and believe in restoring our resources for our kids and grandkids so that they might have better opportunity than we had. In working with NOAA and many other organizations (that many also work with NMFS/NOAA) over the years, we have helped to repair and keep many of our fisheries alive and some even thriving. We are asking you to please direct the utmost urgency to expedite the DEIS/HGMPs for the EWS by April 1, 2016 to give time for litigation so the smolts can be in the rivers by May 1, 2016 at the latest.

2 Our organization believes we can responsibly have both hatchery and wild steelhead production in the Dungeness, Nooksack, Stillaguamish, Skykomish and Snoqualmie Basins. Mother nature this past few years has been extremely tough on our fish and we might be nearing the end of some of our migrating fish, leaving hatcheries as the only tool to keep any runs returning. We do not want NOAA to allow this to set a precedence of salmon hatchery closures next. Please direct of redirect all management tools to meet the dates above ensuring those smolts be released on time-with no exception.

Our PSA Votervoice has sent you 1132 requests to expedite the approvals of those goal dates established above.

3 We have reached out to your organzation, USF&W service, WDFW, the recreational anglers of Washington State, CCA, STC, Coastal Commercial and Recreational fishing fleet, as well as the tribes to provide meaningful input on this issue. All have the same united voice that the impact of these early winter hatchery steelhead releases are not the problem, but habitat is. Steelhead are in trouble from Alaska to California and this is not just a localized problem as you well know.

We are counting on you to not let litigation drive fish management but sound science only. I am attaching Franks Urabecks draft comment letter, which you already received from him. We are in full support of the letter.

Sincerely Yours,

Ron Garner
President
Puget Sound Anglers
State Board

Frank Urabeck DEIS letter to NOAA.docx
24K

Responses to Puget Sound Anglers Comments

Email Dated December 28, 2015

1. Analysis - The comment indicates support for and attaches Frank Urabeck's comment letter. See responses to that letter.

2. NEPA - See Global Comment 2a.

3. Comment noted.

CCA WASHINGTON

Coastal Conservation Association

TEXAS • LOUISIANA • MISSISSIPPI • ALABAMA • FLORIDA • GEORGIA
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December 28, 2015

William W. Stelle, Jr., Regional Administrator
NMFS West Coast Region
VIA EMAIL: EWShatcheriesEIS.wcr@noaa.gov

RE: COMMENTS ON DRAFT ENVIRONMENTAL IMPACT STATEMENT

Dear Mr. Stelle,

We appreciate this opportunity to provide comments on the November 13, 2015 Draft Environmental Impact Statement to analyze impacts of NOAA's National Marine Fisheries Service proposed 4(d) determination under limit 6 for five early winter steelhead hatchery programs in Puget Sound (DEIS).

1 We have carefully reviewed the four alternatives presented in the DEIS and conclude that the preferred alternative for publication in the final EIS and ROD should be Alternative 2 (Proposed Action) that has been jointly submitted by the Washington Department of Fish and Wildlife (WDFW) and the Puget Sound treaty tribes (co-managers) in the form of hatchery and genetic management plans (HGMPs) for five early winter Puget Sound steelhead hatchery programs. Since it is unclear whether wild steelhead populations are robust enough to support an integrated hatchery program, we believe it is premature to seriously consider Alternative 4, although it may deserve consideration in the future.

2 We urge NOAA and USFWS to take timely action to approve the early winter steelhead hatchery programs by April 1, 2016 to ensure the last year of remaining steelhead smolts can be released into Puget Sound rivers. Failure to meet this deadline will likely result in the end of these hatchery programs, not based on science or an assessment of their effects, but on litigation and procedural delays.

3 The overall value of the social and economic benefits of the hatchery steelhead programs is recognized in the DEIS. However, the critical importance to local communities, particularly those some distance from population centers needs to be given greater emphasis. Mom and pop tackle suppliers and fishing guide services are key elements of the sport fishing infrastructure that rural communities rely upon.

4 The DEIS could more clearly state that hatcheries are largely the result of an attempt to mitigate for the destruction of viable fish habitat, directly and indirectly. The co-managers have noted that issues such as impervious road and building surfaces, stream bank erosion, dams, etc. have had major adverse impacts on steelhead and salmon habitat. It is unlikely that these habitats will be restored to pre-development levels. Therefore, our reliance on hatcheries for viable sport and tribal harvest fisheries will be even more imperative in the future.

5 Sport fishers are arguably the greatest source of public support for habitat protection and restoration for salmon and steelhead. Further eliminating sport fishing opportunity, as would happen under Alternatives 1, 3 and 4, would make it more difficult to save natural origin steelhead as anglers become less invested in the health of the resource. The human aspect of this analysis must be given greater weight. Currently over 800,000 individuals purchase sport fishing licenses annually, generating millions of dollars in revenue for WDFW to study, plan, and save ESA listed steelhead and salmon. Reducing steelhead sport fishing opportunity will negatively impact license revenues and WDFW's conservation mission.

6 While we leave it to the co-managers to assess the presentation of science in terms of accuracy and reasonableness, it is our understanding that the Hatchery Scientific Review Group (HSRG) has generally found the presentations credible. The HGMPs go to great lengths to provide an accurate assessment of the genetic effects of hatchery steelhead on naturally produced steelhead. The actual gene flow between hatchery and wild populations are much smaller than claimed by some anti-hatchery groups and are below 2% in some river systems. It is our understanding that decisions regarding the effect of the programs should be made from an overall Puget Sound steelhead DPS perspective and that every basin does not necessarily have to meet the 2% gene flow criteria.

7 It would appear the DEIS fails to recognize the many recent improvements that have been made to the operations of these Puget Sound early winter steelhead hatchery programs, in part in response to HSRG assessments and principles for hatchery reform. These improvements have reduced the gene flow and may also result in reductions below what the DEIS suggests. Accordingly, there should be some provision in the final NMFS decision to revisit production levels in the future, if gene flows can be kept within acceptable levels of risk. However, it is important that some viable level of early winter hatchery steelhead production will continue at all five of the hatchery facilities.

8 We question the DEIS finding that water use would in fact decrease if early winter steelhead production was terminated as the co-managers would likely substitute other fish at these facilities. Also, the discussion of water use needs to focus on the relatively short reaches where flows have been diverted between intakes and return flow discharges in terms of significantly reducing any adverse impacts in terms of fish passage, spawning and rearing conditions.

9 Lastly, we ask that all the comments received in response to this public input process be included in the DEIS comment record.

Thank you again for the opportunity to provide comments on this DEIS.

Sincerely,

Nello Picinich
Executive Director
CCA Washington

Responses to Coastal Conservation Association Comments

Letter Dated December 28, 2015

1. Alternatives – See Global Comment 1a.

2. NEPA – See Global Comment 2a.

3. Analysis/Socioeconomics – The comment suggests the socioeconomic benefits to local communities that are removed from urban centers (i.e., rural communities) should receive greater emphasis. As described in Subsection 3.5, Socioeconomics, and Subsection 4.5, Socioeconomics, the EIS includes an analysis of socioeconomic benefits of the hatchery programs to rural communities (e.g., see communities identified in Subsection 3.5.1, Hatchery Operations), and broadly within the analysis area. It is unclear what additional analysis of impacts to rural communities the commenter would recommend.

4. Editorial - The comment suggests that the EIS should clearly state that hatcheries are largely the result of mitigation for loss of habitat. The EIS discusses hatchery production and mitigation in the Summary and in Subsection 1.3, Purpose of and Need for the Proposed Action. Further, the consequences of habitat degradation are discussed in Subsection 3.2.1, General Factors that Affect the Presence and Abundance of Salmon and Steelhead, and Chapter 5, Cumulative Effects. See also Global Comment 4d.

5. Analysis/Socioeconomics - The comment suggests that the EIS should acknowledge that recreational fishers who are provided fishing opportunities are more likely to engage and support the habitat protection and restoration efforts that are necessary to recover ESA-listed salmon and steelhead. While NMFS does not disagree that people with fishing interests can be motivated, the comment did not cite specific studies confirming this linkage, and NMFS was unable to find any studies confirming this linkage. Therefore, NMFS did not add an analysis of the effects of fishing opportunity on participants' personal and political involvement in conservation.

6. Analysis/Genetics – The comment suggests that not all basins should have to meet a criterion of 2 percent for gene flow. Please note that the analyses of genetic effects in the EIS focuses on effects to steelhead populations associated with the five hatchery programs. Decisions regarding the 4(d) Rule criteria are made during with ESA determination process; they are not made in the EIS process.

   The genetic analyses have been updated in Subsection 4.2, Salmon and Steelhead, and in Appendix B. See also Global Comment 4a.

7. Editorial - The comment suggests that the EIS fails to acknowledge improvements in past hatchery practices. However, Subsection 3.2.2.4, Background on Existing Early Winter Steelhead Hatchery Programs, describes risk reduction measures that have been implemented in early winter steelhead hatchery programs in recent years. In addition, Subsection 4.2, Salmon and

Steelhead, and Appendix B, have been revised to include projected genetic effects under the HGMPs.

The comment further suggests that NMFS should include provisions for future changes in production levels. Subsection 1.6.6, Public Review and Comment, notes that HGMPs may change in the future and that additional NEPA and ESA compliance analyses may be needed. Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, has been revised to provide further clarification about changes in HGMPs.

8. Analysis/Water Quantity - The comment suggests it is unlikely the No-action Alternative would result in reductions in water quantity usage because the facilities not used to produce steelhead would be used to produce other species. After the draft EIS was prepared, WDFW indicated that in absence of early winter steelhead production it would use the available water for production of other species. Therefore, the analysis of water quantity in Subsection 4.1, Water Quantity, has been revised to reflect this scenario. As described in Subsection 4.1, Water Quantity, effects on surface flow effects address bypass reaches associated with hatchery facilities.

9. NEPA - The comment requests that all comments received on the draft EIS during the public comment period be included in the comment record. All comments that were received during the public comment period are part of the project record.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Genetic Management Plan / Draft Environmental Impact Statement (HGMP/DEIS)

1 message

alsenyohl@aol.com <alsenyohl@aol.com> Tue, Dec 22, 2015 at 10:45 PM
To: EWShatcheriesEIS.wcr@noaa.gov, Robyn.Thorson@fws.gov
Cc: jim.unsworth@dfw.wa.gov, jim.scott@dfw.wa.gov, Ron.Warren@dfw.wa.gov, kirk.pearson@leg.wa.gov, mdunning@perkinscoie.com

Mr. William W. Stelle, Regional Administrator, NMFS, West Coast Region
Ms. Robyn Thorson, Regional Director, USFWS, Pacific Region

Dear Directors Stelle & Thorson,

The Steelhead Trout Club of WA (STC) appreciates the opportunity to comment on the Hatchery Genetic Management Plan / Draft Environmental Impact Statement currently under consideration for approval in the Puget Sound region. These documents address the requirements of the National Environmental Policy Act for NOAA's National Marine Fisheries Service proposed 4(d) determination under limit 6 for 5 "early winter" Steelhead hatchery programs in the Dungeness, Nooksack, Stillaguamish, Skykomish & Snoqualmie river basins. We strongly support these documents & the approval of the 4(d) limit 6 designation for these river systems. We do not support any extension of the public 45 day comment period scheduled to end on December 28, 2015. 1

NMSF & USFWS must expedite their review & approval of the Steelhead hatchery programs in time to allow the hatchery smolts to be released into these river systems by no later than May 1, 2016 or risk permanent loss of our "early winter" hatchery Steelhead fisheries in the Puget Sound basin! Failure to release the fish by May 1st would effectively end the hatchery programs in these rivers as there would be no future adult brood stock to continue hatchery production. We also recommend that the current planned federal processing time be moved ahead to no later that April 1,2016. This will allow time to address expected litigation by the Wild Fish Conservancy in an attempt to delay the May 1, 2016 scheduled release of the "early winter" fish! 2

Today's hatcheries are managed to have minimal impact on wild fish! Our hatchery systems were developed and continue to serve as mitigation for lost habitat.

The decline in naturally produced Salmon & Steelhead has been primarily through habitat loss & & major migration losses as the fish pass through Puget Sound to the ocean. Our hatcheries & the "early winter" hatchery Steelhead programs support both sport & tribal fisheries & tribal treaty rights. Our hatchery programs support nearly 80,000 angler trips with a value of well over $10,000,000 (WDFW Dir. Phil Anderson 2014 estimates). The economic benifits are very important to rural communities located in our river basins, especially during the winter months when other types of outdoor recreation related income is limited or non existent! 3

The WDFW stake holders who fish our rivers are dedicated stewards of our fish programs, they strongly support regulations in place to protect wild fish including limited seasons for only "early winter" returning Steelhead, release of all wild fish which can not be removed from the water & must be released unharmed & selective gear restrictions on many rivers. These are all designed to protect wild fish! Our WDFW stakeholder base includes a diverse group of nearly 1 million fishers that generates the financial base for the WDFW. Those who have the opportunity to fish (both sport & tribal) strongly support habitat protection & restoration efforts to recover our wild fish. The burden to protect wild fish should not be solely on the shoulders of the hatcheries, sport fishers & Tribes.

The genetic flow from hatchery to the wild population currently pose little risk in Dungeness, Nooksack, Stillaguamish, Skykomish Rivers & are all well below the 2% threshold as recommended by the Hatchery Scientific Review Group (HSRG). There have been substantial hatchery reductions of more than 50% from

3 theTokul Creek hatchery & all off station plants have been discontinued in the Snoqualmie River. The genetic flow for for this river is projected to be less than 2% (as low as 1.19 %)! These 5 hatchery programs pose minimal risk to wild fish! The risks to wild fish is far more oriented to current & on going river basin habitat issues & the loss of migrating fish as they pass through Puget Sound.

The hatchery permit process has now been on going for nearly a decade which is troubling. We continue to be concerned about the attempt to manage our hatcheries through litigation by the Wild Fish Conservancy (WFC), they represent a small fraction of the WDFW stakeholder base who fish for Steelhead & Salmon in Washington State.

4 We strongly recommend the adoption of Alternative 2 as the preferred alternative in the final EIS. Alternative 2 represents hatchery programs that are consistent with ESA standards for the survival & recovery of Puget Sound Steelhead.

Respectfully,

Al Senyohl, Pres. Steelhead Trout Club of WA (our 88th year)
Co Chair. Steelhead / Cutthroat Policy Advisory Group (SCPAG)
Member Methow Vally Fly Fishers (MVFF)

Responses to Steelhead Trout Club of Washington Comments

Email Dated December 22, 2015

1. Comment noted.

2. NEPA - See Global Comment 2a.

3. Comment noted.

4. Alternatives - See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

HGMP/DEIS

1 message

Mark Cedergreen <mvcedergreen@gmail.com> Mon, Dec 21, 2015 at 11:00 AM
To: William Stelle <EWShatcheriesEIS.wcr@noaa.gov>, Robyn Thorson <Robyn_Thorson@fws.gov>

ILWACO CHARTER ASSOCIATION
P.O. Box 9
Ilwaco, WA 98624

WESTPORT CHARTERBOAT ASSOCIATION
P.O. Box 654

December 21, 2015

To: Administrator William Stelle
Director Robyn Thorson

Fr: Westport Charterboat Association, Executive Director Mark Cedergreen
Ilwaco Charter Association, President Butch Smith

Re: HGMP/DEIS

We are writing you today regarding the Hatchery General Management Plan / Draft Environmental Impact Statement (HGMP/DEIS) approval process for the Early Winter Steelhead Program for the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie Rivers.

1 We are strongly encouraging you to do what is necessary to complete the HGMP/DEIS reviews and final approvals by April 1, 2016. There are hundreds of thousands of smolt releases that are planned to be released by May 1, 2016.

Fisheries that are managed through lawsuits and third party litigation are unfair to all parties involved and set precedents that affect best practice management decisions for the fish and the fishermen alike. They also invite ESA listings and can create chaos with regard to the Tribes treaty fishing rights.

We on the coast do not fish for steelhead but precedents set by the consequences of not going forward prior to April 1 could affect salmon in the future and a much larger body of fishing stakeholders.

We urge you to complete the process and avoid the consequences of not releasing the aforementioned smolts in a timely manner.

Respectfully Yours,

Ilwaco Charter Association
Butch Smith, President

360-642-3333

Westport Charterboat Association
Mark Cedergreen, Executive Director

360-268-0445

mvcedergreen@gmail.com
Mark Cedergreen

Responses to Ilwaco Charter Association and Westport Charterboat Association Comments

Joint Email Dated December 21, 2015

1. NEPA - See Global Comment 2a.

Comments on the November 13, 2015 Draft Environmental Statement to Analyze Impacts of NOAA'S National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound (DEIS)

By Frank Urabeck
[redacted] **Bonney Lake, Washington, 98391**

1 **1.** While at times I represent the Coastal Conservation Association, Puget Sound Anglers and the Steelhead Trout Club on this issue, all my comments herein on the subject document do not necessarily reflect the views of these three fine organizations – each has submitted its own comments. However, as I requested by December 18 email to Mr. Steve Leider, please include in the DEIS comment record all the emails received by December 28, 2015 sent to Mr. William Stelle, and Ms. Robin Thorson as a result of a widely distributed public awareness fact sheet prepared jointly by the Coastal Conservation Association, Puget Sound Anglers and the Steelhead Trout Club. The common message of these emails (estimated to number in the thousands) is that NMFS and USFWS expedite the completion of the FEIS and that final approval of the five hatchery programs be accomplished by April 1, 2016, allowing time to deal with anticipated litigation by anti-hatchery organizations, such as the Wild Fish Conservancy.

2 2. I have carefully reviewed the four alternatives presented in the DEIS and conclude that the preferred alternative for publication in the final EIS and ROD should be Alternative 2 (Proposed Action) that has been jointly submitted by the Washington Department of Fish and Wildlife (WDFW) and the Puget Sound treaty tribes (co-managers) by their hatchery and genetic management plans (HGMPs) for five early winter Puget Sound steelhead hatchery programs. There is absolutely no scientific basis for any reasonable person to conclude that Alt 1 (No Action) would actually result in any significant increase in wild steelhead populations. To the contrary, because of likely tribal treaty fishing rights, this alternative most likely would accelerate the decline in wild steelhead populations, putting tribal fishing rights at odds with the ESA. Alternative 4 (Native Broodstock) is not a cost-saving or time-saving solution as some have suggested as it not feasible and because it too would exacerbate the negative impacts on wild steelhead populations. Alternative 3 (50% reduction) is a non-starter.

3 3. The overall value of the social and economic benefits of the steelhead programs is recognized in the DEIS. However, the critical importance to local communities, particularly those some distance from population centers needs to be given greater emphasis. Mom and pop tackle suppliers and fishing guide services are key elements of the sport fishing infrastructure. Also, this is a quality of life activity that influences why many want to live in the Puget Sound region. NMFS must recognize that it also has statutory responsibility to provide recreational fishing opportunities.

4 4. The DEIS needs to make clearer early in the text that hatcheries are largely the result of an attempt to mitigate for the destruction of viable fish habitat, directly and indirectly. Impervious road and building construction surfaces have had major adverse impact on the hydrology as has stream bank protection and dams. This is a point made by the tribes that I support. It should also be made clear early in the text that it is impossible to reverse the transformation of viable fish habitat and return salmon and steelhead productivity to pre-development levels. Also the impacts from another half million gain in population in the Puget Sound corridor over the next decade will only exacerbate the situation and make reliance on hatcheries for viable sport and tribal harvest fisheries even more imperative.

5. Sport fishers are arguably the greatest source of public support for habitat protection and restoration, including the funding of costly studies, e.g. Salish Sea studies, that are necessary for recovery planning and action. Salish Sea studies of Puget Sound have already made clear that Puget Sound is likely a greater limiting factor than each of the five river systems. Further eliminating sport fishing opportunity as Alternatives 1, 3 and 4 would do, would make it more difficult to save natural origin steelhead. A number of anglers have been heard to suggest that if these hatchery programs are significantly reduced that the sport is just not worth pursuing – analysis in Appendix C notwithstanding. The human aspect of this analysis must be given greater weight. Also, a significant reduction from the current State of Washington 800,000 sport fishing license holders because of diminished sport fishing opportunities would translate in to less wildlife fund revenues and a reduction in WDFW's ability to study, plan and save ESA listed steelhead and salmon. This includes greater reliance on wild fish as basis for studies rather than hatchery fish which are more acceptably scacrificed.

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6. The DEIS presents a bias view of the impacts of Alternative 2 as well as alternatives 3 and 4 in that it uses the words " increase" or "increases" throughout the document in reference to Alternative 1 when the words " greater than or more than" would be more accurate in a neutral assessment which should be the case here. Many readers take the current construct as falsely suggesting Alternative 2 will make things worse than they presently are. Much of the DEIS understates the negative impact of Alt. 1 and Alt. 4 and overstates the negative impact of Alt. 2. It also understates the positive impact of Alt. 2.
7. While it is the responsibility of WDFW and the Co-managers to assess the presentation of science in terms of accuracy and reasonableness, it is my understanding that the Hatchery Scientific Review Group (HSRG) has generally found the presentations credible. Strides have occurred in assessing genetic effects of hatchery steelhead on naturally produced steelhead as noted in Appendix B which also makes clear that much of the science is still evolving with a lot of assumptions being made that tend to overstate the possible adverse genetic impacts of the early winter Puget Sound hatchery steelhead in some of the river basins. However, it is important to remember that decisions should be made from an over-all Puget Sound steelhead DPS perspective and that every basin should not have to meet the 2% gene flow criteria.
8. The DEIS fails to recognize the many improvements that have relatively recently taken place in part in response to HSRG assessments and principles for hatchery reform. Some would argue that these improvements will indeed reduce the gene flow from what the DEIS suggests. Accordingly, there should be some provision in the final NMFS decision to revisit production levels in the future, if indeed NMFS opts to reduce production where gene flows are currently assessed to be unacceptable. This presumes of course that some viable level of early winter hatchery steelhead production will continue at all five of the hatchery facilities.

6

9. I question that water use would in fact decrease if early winter steelhead production were terminated as the department/co-managers would likely substitute other fish at these facilities. Also, the text covering water use needs to focus on the relatively short reaches where flows have been diverted between intakes and return flow discharges in terms of the likely little if any adverse impacts in terms of fish passage, spawning and rearing conditions.

7

10. If, as expected, Wild Fish Conservancy and/or other anti-hatchery groups, seek a temporary restraining order (TRO) when the FEIS is completed or any time prior to release of the 620,000 EW smolts into the five river systems, that litigation must be successfully resisted through the combined efforts of NMFS, WDFW, Tribal and pro-hatchery sport fishing attorneys. If a court assessment of the merits of the litigation beyond rejecting the TRO is a decision of the court, then it should be argued that the release of the 620,000 should be made by May 1, 2016 and a year given for court consideration of the merits as not releasing the hatchery steelhead would

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8 have catastrophic effects as the runs would be effectively terminated without due process. Releasing the 620,000 smolts clearly would not for one more year present any significant risk to the wild populations and would allow enough time for due process.

11. **More specific comments:**

a. Para. 4.1.2 Disagree that Alt. 2 would be more negative than Alt. 1 as the text states. Alt. 1 would not produce a net positive benefit over Alt. 2, i.e. the DPS wild steelhead population, at best, would not increase sufficiently to compensate for the loss of 4,412 hatchery steelhead harvested annually, on the average from 2004 through 2014. At worst, there is no evidence presented that suggests that there would be any increase in wild steelhead runs which most knowledgeable observers recognize likely are constrained by the many limiting factors other than genetic introgression, e.g. continued net degradation of spawning and rearing water habitat, predation by birds and marine mammals in Puget Sound, etc. Also, wild steelhead
9 populations could be subject to increased tribal harvesting to compensate for not having hatchery steelhead to take, perhaps putting the Endangered Species Act in direct conflict with Tribal Treaty Fishing Rights. Further removing harvestable steelhead from tribal fishing is clearly a violation of Treaty Fishing Rights. If there is a success story from an actual action such as Alt. 1, that should be cited and results included in the FEIS appendix. Before drastic action such as Alt. 1 is pursued there should be a high level of confidence that it would achieve the intended results. It is laughable to suggest Alt. 1 has any merit.

b. Page 90, Para. 4.2 Text treats hatchery effects as equivalent to the many other factors adversely impacting wild steelhead production when that is not true. Most observers agree that if Alt. 1 was pursued in the absence of effectively addressing the other limiting factors that it is unlikely there would be any measurable gain in wild steelhead populations attributable to a reduction in genetic introgression. At this juncture there is doubt that the other factors will be effectively addressed.

c. Page 93, Table 15, Alt. 4 Text implies that the same number of harvestable integrated marked steelhead and non-harvestable unmarked wild steelhead would be produced under Alt. 4. This is nonsense for a number of reasons. Most of the basins presently do not have sufficient
10 populations of wild steelhead to mine for hatchery production – request you provide table showing wild steelhead escapements by year for each of the five basins for last decade along with escapement goal for each of these basins. No evidence is presented where the Alt. 4 experiment has been successful. The jury is still out on the very limited Green River supplementation program. In the FEIS please present a credable plan for using wild (unmarked) broodstock to produce 620,000 smolts without reducing the population of natural spawners.

d. Page 93, gene flow statements More complete explanation is required to validate why gene flow of less than 2% is Ok in some basins (Nooksack, Stillaguamish, and Skykomish basins) but less than 5% for the Snoqualmie is not. If gene flows greater than 6% have occurred for decades what reason is there to believe that present levels are indeed significantly damaging and therefore unacceptable? The text needs to present scientifically defensible evidence of showing that gene flows greater than 5% have been the cause for failure of natural origin steelhead
11 populations. Please explain why the Cedar River wild population has approached extinction when all hatchery plants ceased more than two decades ago, marine mammal predation was eliminated in the area below Ballard Locks in 1995, Cedar River fish habitat has been significantly restored with access to more than twelve miles of pristine habitat provided by a fish ladder at Landsburg water supply diversion dam in 2003, and all tribal and non-tribal harvesting of Lake Washington steelhead ended in 1994. Too bad WDFW, MIT, Wild Fish Conservancy and City of Seattle continue to deny their culpability in the demise of this once wonderful wild steelhead run.

12 e. Page 106, Alt.1 Disagree that "none of the 19.3 FTE jobs would be affected. If production of trout or salmon shifted from other hatcheries to these five facilities that no longer would produce steelhead, then there would be no need to have as many FTE jobs at the other hatcheries. There would have to be a net reduction in FTEs, unless other programs were significantly increased – highly unlikely.

13 f. Page 122, Para. 5.2 FEIS needs to recognize that in recent years there has been substantial reduction in hatchery production resulting in significant declines in hatchery fish natural spawning, and therefore much lesser risk of hatchery introgression.

14 g. Page 124, Para. 5.3 For all the streams listed, available scientific data suggests that present hatchery practices is clearly the lesser stressor of all those listed.

15 h. Page 126, Para. 5.4.2 Salish Sea degradation, declines in prey fish (herring, sand lance, etc.) populations and predator substitution have been found to have very significant adverse impacts on steelhead and salmon smolts. This needs to be discussed in the FEIS to put into perspective what has been alleged as to be significant adverse genetic impacts on wild steelhead from hatchery steelhead. What is in the DEIS is a very biased and distorted assessment.

16 i. Page 128, Para. 5.4.3 The rosy outlook presented to result from habitat restoration is far divorced from reality. There continues to be net decline in viable fish habitat including from development driven basin wide hydrology impacts that affect both water quantity and quality. The Salish Sea studies are showing that Puget Sound, also a key element of fish habitat, is now thought to be the most significant limiting factor for wild steelhead smolt survival. Steelhead runs have crashed in those few basins where fish habitat may be better today than a decade or so ago, e.g. Cedar and Nisqually Rivers. This information should be given prominent attention in the FEIS.

17 j. Page 135, Para. 5.4.4 Adverse effects to natural origin salmon and steelhead will continue with or without NMFS review and approval of HGMPs, mainly because of the other factors of decline already mentioned which are not being adequately addressed, nor expected to.

k. Page 136, Para. 5.5.2 Disagree that Alt. 1 and 4 would help mitigate adverse effect on wild steelhead as there is no scientific evidence this has happened elsewhere from actions called for in these alternatives. To the contrary, existing evidence from Puget Sound rivers suggest either that existing issues would be exacerbated or no change is likely under Alt. 1 and 4. Need to deal with the real (empirical) world rather than the theoretical.

l. Appendix B This appendix has excellent discussion of likely minimal adverse impacts from gene flow from the EWS to natural origin late winter steelhead. However, the text needs to explain why, if EWS releases into Puget Sound rivers have occurred for 50 years or more, that there remains in all five river systems viable wild steelhead.

18 m. Page B-1 Within Population Diversity Effects This discussion validates that adverse within population diversity effects is not an issue for all five programs. Also, the analysis is acknowledged as being conservative and therefore likely to overstate possible adverse impacts.

n. Page B-5 Outbreeding Effects and Hatchery Influenced Selection Effects Interesting that the text discounts the validity of outbreeding effects based on the "Ford" model and assumptions. Very clear that much of the analytical tools are still very much in the developmental stage—largely theoretical with little empirical evidence that some level of gene flow above 5% has been detrimental to the viability of wild runs.

o. Page B-8 PEHC Proportionate Effective Hatchery Contribution Seems this approach is reasonable. However, the criteria as to what is acceptable needs to be better defended.

19 **p.** Page B-10 Text needs to make clearer that there remains enormous uncertainty in assessing genetic introgression and that little or no empirical evidence documenting long-term real adverse impacts in terms of population declines, fitness diminishment or other parameters

19 resulting from gene flow that may have been experienced over the last decade. Some trend assessment should be included in the text that reflects hatchery program reforms. The Warheit approach holds promise but should be acknowledged as likely overstating gene flow.

q. Page B-12 Why must each of the five basins meet genetic introgression criteria to prevent a NMFS jeopardy determination for the entire DPS, especially when the Green River EWS program has been terminated?

20 **r.** Page B-17 Scott-Gill Method Noted that analysis shows PHOS based on basin-wide presence of hatchery adults but does not take into account that because of spacial considerations, that physical co-habitation of natural and hatchery steelhead is likely to be insignificant, especially when respective numbers of these fish are small during spawning overlap. The analysis, erroneously, presumes that all hatchery steelhead not harvested or not returning to a hatchery, would spawn with a wild steelhead, no matter what.

21 **s.** The 2% gene flow criteria What is magic about the 2% gene flow criteria? Provide empirical documentation that long term adverse impacts have been shown to occur when this criteria has not been met.

22 **t.** Page B-21 Note that NMFS concludes that the Proposed Action (Alternative 2) does not pose unacceptable risk through gene flow to Puget Sound [wild] steelhead.

23 **u.** Appendix C Socioeconomic Methods Disagree with the premise that further reductions in hatchery steelhead runs would be easily accepted by steelhead anglers. To the contrary, many of us believe that, as has been demonstrated, further reductions, certainly on the order of Alternative 3 [50%] would virtually eliminate participation given that hatchery runs are pretty much at minimum levels now. It is absurd to suggest that only 25% reduction in angler days would occur if hatchery steelhead production were cut 50%. Big difference in elasticity depending on how robust a run actually is.

24 **v.** Page C-8 Step 4 Economic benefits of Alternative 4 grossly overstated as this alternative not likely to produce same number of angler-days, even if adult returns from integrated program could be achieved at Alt. 2 hatchery return harvest levels (4,400 annually), because runs would be later and that for all five basins sport harvest fishing now shut down just as wild runs are arriving. Text needs to be clear that angler preference is still for harvest of steelhead and hatchery steelhead remains only opportunity for harvest fisheries. In these five basins even targeted catch and release fisheries on wild steelhead are denied.

Responses to Frank Urabeck Comments

Email Received by NMFS December 28, 2015

1. NEPA - See Global Comment 2a.

2. Alternatives – See Global Comment 1a.

3. Analysis/Socioeconomics – The comment suggests the socioeconomic benefits to local communities that are removed from urban centers (i.e., rural communities) should receive greater emphasis. As described in Subsection 3.5, Socioeconomics, and Subsection 4.5, Socioeconomics, the EIS includes an analysis of socioeconomic benefits of the hatchery programs to rural communities (e.g., see communities identified in Subsection 3.5.1, Hatchery Operations), and broadly within the analysis area. It is unclear what additional analysis of impacts to rural communities the commenter would recommend.

4. Analysis/Habitat – See Global Comment 4d.

5. Comment noted.

   Analysis/Socioeconomics - The comment suggests that the EIS should acknowledge that stakeholders who are provided fishing opportunities are more likely to engage and support the habitat protection and restoration efforts that are necessary to recover ESA-listed salmon and steelhead. While NMFS does not disagree that people with fishing interests can be motivated, the comment did not cite specific studies confirming this linkage, and NMFS was unable to find any studies confirming this linkage. Therefore, NMFS did not add an analysis of the effects of fishing opportunity on participants' personal and political involvement in conservation.

   Analysis/Genetics – The comment suggests that not all basins should have to meet a criterion of 2 percent for gene flow. Please note that the analyses of genetic effects in the EIS focuses on effects to steelhead populations associated with the five hatchery programs. Decisions regarding 4(d) Rule criteria are made during with ESA determination process; they are not made in the EIS process.

   The genetic analyses have been updated in Subsection 4.2, Salmon and Steelhead, and in Appendix B. See also Global Comment 4a.

6. Editorial - The comment suggests that the EIS fails to acknowledge improvements in past hatchery practices. However, Subsection 3.2.2.4, Background on Existing Early Winter Steelhead Hatchery Programs, describes risk reduction measures that have been implemented in early winter steelhead hatchery programs in recent years. In addition, Subsection 4.2, Salmon and Steelhead, and Appendix B, have been revised to include projected genetic effects under the HGMPs.

The comment further suggests that NMFS should include provisions for future changes in production levels. Subsection 1.6.6, Public Review and Comment, notes that HGMPs may change in the future and that additional NEPA and ESA compliance analyses may be needed. Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, has been revised to provide further clarification about changes in HGMPs.

7. Analysis/Water Quantity - The comment suggests it is unlikely the No-action Alternative would result in reductions in water quantity usage because the facilities not used to produce steelhead would be used to produce other species. After the draft EIS was prepared WDFW indicated that in absence of early winter steelhead production they would use the available water for production of other species. Therefore, the analysis of water quantity in Subsection 4.1, Water Quantity, has been revised to reflect this scenario. As described in Subsection 4.1, Water Quantity, effects on surface flow effects address bypass reaches associated with hatchery facilities.

8. Comment noted.

9. See Global Comment 1a.

10. Alternatives – See Global Comment 1b.

11. Analysis/Genetics – See Global Comment 4a. Methods and evaluation criteria are discussed in Subsection 3.2.3.1, Genetic Risks, and Appendix B, as revised. The Cedar River is part of a complex basin involving lake and river habitats occupying a highly urbanized environment. Reasons for the decline of natural-origin steelhead in the watershed are multifaceted. Analysis of obstacles to recovery and goals for recovery of Puget Sound steelhead populations will be identified in the Puget Sound steelhead recovery plan now under development (see Subsection 1.7.12, Recovery Plans for Puget Sound Salmon and Steelhead).

12. Analysis/Socioeconomics - The comment appears to pertain to effects on the 19.3 jobs in association with Alternative 1. NMFS was unable to locate such information on page 106 as referenced in the comment. The socioeconomic analysis in Chapter 4 pertains to alternatives being reviewed in the socioeconomic analysis area. It does not address net changes in jobs by hatchery operators overall. Broader socioeconomic impacts are considered in Chapter 5, Cumulative Effects.

13. Cumulative Effects - The comment suggests that the EIS recognize reductions in hatchery production in recent years. Recent reductions in early winter steelhead hatchery programs are described in Subsection 3.2.2.4, Background on Existing Early Winter Steelhead Hatchery Programs, and changes in general are described in Subsection 5.3, Present Conditions (Cumulative Effects).

14. Cumulative Effects - The comment refers to available data associated with stressors listed under Subsection 5.3, Present Conditions, but provides no data or sources of information for NMFS to consider.

15. Cumulative Effects - The comment suggests the EIS should address a number of impacts on salmon and steelhead smolts such as habitat degradation, declines in prey fish species, and predator-prey relationships. These topics are addressed in Subsection 5.4.2, Development, Subsection 5.5.4, Salmon and Steelhead, and Subsection 5.5.3, Other Fish Species. The relationship of the Proposed Action to past, current, and reasonably foreseeable future actions is summarized in Subsection 5.6, Summary of Effects.

16. Cumulative Effects – The comment suggests that the EIS contains insufficient information regarding the overall trend in the condition of fish habitat, and that the description of habitat restoration is overly optimistic. The discussion in Subsection 5.4.3, Habitat Restoration, states that habitat restoration will help address the effects of habitat degradation. However, as further described in Subsection 5.5.2, Salmon and Steelhead, habitat restoration alone will not substantially increase survival and abundance of salmon and steelhead.

17. Comment noted.

18. Analysis/Genetics –The parts of the comment acknowledging Appendix B are noted. However, the part of comment that suggests viable wild steelhead exist in the five river systems is not correct, because as described in the most recent NMFS status review (NWFSC 2015), listed steelhead populations in the five watersheds occur, but are not at healthy levels.

    See also revisions to Appendix B, and Global Comment 4a.

19. Analysis/Genetics – See Comment 5 regarding 4(d) Rule criteria. See also Global Comment 4a.

20. Analysis/Genetics – See Global Comment 4b.

21. Analysis/Genetics – See Comments 5 and 11.

22. Comment noted.

23. Comment noted.

24. Comment noted - See also Global Comment 1b.

December 28, 2015

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RE: Solicitation for Comments: Draft Environmental Impact Statement for Early Winter Steelhead Hatchery Programs in Puget Sound

Dear Mr. Stelle:

Please find my comments to "Draft Environmental Impact Statement for Early Winter Steelhead Hatchery Programs in Puget Sound" as follows.

Sincerely,
Bill McMillan

COMMENTS TO: Draft Environmental Impact Statement to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound

On full review of the above DEIS, with particular attention to Chapter 4 (Environmental Consequences) and Chapter 5 (Cumulative Effects) as advised at the end of the Summary, I conclude that only Alternative 1 (No Action with elimination of all hatchery plants) provides any probability of achieving what can be considered the recovery of ESA listed Puget Sound steelhead to sustainable levels, or to what is considered as viable levels.

Unfortunately, much of the information provided in this DEIS is skewed toward justifying Alternative 2 (The Proposed Action, using the present level of early return, Chambers Creek origin hatchery smolt plants) and that of Alternative 4 (Wild Broodstock, also at continued present levels of hatchery smolt plants). There is much evidence that indicates that each of the Alternatives, other than Alternative 1, provides little promise for long-term recovery success of Puget Sound wild steelhead, and that the other alternatives are outdated concepts that ignore the great majority of peer reviewed

literature available regarding impacts of hatcheries on steelhead, trout, and the Atlantic ocean equivalent to steelhead (Atlantic salmon). There are also recent findings for Puget Sound steelhead that are in considerable conflict. This includes several steelhead genetic reports that have gone back and forth in their presumed findings over the past two to three years, and which do not well fit recent steelhead study samplings and field findings, or the findings of peer reviewed literature related to hatchery and wild steelhead on the Washington Coast. The comments that follow will reflect this.

There are several basic considerations in Chapters 4 and 5 and how justifications for Alternative 2, 3, and 4 provide acceptable outcomes, or are otherwise preferable to Alternative 1. Rather than try to deal with this on a line by line basis, the comments below will largely address these basic considerations and how they relate to the continued hatchery programs at the locations for the five hatchery winter steelhead programs being assessed, or their abandonment.

However, prior to listing the considerations related to Chapters 4 and 5, there is a large basic question stimulated by the inadequately short section in Chapter 1 related to Puget Sound Recovery Plans for Puget Sound Salmon and Steelhead; and in Chapter 2 in the discussion on Selection of a Preferred Alternative and an Environmentally Preferred Alternative, there are also specific comments provided immediately below:

From the DEIS:

1.7.12 Recovery Plans for Puget Sound Salmon and Steelhead
... Although the Puget Sound Steelhead DPS was listed in 2007, a recovery plan has not yet been completed, but is currently in the process of assembly. It is projected to be completed in 2017...

1

BM Comments:

An obvious question: why are five hatchery programs with over 600,000 steelhead smolts being considered for release into the Puget Sound Steelhead DPS in this DEIS prior to development of a recovery plan for listed Puget Sound steelhead? The cart is before the horse.

From the DEIS:

2.4 Selection of a Preferred Alternative and an Environmentally Preferred Alternative

2

The environmentally preferable alternative is "the alternative that will promote the national environmental policy as expressed in NEPA's Section 101. Ordinarily, this means the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (CEQ 1981)."

BM Comments:

2 It would seem that which "causes the least damage to the biological and physical environment," in the case of an animal that has been greatly depleted, would also be that "which best protects, preserves, and enhances historic, cultural, and natural resources." In other words, the latter is dependent on the former.

Addressing Some Basic Considerations in Chapter 1 (Environmental Consequences) and in Chapter 2 (Cumulative Effects) of the DEIS

Some of the basic considerations in the DEIS are:

3 1) Habitat alteration history as a factor that has led to salmon and steelhead depletion

4 2) Predation discussion in the DEIS that is largely limited to *direct* predation by aquatic, terrestrial, and avian species that result in salmon and steelhead mortality

5 3) Oceanic Conditions as broad-scale, cyclic changes in climatic and ocean conditions that drive salmon and steelhead productivity

6 4) Climate change that can alter the abundance, productivity, and distribution of salmon and steelhead through changes in water temperatures and seasonal stream flow regimes, which then affect the type and extent of aquatic habitat that is suitable for viable salmon and steelhead populations

7 5) Effects of hatchery programs, using early winter steelhead, or wild broodstock, on wild steelhead

8 6) Genetic effects related to hatchery steelhead on wild steelhead populations

9 7) Socioeconomics provided by hatchery programs

10 8) Environmental justice and the importance of harvest and harvest opportunity

Comments for each follow:

Habitat alteration history as a factor that has led to salmon and steelhead depletion

BM Comments:

3 Loss of habitat through historic Euro-American settlement has commonly been identified as a major salmon, trout, and steelhead limiting factor and as a basic justification for implementing hatchery programs. There is certainly no denying that major habitat alterations have occurred related to Euro-American settlement activities that began in the Puget Sound area about 1850.

Puget Sound Example

I was one of the three authors that researched this thoroughly in the case of Puget Sound steelhead with the peer-reviewed publication of our findings related to historic Puget Sound steelhead numbers at the time of 1895 (Gayeski et al. 2011). What was clear from this historical search as compared to contemporary steelhead numbers is that habitat loss alone does not come close to explaining the draconian level of loss of wild steelhead since 1895. Hatcheries were identified as one of the considerations related to that much larger loss than that of habitat.

Unfortunately, much of the greatest habitat loss that has occurred since 1895, particularly that via dam construction throughout the West Coast, has been justified by the supposed ability to compensate and mitigate through hatcheries with little evidence of effectively doing so (Brown 1982; Lichatowich 1996; Taylor 1999). In other words, instead of addressing the actual problem – that of protecting habitat – hatcheries have long been used to justify negative habitat alterations. Yet, over and over again they have failed to come even close to former lost salmon habitat productivity with continued declines as found in the former cited sources.

Even long after much of the greatest loss of habitat had occurred in Puget Sound, in the 1950s and earliest 1960s Puget Sound watersheds were still capable of producing quite large and viable populations, that included large harvests (Appendix A, Figures 1-5 the basins considered in this DEIS; and Figures 6-8 for three other large Puget Sound basins; Taylor 1979; Royal 1972; WDG no date-a; WDG no date-b; McMillan 2008; McMillan 2012), of what were mostly then wild steelhead until the first returns of hatchery steelhead related to modern hatchery operations occurred in the State of Washington in 1962 (Royal 1972).

3

Toutle River Example

The single most rapid and extensive negative salmon and steelhead habitat alteration that has occurred in modern history was a natural event, not anthropogenic. This was the major eruption of Mt. St. Helens in its effects on the Toutle River watershed on May 18, 1981. The response of the Toutle River steelhead after the Mt. St. Helens eruption in 1980 clearly demonstrates that despite the massive impact that then occurred to the Toutle River basin, within 5-7 years after the eruption, with habitat still greatly altered, wild winter steelhead returned at levels well above escapement goals and at numbers exceeding nearby streams that were not impacted by the eruption (Appendix C, Figures 1-5; Lucas 1985; 1986; Lucas and Pointer 1987). In other words, the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie rivers have steelhead habitat today that is far less impacted than what the Toutle River basin was in the first 10 years after the Mt. St. Helens eruption and must be considered to have at least as great of habitat capacity for wild steelhead in proportion to each of their basin sizes.

The subsequent history of the Toutle River is also depicted (Appendix C, Figures 1-5) with wild winter-run steelhead at the Toutle basin going into steady decline after hatchery plants of summer-run steelhead occurred, and after the sediment retention dam was put in by the Army Corps of Engineers. The more complete history is as follows:

28 years ago, it was reported by Lucas (1985) in the monitoring of the after effects of Mt. St. Helens on the Toutle River that in the SF Toutle at Johnson Creek salmonid densities had dramatically increased: *"The most dramatic change in salmonid density from the initial 1981 survey to 1984 was for juvenile steelhead (Table 3). Parr and older steelhead increased ten-fold from 0.01/m2 in 1981 to 0.10/m2 in 1984. This compares favorably to densities found in other Washington streams; e.g., the Sauk and Skagit rivers (1977-1980) ... the 75 percent tributary spawning in the South Fork is comparable to the 65-80 percent range found by Phillips et al. (1981) on the Skagit system*." As wild steelhead returned to the Toutle system in growing numbers, however, management altered: *"In 1983, the Toutle from the mouth to the confluence of the North Fork and South Fork was reopened* (to angling) *from May 29, 1983 to January 31, 1984. The limit was one fish over 20 inches. This allowed fishing during a time period when predominantly hatchery stocks of summer and winter steelhead pass through the river* (from prior plants to the eruption). *Due to turbid water conditions, however, very few fish were creeled. Portions of the North Fork, South fork, Green River, and main Toutle were open from June 15 to November 30, 1984 for catch-and-release fishing primarily on hatchery summer runs. Since few smolts were released into these streams from 1981-1983, only a limited number of adults are expected through 1985. The first substantial returns of summer run steelhead* (hatchery) *should be in 1986, a result of 1984 plants in excess of 20,000 smolts in both the Green River and South Fork.* The concluding pages of the 1985 report are noteworthy: *"Fish populations of the Toutle Basin have made remarkable adjustments since the eruption. Darwin could not have devised a more ingenious test for 'the survival of the fittest.' ... Many fish died in their struggle to return ...Fish corpses, still full of eggs and milt, littered the streambanks, especially the first year after the eruption ... the strongest prevailed ... Observing and studying the recovery of the Toutle River has been a unique and fascinating experience ... the overriding constant through this relatively short period of time has been the uncanny ability of nature to recoup her losses ... steelhead are flourishing in many streams of the Toutle Drainage ... instead of ruling the land, we are temporary, and often powerless, tenants ... even more dramatic ... is the chance to watch nature heal herself."*

3

26 years ago, Lucas and Pointer (1987) 1,650 wild steelhead were estimated to have escaped into the SF Toutle River and increased spawning was found in the mainstem as compared to a domination of tributary spawning there in 1985 and 1986. Steelhead fishing during the experimental January 1 to April 15 season (limited to 2 days per week with a one steelhead possession limit) resulted in an estimated harvest of 285 steelhead. The January catch was 40% of the total and estimated to be primarily that of hatchery summer-runs. It was the first legal harvest of wild winter steelhead since the Mt. St. Helens eruption in 1980. Escapement into the SF Toutle was well above the maximum sustained harvest (MSH) management goal at the time of 1,058 wild winter steelhead. This contrasted with a minimum estimated wild winter steelhead spawning escapement into the EF Lewis 748 fish and included 14% of the spawning above Sunset Falls; 729 escaping wild winter steelhead into the Coweeman River; and only 248 wild winter steelhead in the mainstem Kalama River as estimated at that time.

24 years ago, in 1989, a 184 foot high sediment retention dam was completed on the NF Toutle River. It was designed to retain sediment until 2035 but the reservoir behind had filled to sediment capacity by 2012 (Denlinger 2012). Although comparative measures of sediment levels in the NF Toutle downstream of the sediment retention dam prior to and after its construction were not found, it is assumed that sediment levels in the NF and Mainstem Toutle downstream of the dam after 1989 were considerably reduced. If so, it would encourage straying of hatchery steelhead from the Cowlitz River to make entry into the formerly more inhospitable Toutle basin with increased potential for hatchery/wild spawning interactions. The SF Toutle and Green rivers had the least sediment levels occurring by that time (Lucas 1985; 1986; and Lucas and Pointer 1987). Presumably they would have been particular targets for stray hatchery spawning in the Toutle basin.

3

The Toutle River subbasin of the Cowlitz has had continuing habitat recovery from the 1980 eruption of Mount St. Helens, and yet the wild winter steelhead populations of the Green and the South Fork of the Toutle basin have declined, not increased, since startlingly rapid-paced recoveries by the mid to latter 1980s (no data available for the North Fork Toutle population could be found). While Green River wild winter steelhead, since a low in the 1990s, have made some recovery, as would be anticipated with habitat recovery progress since 1980 (but remains well below the 1985 level), the South Fork Toutle, which made such rapid and steady recovery until 1989, has gone into a great decline ever since (excepting for 2003 and 2004). The declines from the mid 1980s of wild winter steelhead in these Toutle tributaries have paralleled introductions of hatchery summer-run steelhead of Skamania stock (1984) into both rivers (Appendix C, Figures 1 and 2).

The evidence from the upper Clackamas River basin of the Willamette has clearly indicated that introduction of Skamania stock hatchery summer steelhead plants there led to wild winter steelhead declines with a subsequent competing summer steelhead population developing that competed with the wild winter population (Kostow et al. 2003; Kostow and Zhou 2006). This could well be the case with the South Fork Toutle as well (and potentially elsewhere in the Toutle basin) as evidenced by creel surveys on the South Fork Toutle in 2012 that documented apparent wild summer steelhead being caught without adipose clips in June, July, August, September, and October (Appendix C, Figure 6) that would correlate with Skamania hatchery stock summer steelhead run-timing. Some in June and July could be late wild winter steelhead, but the peak in that time period suggests otherwise when wild winter steelhead would be diminishing and few in number. This correlates with the Clackamas River findings in which the competing natural spawning population of Skamania origin hatchery summer steelhead diminishes the ability of available habitat to be productive for wild winter steelhead, and when the summer steelhead hatchery plants ceased the wild winter steelhead trend reversed from decline toward an increase (Kostow and Zhou 2006). This has been further documented since with updated graphs provided by Kostow in 2015 demonstrating the continued Clackamas River wild steelhead recovery since cessation of the summer steelhead hatchery plants (pers. comm. Bill Bakke of the Native Fish Society and as provided by him) as shown in Appendix D, Figures 1-3.

Also, completion of the North Fork Toutle sediment reduction dam in 1989 coincides with the halt to South Fork Toutle wild winter steelhead recovery progress and resulting reversal into long decline. One potential cause is that with less sediment in the Toutle outflow to the Cowlitz River it has since attracted more straying from the large numbers of hatchery winter and summer steelhead planted into the Cowlitz annually. It is apparent from the 2012 creel surveys that there are hatchery winter steelhead straying into the South Fork Toutle in December and January, probably from the Cowlitz River as the nearest source. These would further diminish the ability of South Fork Toutle habitat to be productive for wild winter steelhead.

Clackamas River of Oregon Example

The Clackamas River (of the lower Willamette basin), Kostow et al. 2003 indicated that introduction of Skamania origin hatchery summer steelhead had led to wild winter steelhead population decline in otherwise good natural habitat: *"Our data support a conclusion that hatchery summer steelhead adults and their offspring contribute to wild steelhead population declines through competition for spawning and rearing habitats. We conclude that even though naturally spawning hatchery steelhead may experience poor reproductive success, they and their juvenile progeny may be abundant enough to occupy substantial portions of spawning and rearing habitat to the detriment of wild fish populations. Therefore, the large numbers of introduced summer steelhead would have competed heavily with wild winter steelhead for habitat resources, and this may have contributed to their decline. In the Clackamas basin, smolt offspring of hatchery fish appear to have wasted the production from natural habitat because very few to return as adults."*

3

Kostow and Zhou in 2006 further indicate that Skamania origin hatchery summer steelhead resulted in wild winter steelhead decline: *"In the Clackamas River basin, the summer steelhead hatchery adults had poor reproductive success; fewer smolts were produced per parent than in the wild population, and almost no offspring of hatchery fish survived to adulthood (Kostow et al. 2003). The hatchery program was meant to provide a sport fishery, and the production of adult offspring was not intended. If successful hatchery reproduction had occurred, at least the offspring could have contributed to fisheries. Instead, the hatchery fish wasted basin capacity by occupying habitat and depressing wild production while producing nothing useful themselves. It is not unusual for hatchery adults to have poor reproductive success when they spawn naturally (other examples are provided by Reisenbichler and Rubin 1999, Kostow 2004, and McLean et al. 2004). The combined effect of poor hatchery fish fitness and depressed wild fish production due to competition with the hatchery fish poses a double jeopardy that could quickly erode natural production in any system."*

Habitat Capacity Estimates

Nowhere does the DEIS quantify or actually evaluate the remaining steelhead habitat capacity for the five Puget Sound basins being evaluated other than the viable abundance

targets indicated for steelhead in each of the five basins found in Chapter 4, Table 15, as determined by the Puget Sound Steelhead TRT. Whether this is based on habitat capacity, and by what measures are not indicated. If based on habitat measures, then it is apparent that the habitat capacity at each of the five basins is capable of carrying much larger wild populations to the point of meeting viability. In the Mid Skagit River basin, there have been two recent estimates of spawner capacity based on available spawning gravel from Google Earth image measures for Finney Creek and Day Creek winter and summer steelhead (McMillan 2015d; and 2015e). It is apparent from these measures that the spawner capacities for wild winter and summer steelhead are much greater than present escapements are providing. In other words, spawning habitat of itself is not the present limiting factor. This is despite the fact that Finney Creek is regarded as particularly impacted by anthropogenic activities primarily through timber harvest (Nichols and Ketcheson 2013). It can be assumed that these two tributaries of the Skagit basin are not lone examples in Puget Sound, but represent many other similar cases.

Wales of Great Britain Example

3

Regarding habitat protection and recovery potentials, it is tightly linked to the limitations in fishery funding available as compromised by the high investments in hatcheries. This is increasingly being recognized in the diminishment and eliminations of hatcheries at an international level. For instance, Wales of Great Britain recently eliminated its Atlantic salmon hatchery programs (Gaugh 2014). This was based in part on the findings that the highly degraded River Tyne's Atlantic salmon recovery was less linked to hatchery investments than to habitat recovery investments (Milner et al. 2004). The future of Atlantic salmon management in Wales has been identified as being a shift from hatchery investments to habitat investments instead (Gough 2014). A quotation from this is revealing regarding the Wales decision:

"We are passionate about making sure that Wales has a healthy and sustainable salmon population. To do that, we need to use our resources as effectively as possible.

"We've done a lot over the years to improve water quality and, together with our partners, to improve habitats and resolve barriers to migration. We believe the benefits of these are now starting to have effect, and this will improve freshwater conditions for our salmon and other fish.

"Our rivers are an important part of our environment. They provide essential habitats for fish and other wildlife as well as giving people opportunities to enjoy the outdoors through angling and other water-based activities."

"NRW looked at a wide range of scientific evidence from the UK and abroad which suggested there are more effective ways to support salmon in Welsh rivers. A public consultation did not come up with any evidence to the contrary.

"Salmon became extinct on the River Taff during the industrial revolution and stocking played a part in its recovery along with some other previously industrialised rivers.

"A study has now revealed that, after stocking provided that initial boost to restore the population, more salmon would be produced if fish were left in the river to spawn rather than taken for hatchery rearing.

"Money raised from the sale of the hatcheries will be used to improve fisheries in rivers which have previously been stocked, including work to improve habitats or to open new migratory routes."

The actual review document from which the Welsh press release was based provides the following conclusions and recommendations (Uttley 2014):

"Conclusions

"From the evidence available, the review concludes that on-going mitigation and enhancement salmon stocking deliver relatively poor outcomes for NRW and salmon populations, particularly given the lack of evidence for effectiveness and the evidence for potential impacts to wild salmon population fitness and productivity. These conclusions regarding the effectiveness and potential impacts of salmon stocking are equally applicable to any stocking undertaken by third parties. In addition, stocking delivers fewer additional ecosystem services when compared with other measures we could take and advocate others to take. The review concludes that NRW should focus it's efforts and resources on habitat restoration, particularly removing obstacles to migration and improvements to the quality and extent of spawning and juvenile habitat. Future restoration stocking should not be ruled out should it be required.

3

"The Recommendations made as a result of this review are:

"NRW should bring all our own on-going mitigation, population re-inforcement and enhancement salmon stocking in Wales to an end, This includes all third party stocking on rivers designated under the Habitats Directive for their wild salmon populations. A further component of this includes the development of a realistic and practical timetable for bringing all other third party salmon stocking in Wales to an end, and a start to the process of working and consulting with stakeholders and co-signatories to relevant agreements to put in place suitable alternative mitigation measures instead of stocking. Future restoration stocking should not be ruled out if needed, however there is currently no identified need for this in Wales.

"In addition, given the benefits to salmon and the wider environment from a range of habitat restoration measures, NRW should work with all interested parties to further develop and focus effort on this approach, in particular on removing barriers to migration and increasing the quality and extent of spawning and juvenile habitat available in our rivers. There is a significant opportunity to develop an approach to mitigation and enhancement that will provide multiple benefits to the Welsh environment and to all those that have a stake in ensuring salmon numbers are increasing or stable..."

British Columbia Example

In British Columbia the recent steelhead management policy framework (MFLNR 2014) describes the great curtailment in hatchery programs and production there based on the

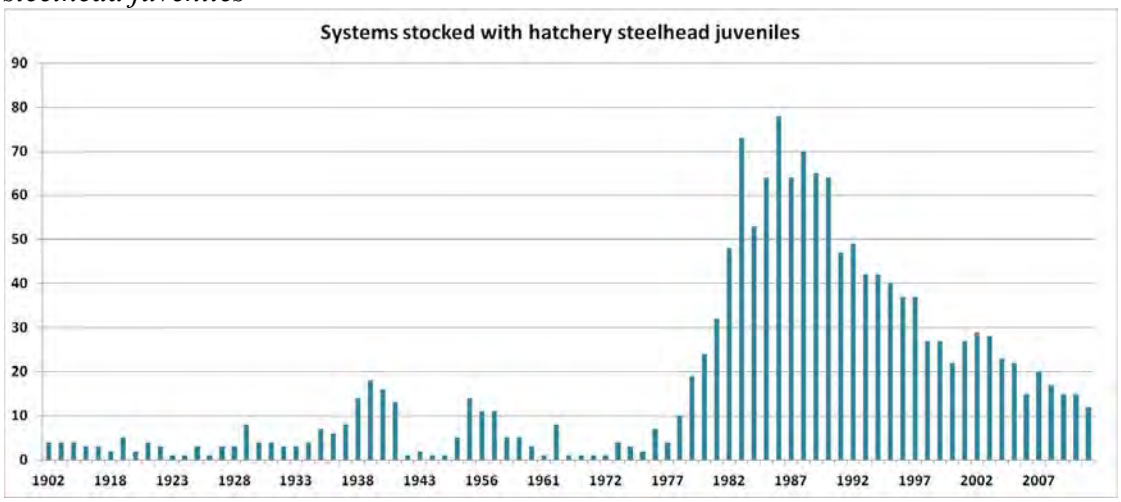
following quote from the policy paper (BC has long used all wild broodstock with little to show in cost benefits):

"There are currently no known effective methods to rebuild depressed populations of wild steelhead other than reducing mortality (and in specific circumstances, restore habitat). Research in BC and elsewhere has shown that hatchery supplementation does not rebuild wild stocks, but it can be used to support a fishery at considerable financial cost. Research has also shown that hatchery stocking can reduce the productivity of wild steelhead populations, with the negative impacts increasing with the proportion of the total population that is of hatchery origin. Thus, hatchery augmentation should only be used in special circumstances where impacts on wild populations can be avoided and the expected societal benefits exceed the costs of the program."

3

The above policy paper is based on a prior science evaluation of wild and hatchery steelhead literature and other British Columbia evidence (Pollard 2013). The paper provides the following graph of the number of stream systems where steelhead hatchery plants have occurred over the historic time frame of 1902 to 2011 with great reductions from a peak of nearly 80 stream systems in the 1980s to what is now 12.

Figure 1. Numbers of waterbodies (almost all are streams) stocked with hatchery steelhead juveniles



BC is now basing its future for steelhead on wild fish and on using moneys saved from curtailment of hatcheries to protect habitat instead. Hatchery production levels are now back to what they were in the 1930s and 1950s. The total hatchery steelhead releases throughout British Columbia now number 485,000 compared to 620,000 hatchery smolts currently released (and further recommended) for just the five hatchery programs in Puget Sound alone in Washington as being assessed in this DEIS.

Pollard (2013) further provides the following that well represents the situation in Puget Sound in considerations for steelhead in the shared Salish Sea with B.C.:

"In no case are we currently in a last-resort situation for steelhead populations in B.C., and developing supplemental programs would be a poor investment that could further damage natural production. We therefore recommend that until such time as the risks and uncertainties associated with supplementation have been reduced, and benefits to natural production are evident, supplementation programs should not be considered in recovery initiatives for depressed wild steelhead stocks. Activities instead should focus on directly addressing the source of the problem for these fish."

Montana Example

3

In 2004, *Montana Outdoors* (MFWP 2004) interviewed Dick Vincent, the biologist whose research in the late 1960s to early 1970s led to the 1974 Montana decision to eliminate stocking of hatchery catchable trout in streams and subsequent investments put into stream habitat. It was initially thought, as indicated below, that habitat was the limiting factor in the diminishing wild trout population, but the research found that it was hatchery plants that were limiting the wild trout population much more than habitat factors were. This is entirely relevant to steelhead whose first 1-4 years are spent rearing in Washington streams under the influences of both hatchery programs and what the habitat can support. Excerpts from the article follow about the results in Montana after 30 years:

"In 1974, Montana did something that stunned anglers across the state and the nation: It stopped stocking trout in streams and rivers that supported wild trout populations.

"The move initially outraged many anglers, fishing businesses, and even some Montana Fish and Game Department staff. For decades, hatcheries had been credited with producing more and better fishing. Without stocking, many Montanans asked, what would happen to the state's famous trout waters and the businesses that relied on legions of anglers arriving from across the country each summer?

"The answer, now well known, is that trout fishing improved dramatically. Once stocking was discontinued, wild trout numbers doubled, tripled, and more on many rivers.

"On this 30th anniversary of Montana's discontinuation of stocking trout in rivers capable of sustaining wild trout, Montana Outdoors visited with fisheries biologist Dick Vincent,whose research on the Madison River in the late 1960s and early '70s led to that decision...

From the interview:

That's how you got started working on the Madison River?

"Right. Once we developed the techniques, we started trying them out on rivers. We picked two stretches of the Madison—the Norris stretch, downstream of Ennis Lake, and the Varney Bridge stretch, about six miles upstream from Ennis—and started doing population monitoring. In 1968, we were able to convince the power company operating

the two dams upstream to increase river flows. We began studying the effects of the increased flows on the Norris and Varney sections, figuring that both stretches would benefit. But that wasn't the case. The flows helped the Norris section, resulting in better recruitment and many more 10-inch-plus fish, but not Varney.

So you started looking for other factors?

"We were so puzzled, because at the time we were sure flows were the big issue, and it didn't make sense that one stretch of the Madison was responding to improved flows and another wasn't. I made a list to see what was similar and different about the stretches. The big factor that jumped out was that the Norris area wasn't stocked at all, but Varney was stocked with anywhere from 10,000 to 15,000 catchable trout per year. We asked ourselves: Could it be the stocking? We had no idea, but we wanted to find out.

3

That's when the famous study began?

"Well, it didn't happen that easily. This was in 1969, and what we proposed was to not stock the Varney section for three years while stocking a tributary named O'Dell Creek, which was never stocked before but had some good trout numbers. We wanted to leave the Norris stretch alone and use it as a control.

Some people didn't think highly of your proposal, correct?

"That's putting it mildly. I think people thought we had a goal of closing down all stocking, but that wasn't the case. We specifically wanted to learn if stocking catchable-sized rainbow trout was negatively affecting wild rainbow and brown trout populations. But Ennis businesses, the Fish and Game Commission, and lots of anglers didn't like the idea of us messing around with stocking in any way. They felt that the Varney stretch would crash during the three-year study. I heard many people say, "If we don't have stockers, what will fishermen catch?"

How heavily was Montana into stocking fish at the time?

"That was really the peak of our river stocking program. We were stocking the Big Hole, Yellowstone, Gallatin, Madison—all the best rivers, which already had great trout fisheries—with an average of 2,000 catchable trout per mile. But the department was still getting complaints about how poor the fishing was, that it was getting worse each year. So the solution was to stock even more, and whoever hollered the loudest got the most fish in their favorite stretch of river. The idea then was that the stocked fish were an addition to the wild populations, that two plus two equaled four. But a few of us biologists wondered if maybe two plus two equaled three or even less...

And that caused the agency to rethink its river stocking policy?

"River stocking was already under some criticism because the return to the angler was so low. Within three months of being planted, 95 percent of stocked river trout are dead,

either from being caught and kept by anglers, about 15 percent, or from other predators, about 80 percent. It's not cheap to raise fish to catchable size, and when anglers are only catching 15 percent of the stocked fish, those become pretty expensive trout. In 1972, the department figured that each hatchery-reared catchable trout caught by an angler in the upper Madison River cost about $2.50. And that was back in 1972, when a fishing license cost about that much. It just didn't make sense.

The study then added weight to arguments against river and stream stocking?

"Now there were two strikes against it: One, the department was raising all those fish with little return to the angler and, two, stocking was harming wild fish. Ordinarily you wouldn't change management policy based on just three years of data, but the numbers from the study were off the charts. The department had to decide what to do, but there was a huge fear that ending stocking would cause an economic disaster for the communities along the rivers. There were a bunch of hearings on changing the policy. But by the end of 1973, the department and the commission agreed that it didn't make sense. The following year, the department stopped stocking trout in rivers and streams.

3

What happened then?

"Wild trout numbers increased, just as the study said they would. For example, in the upper Gallatin above Big Sky, trout numbers went from about 450 wild fish per mile to 2,500 once stocking ended. And after the department stopped stocking O'Dell Creek, the numbers went right back up to where they had been...

Other than producing better wild trout fishing, what other effects did the study have?

"I think the biggest thing was that people began to see wild trout as a valuable, limited resource, and that the state needs to protect habitat to conserve that resource. Back in the 1960s, anglers didn't care about stream flows and river habitat, because if the fishing was poor, you just tossed in more fish. But if you want to catch big wild fish, then you need to fight for water and for habitat, and that is what has happened. I don't know of a state where people have fought as hard for their rivers as they have here in Montana."

Chambers Creek hatchery operations date to 1915 (Darwin 1917) and with steelhead known to be part of that hatchery operation there dating to at least 1921 (Crawford 1979). Data for steelhead smolt releases and returns to Chambers Creek's South Tacoma Hatchery date to 1953 (Eltrich 2007). Graphic representations the Chambers Creek hatchery steelhead at South Tacoma Hatchery were provided by Cooper and Johnston (1992) and subsequently updated by Eltrich (2007) and as depicted in Appendix I, Figures 1-3. Unknown to many, with the lid kept on it by WDFW for many years, the original stock of Chambers Creek hatchery steelhead at Chambers Creek went extinct by 1996 or 1997. Importantly, Chambers Creek provided no sport or tribal fishery due it long being closed to fishing. Therefore it is apparent that this original stock of early return hatchery steelhead could not even sustain itself back to the hatchery, let alone provide harvest. It has sometimes been identified that South Puget Sound has marine

survival problems or otherwise habitat limitations (Pflug et al. 2013). This may well be. However, the very purpose often identified for the Chambers Creek hatchery steelhead programs (now dispersed across Washington from satellite hatchery facilities where this stock remains) are to provide harvest that habitat limitations prevent wild steelhead from providing (as repeated many times in this DEIS). It is very apparent that Chambers Creek origin steelhead have absolutely no ability to counter habitat constraints on productivity as exemplified by the failure at Chambers Creek itself. It is also apparent that as ocean conditions, or other survival limitations in the marine environment, decline with reduced productivity that it is these very hatchery steelhead that are hardest hit with more greatly reduced survival than wild steelhead (McMillan 2012; Pflug et al. 2013) and as depicted in my comments for Ocean Conditions in this DEIS response and in Appendix G (Figures 1 and 2). It is also apparent that these Chambers Creek hatchery origin characteristics have been dispersed broadly into the natural environment as found by their straying in the Skagit basin (Pflug et al. 2013; McMillan 2015a; and 2015b) which can only reduce the ability of the habitat to be productive for steelhead.

3

A major shift to that of steelhead management based on Alternative 1 provides the lone means of focusing available fisheries money into habitat acquisition, habitat recovery, and habitat protection and enforcement rather than that of perpetuation of continued experiments with hatchery programs that have already been tried here and elsewhere with poor results. It is very clear from the above examples where the worldwide trend has been heading based on the available science – toward habitat protection and recovery, not use of hatcheries as a failed substitute capable of mitigating for lost habitat. This includes use of wild steelhead broodstock hatchery programs that have yet to prove effective for wild population recoveries for Puget Sound steelhead. The latter was clearly indicated by Barry Berejikian in his presentation at a steelhead science workshop hosted by the University of Washington School of Aquatic and Fishery Sciences and sponsored by Trout Unlimited regarding wild broodstock hatchery steelhead programs of which he has been lead scientist as part of the Hood Canal steelhead project (Wild Steelhead United/Trout Unlimited Steelhead Science Workshop for Anglers, May 9, 2015).

Predation discussion that is largely limited in the DEIS to *direct* predation by aquatic, terrestrial, and avian species that result in salmon and steelhead mortality

BM Comments:

4

Ignored in this consideration in the DEIS are the *indirect* effects of predation related to hatchery salmon and steelhead smolt plants that attract large numbers of predators with subsequently greater predation pressure on wild smolts outmigrating at the same time with them (Moore et al. 2015), or by breeding colonies initially attracted to hatchery smolt releases but which disappear by later spring and summer when predator juveniles are hatched or birthed leaving wild rearing juveniles as their fodder (Wood 1984).

Montana Example

From the previously cited information from Montana regarding hatchery trout releases there was 80% predation within three months of being planted (Montana Outdoors 2004):

"Within three months of being planted, 95 percent of stocked river trout are dead, either from being caught and kept by anglers, about 15 percent, or from other predators, about 80 percent."

British Columbia Example

In the case of British Columbia, the hatchery release steelhead smolts at the Cheakamus River had far greater loss due to suspected predation than wild steelhead smolts (Melnychuck et al. 2014):

4

"We observed large survival differences between wild and hatchery-reared steelhead trout (Oncorhynchus mykiss) during the juvenile downstream migration immediately after release, which persisted through adult life. Following a railway spill of sodium hydroxide into the Cheakamus River, British Columbia, a short-term conservation hatchery rearing program was implemented for steelhead. We used acoustic telemetry and mark–recapture models to estimate survival of wild and (or) hatchery-reared steelhead during 4 years of the smolt migration, with both groups released in 2008. After adjusting for estimated freshwater residualization, 7%–13% of wild smolts and 30%–40% of hatchery smolts died in the first 3 km of the migration. Estimated survival from release to ocean entry was 71%–84% for wild fish and 26%–40% for hatchery fish and to exit from the Strait of Georgia system was 22%–33% for wild fish and 3.5%–6.7% for hatchery fish. A calculated 2.3-fold survival difference established during the downstream migration was similar to that after the return of adult spawners, as return rates were 8.0% for wild fish and 4.1% for hatchery fish. Contrary to current understanding, a large proportion of salmon mortality in the smolt-to-adult period, commonly termed "marine mortality", may actually occur prior to ocean entry."

It is further explained:

"The most likely explanation for the lower observed survival of hatchery-reared fish during the downstream migration is a higher vulnerability to predation (reviewed in Mesa et al. 1994; and Olla et al. 1998) due to their protection from natural selection prior to hatchery release. Wild steelhead are subjected to predation and environmental stressors for 2–3 years prior to smoltification, resulting in a more-fit subset of the population remaining at the time of tagging. In contrast, hatchery-reared fish are not exposed to such pressures, so a higher proportion of less fit individuals was likely tagged. The greater initial mortality component of hatchery-reared fish in the first segment of the migration supports the assertion that less-fit individuals are more likely to die soon after release. However, we cannot distinguish from our study what proportion of the extra mortality observed in hatchery-reared smolts has a genetic or disease component and what proportion is simply a learned response to predators. Possible mechanisms of higher mortality in hatchery fish include increased predation risk from feeding at the surface more often (Vincent 1960), having lighter skin coloration (Donnelly and

Whoriskey 1991) or having reduced escape responses (Woodward and Strange 1987). Adult bull trout are common in the Cheakamus River (Ladell et al. 2010; Melnychuk 2009b). Merganser ducks aggregate and feed on outmigrating salmonid smolts (Wood 1987) and are commonly observed on the Cheakamus River. Harbour seals are also seen as far upstream as the confluence of the Cheakamus and Squamish Rivers and are a well-known predator of salmon smolts (Greenstreet et al. 1993; Laake et al. 2002). Higher avian predation rates on hatchery smolts than on wild smolts have been observed in other salmonids soon after release (Dieperink et al. 2001), as 'naïve' hatchery smolts are particularly vulnerable."

Oregon Coast Example

Although the above does not further indicate that wild smolt survival may also be impacted by this predator attraction to hatchery steelhead releases in the Cheakamus River, it has been determined that hatchery coho releases do attract predators that also negatively impact survival of wild coho (Nicholson 2003):

4

"To aid in the recovery of depressed wild salmon populations, the operation of hatcheries must be changed to reduce interactions of juvenile hatchery fish with wild fish. Evidence suggests that productivity of wild populations can be reduced by the presence of large numbers of hatchery smolts in lower rivers and estuaries that attract predators. An index of productivity based on the density-independent rate of reproduction of wild coho salmon (Oncorhynchus kisutch) in 12 Oregon coastal river basins and two lake basins was negatively correlated with the average number of hatchery coho salmon smolts released in each basin. The index of productivity was not significantly correlated with the average proportion of hatchery coho salmon in each naturally spawning population or with habitat quality..."

Figure 2.

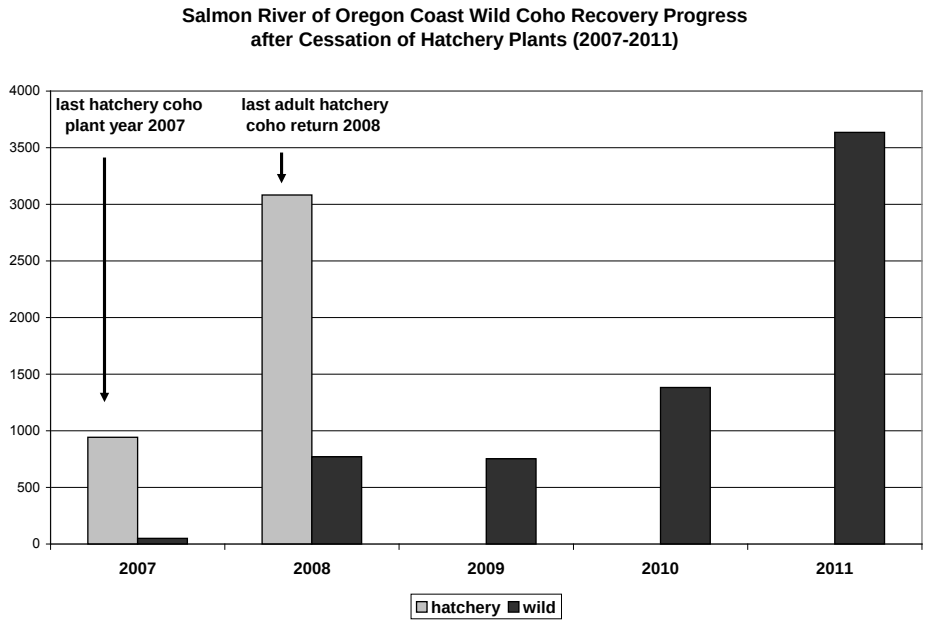


Figure 3 (from Wilson 2012).

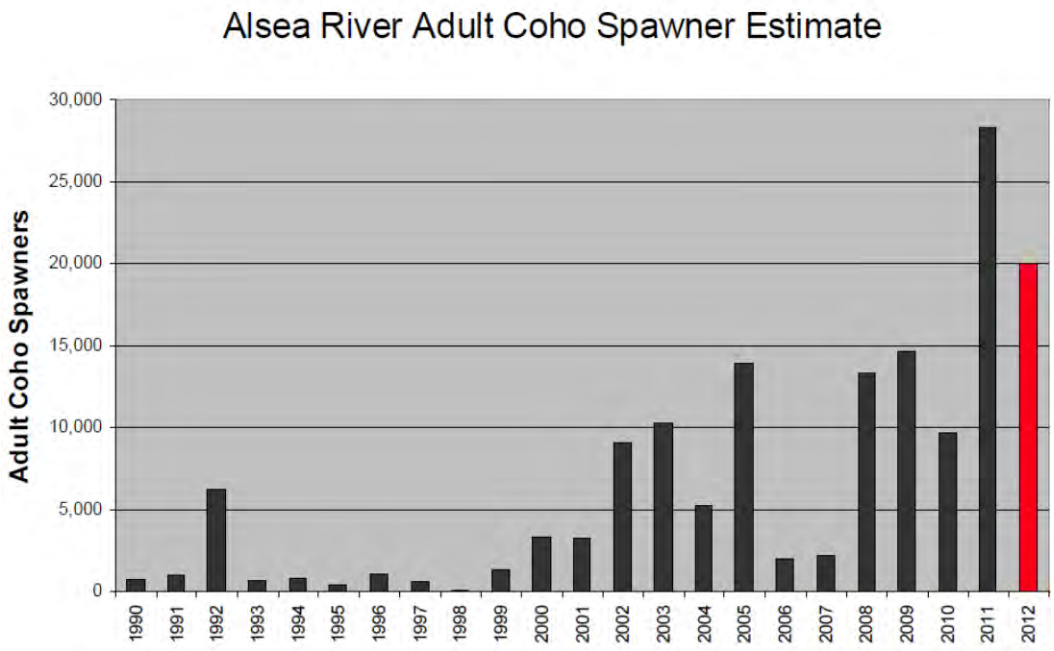
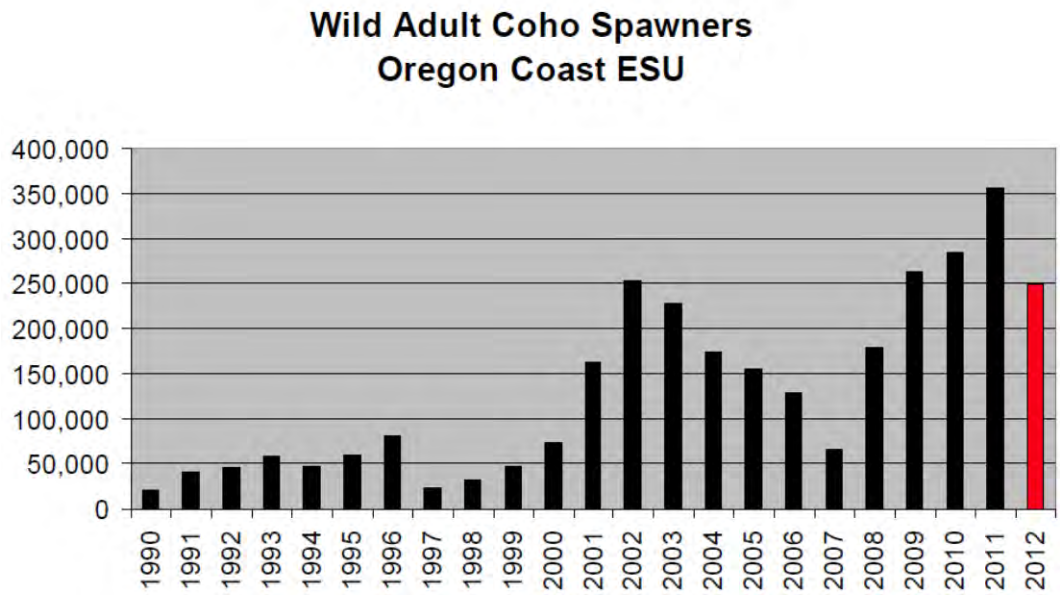


Figure 4 (from Wilson 2012).

4



Subsequent reductions or total eliminations of hatchery coho releases have greatly benefitted wild coho with recoveries on the Oregon Coast thought to result from reduced predation associated with the former hatchery plants. At the Salmon River of the Oregon Coast, a cessation of hatchery coho plants occurred in 2008 with a positive response in wild coho returns that has also included investments in habitat restoration as well (Bottom and Jones 2010; Jones et al. 2013). Figure 2, depicts the Salmon River wild

coho recovery trend based on the data from the Salmon River presentations. The wild coho at the Alsea River of the Oregon Coast, and more broadly the Oregon Coast as a whole, have shown considerable recovery progress with cessation (at Alsea) or otherwise great reductions (Oregon Coast) of hatchery coho plants since the late 1990s in Figures 3 and 4 (from Wilson 2012):

Skagit River Discussion Example from Broader Geographic Areas

Furthermore, because wild anadromous outmigrations to the marine environment peak at about the same time as the hatchery outmigrations, they have to migrate through these increased predator populations. There is a discussion of this related to the Skagit River steelhead studies that included NOAA funding through the Saltonstall-Kennedy Grant (McMillan 2012):

The relationship of hatchery releases and predator attraction dates to at least 1967 when it was found that the diets of bull trout and northern pikeminnow shifted from relatively low numbers of wild sockeye juveniles to significantly higher levels dominated by hatchery juveniles at the time of releases of hatchery fish (Thompson and Tufts 1967). At the Big Qualicum River of Vancouver Island large numbers of spiny dogfish targeted the mouth of the river preying on the Chinook and coho smolt releases and also fed on the returning adults. It was concluded that the long-term decline in Chinook survival to the hatchery, and the similar decline of other hatchery produced salmon in the area was related to the dogfish predation (Beamish et al. 1992). On the Oregon Coast a detailed analysis was done to determine the mechanisms that were leading to declining coho productivity (Nickelson 2003). The primary cause was determined to be that of predators targeting large hatchery coho releases and subsequently wild coho mixed in with them with resulting high losses due to predation. Specifically for steelhead in the Salish Sea in a similar geographic area to the Skagit River, hatchery steelhead that had experienced declining productivity at the Seymour River resulted in the experiment of barging the hatchery steelhead smolts to a point well outside the estuary with significantly higher resulting survival (Balfry et al. 2011). One of the reasons considered for the higher survival of the barged smolts was that the estuary was where predators gathered (birds, fish, seals, etc.) and predation risk particularly high in the first few days of seawater exposure. Some other references on predation linked to hatchery fish include: Collis et al. 1995; Einum and Fleming 2006; Handelmann et al. 1996; Steward and Bjornn 1990.

4

In Norway it has been further found that hatchery releases of Atlantic salmon attracted their wild counterparts to migrate downstream in daylight with them exposing them to predation levels that would not have been as prevalent in the usual night migrations of wild smolts (Hansen and Jonsson 1985). Hillman and Mullan (1989) found that the release of hatchery Chinook salmon at the Wenatchee River caused juvenile wild Chinook salmon to similarly leave their normal habitat and join the school of hatchery fish that was migrating downstream. Once wild fish enter schools of hatchery fish it results in a "mixed stock fishery." This would be anticipated to occur whether migrating adult or juvenile salmonids, and whether the fishers be human, wildlife, or predatory fish species. It would be further anticipated that the wild component of the mixed

hatchery/wild population would be reduced at a similar level as the hatchery component by this fishing effort. In the case of the juvenile hatchery releases, there would appear to be no means to alter this problem other than by reducing hatchery releases to minimal numbers that are dispersed over a lengthy release time, or eliminating them.

Puget Sound Steelhead Example

Most recently, a peer-reviewed paper that came out regarding steelhead smolt survival at Puget Sound (Moore et al. 2015) found:

4

Until recently, research on mortality of anadromous fishes in the marine environment was largely limited to estimates of total mortality and association with group characteristics or the environment. Advances in sonic transmitter technology now allow estimates of survival in discrete marine habitats, yielding important information on species of conservation concern. Previous telemetry studies of steelhead Oncorhynchus mykiss smolts in Puget Sound, Washington, USA indicated that approx. 80% of fish entering marine waters did not survive to the Pacific Ocean. The present study re-examined data from previous research and incorporated data from additional Puget Sound populations (n = 7 wild and 6 hatchery populations) tagged during the same period (2006−2009) for a comprehensive analysis of steelhead early marine survival. We used mark-recapture models to examine the effects of several factors on smolt survival and to identify areas of Puget Sound where mortality rates were highest. Wild smolts had higher survival probabilities in general than hatchery smolts, with exceptions, and wild smolts released in early April and late May had a higher probability of survival than those released in early and mid-May. Steelhead smolts suffered greater instantaneous mortality rates in the central region of Puget Sound and from the north end of Hood Canal through Admiralty Inlet than in other monitored migration segments. Early marine survival rates were low (16.0 and 11.4% for wild and hatchery populations, respectively) and consistent among wild populations, indicating a common rather than watershed-specific mortality source. With segment-specific survival information we can begin to identify locations associated with high rates of mortality, and identify the mechanisms responsible.

What was responsible for the low early marine survival rates? A likely answer was provided in the Discussion, that of increased predation related to large hatchery smolt releases during the same time period of greatest smolt losses:

"Smolts released in early May, regardless of population of origin, experienced very low RM to JDF survival each year of the study (see Fig. 4). Natural processes such as harmful algal blooms or disease outbreaks would seem unlikely to contribute to extra mortality during a specific time period on an interannual basis. A predator response to the consistently timed release of hatchery steelhead in early May could explain the increased mortality. Approximately 70−95% of all 1−2 million hatchery steelhead smolts released into Puget Sound were released during the first week of May, and 1.9−2.6 million coho smolts were released in very late April/early May during the 2006−2009 study period (K. Henderson unpubl. data), coinciding with the lowest smolt survival

rates. Predators respond to large releases of hatchery salmon by increasing local density, i.e. an aggregative response (Wood 1985, Collis et al. 1995), which may increase consumption of otherwise less densely congregated wild conspecifics. Higher survival rates observed before and after major hatchery releases may be attributed to low smolt densities that escape the attention of opportunistic predators. Steelhead migrating with large groups of hatchery fish could be more vulnerable if predators have the capacity to consume large numbers of smolts.

"... The hatchery smolts used in this study were released within a short window of time, while wild smolt release dates were more variable throughout the outmigration period."

Further British Columbia Examples

A merganser attraction relationship to hatchery salmon releases and subsequent impacts on wild rearing salmonids was further discussed by Wood (1984) at the Big Qualicum River area of Vancouver Island:

4

"... nesting dispersion of merganers is also influenced by the size of juvenile salmonid migrations early in the spring, because breeding pairs congregate at profitable feeding sites. The number of merganser breeding pairs ... was positively correlated ... with drainage area and total juvenile salmon migration including production from hatcheries and spawning channels. Other data on breeding pair densities, time of brood emergence and survivorship of merganser ducklings support the 'committed aggregation' hypothesis ... If true ... breeding pairs are 'deceived' about the natural productivity of enhanced streams; because hatchery fish are unavailable to merganser broods, the intensity of predation on wild salmonids may be unusually severe."

In other words, the mergansers determine nesting locations early in the spring based on hatchery migration availabilities at that time, but the hatchery migrations are short lived and when the ducklings result later in the spring/summer it is wild juvenile salmonids that remain to sustain them in the absence of hatchery migrations by that later date. This can result in particularly high predation on wild juveniles. It indicates:

"... Mortality of stream-resident salmonids due to merganser broods probably exceeded 20% in the Big Qualicum R..."

The implications of this are far reaching regarding the broader suite of predators that form breeding locations around the anticipated sustained abundance of hatchery releases that quickly disappear leaving stream rearing salmonids as the victims that the rearing juvenile predators are left to prey on.

5

Oceanic Conditions as broad-scale, cyclic changes in climatic and ocean conditions that drive salmon and steelhead productivity

BM Comments:

Whatever the ocean conditions may be in the cyclic lesser and greater productivity periods for salmon and steelhead, it is apparent that the presence of hatchery fish can only compound the problem during less productive ocean conditions by further filling ocean habitat with hatchery fish that inevitably will even more greatly compete with the wild for the limited resources available for their survival. Several examples follow:

Skagit Basin Example

Two different methods were used to evaluate Skagit River wild and hatchery winter steelhead return trends by two different authors related to the eventual final reports that came out related to the 2008-2012 research there (McMillan 2012; and Pflug et al. 2013) regarding how the returns may correlate with differing ocean productivity periods. Each of the two authors came to the same conclusion: wild steelhead fared better overall, and particularly so during poorer ocean conditions. Hatchery steelhead, however, had particularly improved survival during the better ocean conditions.

5

From McMillan (2012), ignore tables and figures except in **bold**:

"There are further indications of reduced hatchery survival over time. In the 1980s Skagit River steelhead returns were 55 percent wild and 45 percent hatchery (DeShazo 1985) but 20 years later hatchery steelhead had reduced to 10 percent of the total Skagit River steelhead returns (WDFW 2004). This was despite increasing hatchery smolt levels by 115% between 1992 and 2004, or perhaps more accurately because of increasing those smolt levels. In other words, more hatchery smolts released resulted in diminished percent of overall steelhead returns as well as reduced total run-sizes. This period of decreasing returns beginning in 1990-91 for Puget Sound and Georgia Strait steelhead has been indicated as likely due to reduced ocean productivity (Cooper and Johnson 1992; Scott and Gill 2006). If so, during unproductive marine conditions increasing hatchery smolt plants may be the equivalent of throwing gasoline onto the fire...

"A comparison of wild run-sizes and total run-sizes (Figure 20) **[Appendix G, Figure 1 for this DEIS evaluation]** *indicates that total run-sizes were proportionally greater in the period between 1978 to 1990 than in the more recent period from 1991 to 2011. This would mean that the hatchery run-sizes have particularly declined from 1991 to 2011. This is further confirmed by comparing the average 1978-1990 hatchery run-size percentage of the total run-size (41%) to the average of 1991-2011 (21%) that is now half of what it was formerly (Appendix C, Table 1). As indicated in the previous Figures 1 and 3, hatchery winter-run steelhead smolt plants significantly elevated beginning in 1993 with an average annual stocking of 252,892 winter-run smolts between 1978 and 1992 and with an average of 440,536 between 1993 and 2007 using UST/NOAA adjusted smolt plant numbers. The particularly suppressed proportion of hatchery steelhead returns to total steelhead returns has continued ever since despite nearly doubling the smolt plants beginning in 1993. The wild returns have also been in decline in this same 1991 onward period but not as proportionally great as the hatchery returns, unless there is some unaccounted proportion of missing hatchery steelhead that began about 1991 for*

which there is no obvious explanation. For whatever reason, hatchery steelhead returns were proportionally double in the earlier 1978-1990 period than they now are. Perhaps when ocean conditions are in more productive cycles hatchery steelhead do particularly well and when ocean conditions are in less productive cycles their survival is especially reduced. But have ocean conditions been continuously suppressed for over 20 years?

"Cooper and Johnson (1992) particularly noted that smolt-to-adult survival declined substantially for returns to Chambers Creek hatchery between 1985 and 1991 and for hatchery returns to Puget Sound streams in general. Therefore even before 1991 there was apparently a hatchery steelhead survival decline in Puget Sound that may be masked due to an absence of a longer-term perspective prior to 1978 when run-sizes and escapements were not determined and which Figure 20 can't reveal. This is further suggested by figures for both return rates and adult steelhead returns to Chambers Creek hatchery that reveal higher peaks in both the mid 1970s and mid 1960s with declines from the late 1970s onward and particularly dropping in 1990 and 1991 (Appendix D, Figure 1). This was despite elevated smolt plants at Chambers Creek that are also shown from the early 1980s to the termination of the graph about 1990. The Chambers Creek winter-run hatchery return rate graph from 1955 to 1991 replicates the Skagit basin overall return pattern portrayed by harvest from 1955 to 1991 in the long downward trend (Figures 2 and 3, previously shown). Eltrich (2007) provides the more recent Chambers Creek hatchery steelhead program history which has had minimal returns since 1991 and which has apparently not been sustainable after 1997. Considering the length of the period of time of the continuous decline in return rate trend at Chambers Creek hatchery there is the question whether this trend is that of ocean conditions or that of steadily declining productivity in the hatchery steelhead themselves and which could be conveyed to wild steelhead if spawning interactions were to occur (see Appendix F for list of hatchery mechanisms that can affect wild survival)."

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From Pflug et al. (2013), ignore tables and figures except in **bold**:

"The majority of wild and hatchery steelhead from the Skagit River spend either two or three years in the Pacific Ocean, with smaller proportion residing in the ocean for four years or more years (< 5% of returning adults). Due to their lengthy marine residency, shifts in ocean conditions and productivity can have major impacts on both wild and hatchery steelhead returns. The effects of ocean productivity cycles can have similar effects on wild and hatchery fish from the same basin, provided that they migrate to the similar areas in the north Pacific during their marine portion of the life cycle.

"The effects of long¬term cycles in ocean conditions on Skagit steelhead can be readily observed by examining trends in SAR rates for hatchery steelhead returns from 1978 through 2007 (Figure 45) **[Appendix G, Figure 2 for this DEIS evaluation]**. *SAR rates ranged from approximately 1.5 to 3.5 percent in the late 1970s and early 1980s, and then increased to a peak value of about 6% in 1985. SAR rates then declined rapidly from 1986 through 1994, when the SAR value dropped to 0.3%. SAR rates have remained very low for Skagit hatchery steelhead from the mid 1990s through the late 2000s, ranging from 0.2 to 0.8 percent. The low SAR rates observed in Skagit hatchery steelhead*

following the mid 1990s reflect a period of poor ocean survival conditions that has now occurred for almost 20 years.

"The SAR rates for wild Skagit steelhead were found to be substantially greater than those for hatchery fish from the Skagit over the same period (Figure 46). This finding suggests that marine survival rates are many times higher for wild steelhead than for hatchery steelhead in the Skagit. For the spawner return years 1997 through 2007 (the period of time for which smolt data is available from the Skagit smolt trap), marine survival rates for wild steelhead ranged from 0.8 to 6.6%, while marine survival rates for hatchery steelhead ranged from 0.2 to 0.8%."

Oregon Coast Example

There are, however, examples of wild steelhead returns that have occurred entirely, or largely, without a history of hatchery winter steelhead plants that demonstrate across relatively long periods of time (38-67 years) a level trend despite the ups and downs of what may be both ocean and freshwater cycles. There are two such examples in Oregon, the North Fork Umpqua River between 1946 and 2013 as indicated by counts across Winchester Dam and that of sport fishing harvest records (mostly catch-and-release from 2008 onward), and that of the Salmonberry River of the North Fork Nehalem basin via spawning survey from 1973 to 2011 depicting the peak number of redd counts per year (McMillan 2012). The graphs of their relatively level wild returns over time are provided in Appendix G, Figures 3 and 4.

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Northeast Vancouver Island Examples

There is similarly data available for the wild summer steelhead returns where only a short period of hatchery fry plants occurred at the Tsitika River of northeast Vancouver Island in the shared Salish Sea with Puget Sound (McMillan 2012). In this case the numbers of returning steelhead were determined from annual snorkel counts from 1976 to 2012 with a slight declining trend but recently increasing (Appendix G, Figure 5). Geographically near the Tsitika River are the Adam and Eve Rivers whose winter steelhead have had no steelhead hatchery plant influence. Data are limited to that of the history of combined wild steelhead harvest along with that of catch and release (Appendix G, Figure 6). It shows a somewhat greater declining trend than the Tsitika, although there are no data available after 2007. Both of these rivers compare to the not too distant Keogh River whose winter steelhead returns have been intensively studied since 1976 when weir counts began (Appendix G, Figure 7). The findings there were discussed in McMillan (2012) and in which quotes were taken from McCubbing and Ward (2008):

The Keogh steelhead research has been something of a shotgun approach using a range of methods to attempt to recover wild steelhead that include instream habitat projects, periods of nutrient enhancement (ceased in 2005), a wild broodstock hatchery program that has ceased (1979-1990, and 2002 fry or smolt releases), and most recently a living gene bank (LGB) hatchery program of using wild smolts kept captive to spawning maturity for egg taking with subsequent smolt releases that has also ceased (2003-2005).

Adult returns from the LGB program indicated poor survival results as evidenced by smolts from 2005 having returned at 2.6% for wild fish and only 0.5% for LGB releases and with further concerns that LGB-derived hatchery fry and parr, as well as residualized hatchery fish after release, may have affected wild smolt yield (McCubbing and Ward 2008).

Through it all since the latter 1980s the Keogh wild steelhead have remained at continuing low levels of great conservation concern. One of the more important conclusions in 2008 was that significant additional increases in smolt yield were needed to meet historic levels and that doing so may depend on improved salmon escapement (prior pink salmon returns of over 100,000 on even numbered years to the Keogh had dropped to 26,000 in 2006). Regarding relevance of Keogh research to that of the Skagit River and Puget Sound a direct quote conveys the scientific concerns that have occurred at the Keogh (McCubbing and Ward 2008):

5

"The return of substantial numbers of Living Gene Bank adults (between 167 and 486 fish from 2003-2007 and 78 this year) have not lead to subsequent increased smolt yields… Without analysis to assess the fitness of LGB fish relative to wild and with mixed behavioural and physiological data on LGB adult returns (McCubbing 2005, 2006) compared to wild fish, further interpretations are perhaps premature. However, in the absence of data on relative fitness, our preliminary conclusion is that hatchery fish have added little to subsequent wild smolt yield (and may have caused some of the decline). It is likely that climatic conditions and food availability dominated as the leading causes for variations in smolt yield and adult return, and that smolt yield may have been much worse if habitat restoration efforts had not been undertaken in the watershed."

However, from the comparisons of the two other river basins in similar geographic vicinity to the Keogh, the impact was not as great on those wild steelhead populations as at the Keogh. Whatever the general ocean and/or climatic conditions might have been during the fluctuations of the past 30-40 years, the Keogh wild steelhead, that included a hatchery plant history using two different methods, were apparently more impacted than the strictly wild steelhead at the other two basins that were not as severely impacted.

Climate change that can alter the abundance, productivity, and distribution of salmon and steelhead through changes in water temperatures and seasonal stream flow regimes, which then affect the type and extent of aquatic habitat that is suitable for viable salmon and steelhead populations

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BM Comments:

Table 18 of Chapter 5 (5.5 Cumulative Effects by Resource, Salmon and Steelhead 5.5.**)**, apparently assumes that wild salmon and steelhead can't adapt to anticipated climate change effects on habitat in Puget Sound and that they will merely remain static in their characteristics. This ignores the long evolutionary history of salmon and steelhead through adaptations to shifting and seemingly adverse geologic and climate conditions.

California Example

It is very apparent that salmon and steelhead were highly productive in conditions of considerably greater climatic warmth represented by their southernmost range that was throughout California (and in the case of steelhead, even into the California Baja Peninsula) that included quite remarkable evidence of their productivity from the mid 19th to early 20th century (McEwen 2001; Yoshiyama et al. 2001; Lindley et al. 2006; Yoshiyama and Moyle 2010; Algona et al. 2013; Titus et al. 2015). For instance, 1-2 million steelhead were estimated to have historically returned to the Sacramento and San Joaquin drainages prior to habitat alterations in the 19th and early 20th centuries (McEwen 2001) and similar numbers of Chinook salmon (Yoshiyama et al. 2001). At the Eel River 19th century historic runs were likely up to 800,000 Chinook, 100,000 coho, and 150,000 combined summer and winter steelhead (Yoshiyama and Moyle 2010). The Santa Ynez River, well to the south in Santa Barbara County, was estimated to have steelhead returns of 20,000-30,000 even as late as 1944 (Algona et al. 2013).

One of the successful adaptive factors for steelhead in California has been that of a greater proportion of earlier entry and earlier spawning and earlier emergence by wild winter steelhead than is commonly considered the present case for Puget Sound steelhead. For instance, at Waddell Creek in 1934-1942 the entry time of winter steelhead ranged from October to July with peak entries from December to February (Shapovalov and Taft 1954). At the San Gabriel River in southern California's Santa Cruz County, the steelhead run-timing for spawning entry was similar (Titus et al. 2015):

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The San Gabriel River system once supported steelhead although little historical information was discovered. In a personal communication to Ewy (1945), Commissioner L. F. Payne of the Los Angeles Branch of the CDFG stated that "steelhead run up the San Gabrial River in December, January and February to spawn".

These California spawning and run-timing peaks are virtually identical to that of early winter hatchery steelhead of Chambers Creek origin being evaluated in this DEIS. It also coincides with the predominant historical entry time of wild winter steelhead in Washington streams, including those of Puget Sound, as shown by historic catch and other data (Meigs and Pautzke 1941; Pautzke and Meigs 1941; Larsen and Ward 1955; Royal 1972; Taylor 1979; McMillan 2008; 2012; and 2015b).

Rogue River in Southern Oregon Example and Skagit River Relationship

In the case of the summer steelhead of the Rogue River basin in southern Oregon, it has long been determined how important early-spawning and early emergence is in the tributary streams that are particularly productive (Everest 1973) and which has been similarly identified in tributary streams of the Skagit River basin for winter-run steelhead (McMillan 2015a; and 2015b). The following comes from McMillan (2015b):

Everest (1973) found that the high summer steelhead productivity in the Rogue River basin was dependent on intensive spawning use of small tributaries with watershed basin

areas of less than 25 square miles and winter streamflows of less than 50 cfs. Most of these streams became intermittent in summer, as early as mid June, and yet supported large steelhead spawning populations in winter while going completely dry in summer. As a result, most fry had to migrate from these streams to larger tributaries or the mainstem soon after emergence. As but one example, Kane Creek was intensively studied and supported more than 2,000 spawning adults despite being dry from August through October. Peak spawning in the 1979-71 water year occurred from late January through mid February shortly after a peak maximum flow event on January 18, 1971. Peak fry outmigration occurred in May.

It is apparent from the Rogue River example that intermittent tributary streams are not only used by steelhead for spawning, but that they can support very large numbers of spawning steelhead per size of watershed. In the case of the Mid Skagit basin tributaries, the one stream that is of smallest estimated winter streamflow, and with a greater percent of its anadromous length going dry every summer (about 50%), is Dry Creek. Yet, 14 steelhead redds per kilometer were found at Dry Creek in 2014, which was about 2-10 times greater density of steelhead redds found than at any of the other four tributaries (Table 4). Emergence of O. mykiss fry was found in Dry Creek by mid to latter May, with probable emergence even earlier. This was sufficiently early to provide downstream migration to Finney Creek, and/or the Skagit River prior to its lower portion going subsurface likely several days prior to its being photographed on June 27th (Photo 5). As at the Rogue tributaries, steelhead spawning began in latter January (hatchery female steelhead and wild resident male) and February (wild female steelhead, undetermined male steelhead, and sea-run cutthroat male) in 2014. In 1978-1981 it was found that 65-80% of Skagit basin steelhead spawning occurred in the tributary creeks rather than the mainstems (Phillips et al. 1981b). However, it was thought that while the majority of the spawning occurred in the tributaries, most of the rearing to result in the adult returns must occur in the mainstems which even at that time were thought to be below carrying capacity and could accommodate still more. Although intermittency was not considered on the Skagit 35 years ago, the movement of juveniles from the tributaries to the mainstems was otherwise of the same pattern as on the Rogue.

6

Skagit River Evidence of Climate Changes and Steelhead Relationship

From McMillan (2015a):

Shifts in the monthly pattern of air temperatures and precipitation since 1909 (Tables 4 and 5) were examined as were relevant streamflows dating to 1928 (Table 6). Shifts are occurring that are particularly correlated with the steelhead spawning period of January to May. Air temperature trends include warmer air temperatures in January, less variable temperatures in February, and cooler temperatures in the remaining months. More precipitation now occurs in each of the months except February, as well as greater average streamflow, with the exception of February and May. Historically peak spring streamflow occurred in May, now peak spring streamflow occurs in March. Steelhead spawn timing must adapt to these climate related changes. It is important to note that the one month with least change is February. It may provide an important temporal point of

climatic stability for steelhead spawning that has remained little changed the past 100 years.

Importance of Recovery of Early Wild Steelhead Run-Timing During Climate Change

As climate warms, glaciers melt, winter snowpack and summer stream flows diminish, and water temperatures warm in the greater Puget Sound region, stream conditions may well increasingly resemble those from southern Oregon to central California. Certainly such climate shifts back and forth have occurred in the past, most recently in the early holocene warm period. A discussion of this follows related to Finney Creek of the Skagit River basin (McMillan 2015d):

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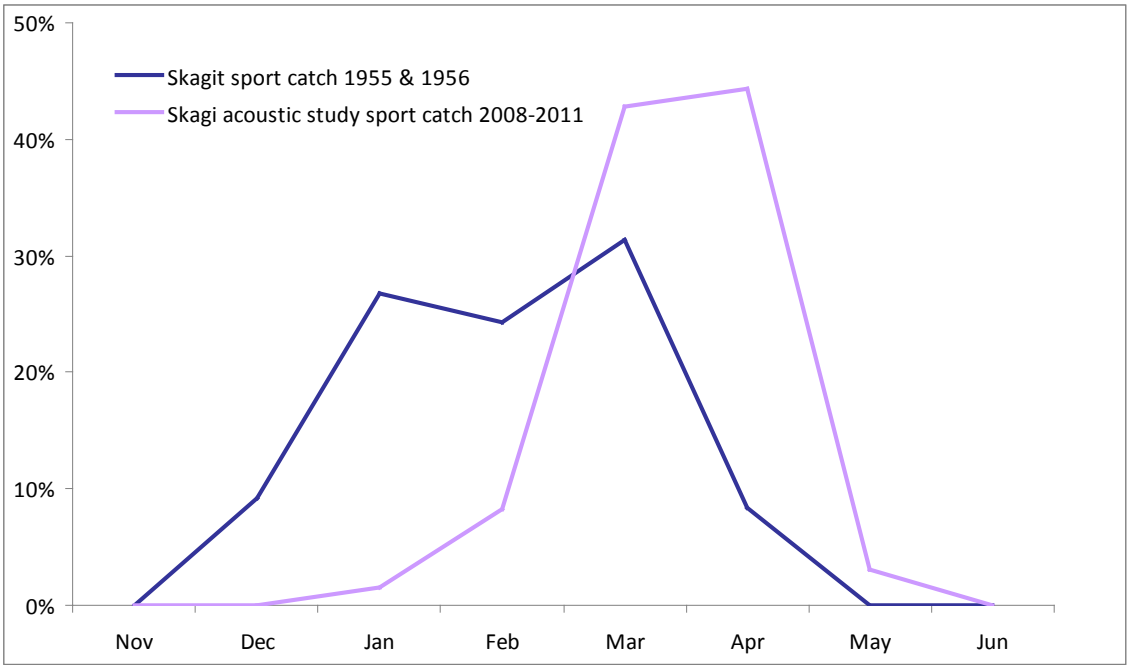
There have also been the slower climatic events, such as the early Holocene warm interval of 11,700-7000 years ago when climate was both drier and warmer than at present (Burn 1997; Brown and Schoup 2015). Although it has been hypothesized that salmon use of small streams may have been entirely eliminated during that early Holocene period (Brown and Schoup 2015), the winter/spring spawning of steelhead can result in sufficiently early emergence times for effective use of intermittent stream habitats (Everest 1973) and could potentially result in a different outcome than for fall spawning salmon when prolonged summer droughts may prevent fall entry. If global warming predictions are correct whatever conditions occurred in the early Holocene may again occur in the relatively near future. O. mykiss survival through whatever is to come will likely depend on the full breadth of available life histories Finney Creek has historically been noted for and which may represent survivors that went through the previous selective filter of the Holocene warm period.

The Cordilleran ice sheet had retreated out of Puget Sound about 16,000 years ago (Porter and Swanson 1998). At about that time recolonization by salmon and steelhead would have begun. What has come to be Puget Sound salmon and steelhead adaptive traits would have included going through the filter of the Holocene warm period when conditions were warmer than the present. Among the historic characteristics of Puget Sound winter steelhead was that of a large to dominant proportion of the run-timing being in the months of December, January, and February as evidenced by both sport and tribal catch data (Larsen and Ward 1955; Royal 1972; Taylor 1979; McMillan 2008; 2012; and 2015b) provided graphically in Appendix H (Figures 1-5). In the case of the Skagit River there is also contemporary wild steelhead run-timing data (2008-2013) from sport catch used to sample the winter steelhead population (Pflug et al. 2013) to compare with 1954-55 and 1955-56 sport data (WDG). As shown in Figures 5 and 6, there has been a significant shift to later run-timing with 50% of the historic catch being about 4-8 weeks earlier than at present, a considerable loss of early-run wild steelhead.

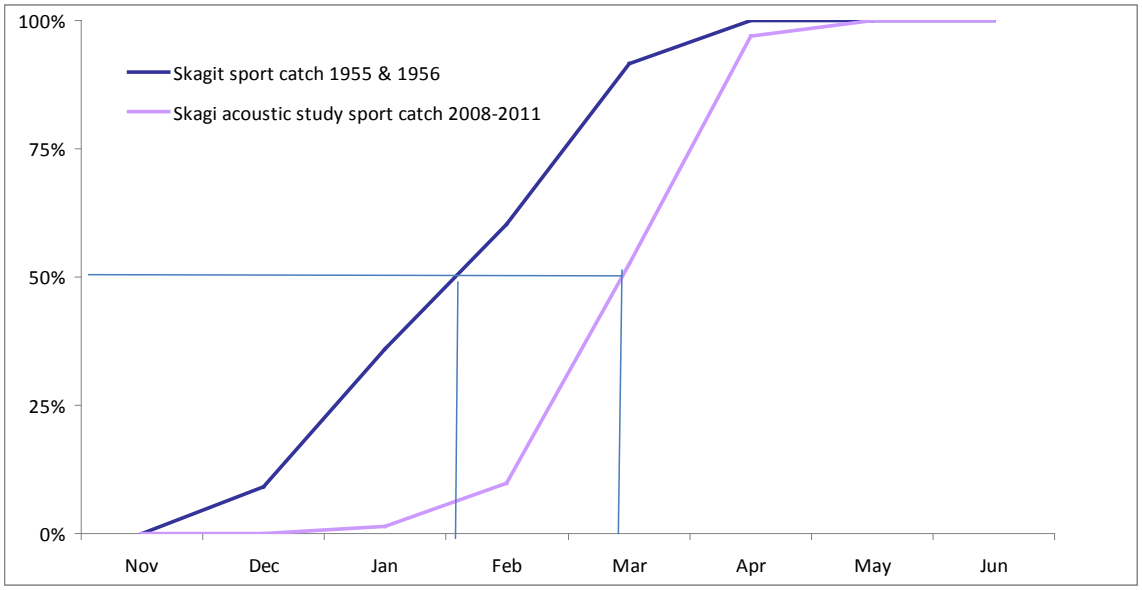
This shift in run-timing greatly limits the ability of Skagit River steelhead to enter and effectively spawn at a relatively early date compared to what was historically the case 50 years ago. Although early-run timing does not necessarily imply early spawning, it is nevertheless an essential attribute for earlier spawn-timing to occur in the months of January to early March. Furthermore, early run-timing, early spawning, and early emergence of fry are all essential characteristics for steelhead adaptation to intermittent streams (Everest 1973; McMillan 2015a; 2015b; and 2015c). Intermittency is a

Figure 5. Percent of Skagit wild winter steelhead sport catch per month for two time periods: 1955 & 1956, and 2008-2011



6

Figure 6. 50% of the Skagit wild steelhead catch occurred about 4-8 weeks earlier in 1955 & 1956 than it did in 2008-2011



hydrology characteristic that is likely to increase with predicted climate change (McMillan 2015a; and 2015b) and which is even at this time an adaptive advantage to shifts in weather patterns and rainfall on an annual basis as exemplified at Finney Creek

of the Skagit basin in the spring of 2015 (McMillan 2015c), and intermittency is a hydrology norm for 3 of 5 creeks regularly surveyed in the Mid Skagit basin (McMillan 2015a; and 2015b).

The Mid Skagit basin tributary creeks likely represent the characteristics of numerous other smaller Puget Sound streams used by wild steelhead for spawning. As a result, recovery of early winter steelhead run-timing should be a high priority to expect the potential for long-term recovery and viability of Puget Sound steelhead. For example, from 1978 to 1981 it was found that 65%-80% of steelhead spawning occurred in the Skagit basins smaller tributary streams, with the remaining 20%-35% spawning in the mainstems (Phillips et al. 1981b). Even at the time of about 1940 it was indicated that many Skagit tributary streams went intermittent (WDG undated):

6

Tributaries are generally small and individually rather unimportant, with the exception of Day and Finney creeks. Many go dry in part and are smaller with greater fluctuations due to the effects of logging and clearing practices extensively carried on in this region.

It is unlikely that wild steelhead recovery in Puget Sound can occur without focused efforts to recover the vitally important early return characteristics that formerly provided the ability of wild steelhead to fully seed available habitat locations and characteristics with resulting juveniles outmigrating from every available niche along with adult returns. Lack of early return wild steelhead is presently a great limiting factor with current climate conditions and it will be even more so with anticipated coming climate trends which these wild populations long ago previously endured.

Effects of hatchery programs, using early winter steelhead, or wild broodstock, on wild steelhead

BM Comments:

It has previously been indicated under the habitat consideration that the long-term Puget Sound steelhead trends for providing harvest using early winter hatchery winter steelhead programs (Chambers Creek origin hatchery stock steelhead) has been that of great harvest decline, not that of harvest increase (Appendix A, Figures 1-8). The fact is, even at the time of Loyd Royal's (1972) early Washington hatchery steelhead evaluation it was found that it took increasing numbers of hatchery smolts planted to result in a sport harvested adult (harvest included both hatchery and wild steelhead) at four Puget Sound streams for adult return years of 1962 to 1972 (Appendix B, Table 1). In other words, the modern steelhead hatchery program even early on was providing less harvest per hatchery smolt planted as an 11-year trend. This has largely been known for 43 years now. This is the sort of time lag that has occurred with devastating results for Puget Sound steelhead and the fisheries related to them. This is the opportunity to reverse the long forgone opportunity to alter steelhead management in Puget Sound as the responsibility of this DEIS process.

7

Great Britain Examples

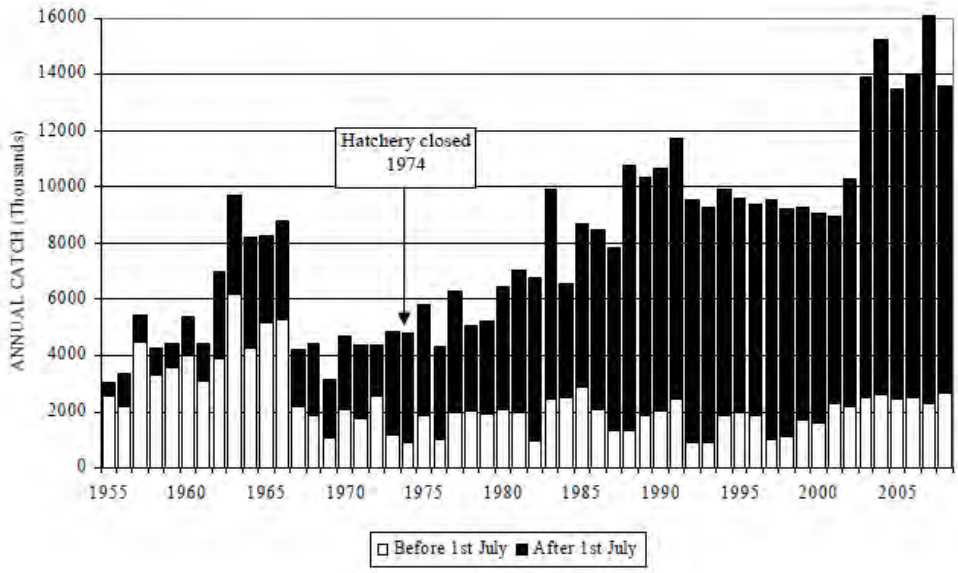
The Wales decision to cease Atlantic salmon stocking previously referred to under Habitat Considerations was much earlier preceded by the cessation of Atlantic salmon stocking at the River Tweed in Scotland. This occurred in 1974 and has resulted in increased salmon harvest and recovery of the particularly depressed stock of salmon with late run-timing (Figure 5; The Tweed Foundation unknown date-a). Scotland has not yet fully abandoned hatcheries but has put increasing limitations on them (RAFTS 2014). A quote from this policy report relates to the common failure of enhancement stocking:

A growing and significant amount of evidence now demonstrates that the efficacy of salmon stocking in the majority of circumstances in Scotland (mainly for 'enhancement' of existing stocks) is at best largely ineffective, and at worst, can have a damaging effect on existing native populations, through removal of wild brood-stock, displacement of existing populations and reduced fitness and reproductive success of any progeny. Key impacts include removal of fish which would otherwise have spawned naturally, restocking eggs and fry in places where the adults would not have naturally spawned, and issues associated with the mixing up of different fish from different parts of a system which can dilute or change natural population structures.

7

The River Tweed in Scotland provides the example of how wild Atlantic salmon recovery has occurred there once stocking ceased in 1974. There was also the failure of a later stocking experiment (The Tweed Foundation unknown date-b).

Figure 5. River Tweed, Scotland, Wild Atlantic Salmon Recovery after Eliminating Hatchery Plants and Recovery of Late-Return Life History Component



Furthermore it was quoted in a recent study (Coulson et al. 2013), which found a very low hatchery Atlantic salmon contribution to catch at the River Spey (only 2% contribution to catch compared to 98% wild through genetic analysis), that there were similar results from a much broader examination of hatchery contribution to catch in Great Britain:

"... a recent study by Young (2013) surveyed the relationship between stocking and angling catch statistics of Atlantic salmon for 62 rivers over a period of 15 years. He reported that the 42 rivers with stocking had non-significantly lower mean catch statistics than the 20 rivers without stocking. Furthermore, among stocked rivers there was no evidence for a generally positive relationship between annual stocking efforts and catch statistics and for those rivers for which stocking appeared to improve annual rod catches, they were more likely to have lower than expected mean catches."

It might be noted that much of Great Britain is heavily industrialized with much modification of riverine habitats from historic conditions. Even if the habitat were pristine, it remains that hatcheries provided little benefits to harvest, and there remained the universal concerns about the effects of hatchery fish on the wild populations.

Prior NOAA/NMFS Example

Concerns about Chambers Creek origin hatchery steelhead related to wild steelhead recovery was clearly stated in a letter from NOAA Fisheries to Lower Elwha Klallam Tribe dated April 14, 2010:

7

What are the risks and benefits to native populations of *O. mykiss* in the Elwha River to the continued use of Chambers Creek steelhead, a non-local stock?
Continued use of Chambers Creek hatchery steelhead in the Elwha River would increase the risk of loss of genetic variation and loss of fitness in native steelhead.

Do Chambers Creek steelhead have a role in the recovery of native Puget Sound steelhead? If so, what is it?
In our opinion as Northwest Fisheries Science Center scientists, Chambers Creek hatchery steelhead have no role in the recovery of native Puget Sound steelhead.

How it is that NOAA/NMFS is continuing to discuss the use of Chambers Creek origin hatchery steelhead in Puget Sound, as evidenced by this DEIS, given the Puget Sound steelhead ESA listing in 2007 and recovery responsibilities is beyond understanding.

Skagit Wild Broodstock Failures Example

The Skagit River basin has had three prior attempts at using wild winter steelhead for wild broodstock hatchery programs between 1980 and 1998. For only one brood year was there any evidence of success. The primary reason indicated from the internal memos between Washington Department of Game, Skagit System Cooperative Tribes, and the Wildcat Steelhead Club (from Wild Fish Conservancy information request from WDFW) is that rearing wild juveniles to adequate smolt size for spring release within one year was mostly difficult to impossible to achieve.

Three tables and brief description of these largely failed attempts follow:

Skagit River Wild Broodstock Steelhead Collections: Program Summary of Raw Data Files (1980-1992) Hand Written Notes by Jim Johnston WDW, 3-3-1992 (Likely limited to the Wildcat Steelhead Club collections). These were indicated as monitored releases and returns but there was no subsequent evidence found of any adult returns related to these plants or the impact on wild juveniles in those tributaries where fry were released.

brood yr adults collected	# female	# male	total adults	# eggs	plant date	# planted	size planted	plant site
1980	4	5	9	20,000	5/15/1981	6,346	8.9/lb	Skagit
1981	3	8	11	18,000	5/10/1982	1,769	7.1-9.3/lb	Skagit
1982	15	20	35	101,325	12/30/1982	14,958	23.2/lb	Barnaby
					4/26/1983	10,958	9.5/lb	Skagit
1983	19	19	38	144,489	5/4/1984	51,360	32/lb	Barnaby
					6/13/1984	21,700	10/lb	Skagit
1984	16	24	40	47,084	3/21/1985	7,254	62/lb	Barnaby
					5/22/1985	13,131	9/lb	Skagit
1985	18	18	36	88,000	10/20/1985	55,043	172/lb	Alder Ck
1986	10	14	24	52,000	10/4/1986	43,900	145/lb	Skagit
1987	11	17	28	69,496	9/15/1987	62,606	140/lb	Skagit
1988	20	15	35	70,985	11/19/1988	8,448	128/lb	Jones Ck
					11/19/1988	38,144	128/lb	O'Toole Ck
1989	9	14	23	52,000	11/25/1989	7,956	306/lb	Jones Ck
					11/25/1989	3,978	306/lb	O'Toole Ck
1990	11	18	29	73,000	11/3/1990	8,370	93/lb	Jones Ck
					11/3/1990	29,226	93/lb	O'Toole Ck
					11/3/1990	6,300	93/lb	Skagit
1991	12	17	29	74,930	11/18/1991	8,304	346/lb	Jones Ck
					11/23/1991	12,802	346/lb	O'Toole Ck
					11/23/1991	2,422	346/lb	Brickyard Ck
1992 low returns with no collections								
Totals	**148**	**189**	**337**	**811,309**		**414,975**		

7

Available data found for wild broodstock hatchery steelhead program through Skagit System Cooperative, WDG, and Puget Power mitigation agreement in 1985 that was reported in a Puget Sound Energy relicensing document of 2002 to have been a total of 611,000 total smolts to be reared at Lake Shannon on the Baker River. The data found were a combination from varied records of Skagit System Cooperative. There was one year of smolt plants that had a documented return.

smolt year	wild brood smolts (confirmed)	total adult return 2 & 3 years later	comments
1986	unk		collected & reared Wildcat Steelhead Club; smolts not released at Baker
1987	9061		
1988	16224	652 & at least 54	only adult return yrs found assessed 1990 & 1991
1989	0		all died prior to smolts
1990	0		all died prior to smolts
1991	9000		all that remained after ICH outbreak killed others
1992			
1993	0		no wild broodstock collected 1992 due to low return
1994	862		
1995	500		
1996			
1997			

1998			
Total	**35647**		the reported 611,000 total smolts released over the entire period by PSE 2002 may have included Chambers Ck substitutions which may have been 575,353 of the missing

Sauk River wild broodstock females were caught between 4/3/1982 & 4/21/1982 with all fish individually tagged with fish held and spawned at Arlington Hatchery. Data from Washington Dept. of Fish and Wildlife older records. There may have been another year or two of Sauk River wild broodstock collections but these were the only confirmed data found for number of females taken. No record was found of what the resulting number of smolts was, or the subsequent adult return. That it was discontinued would indicate a lack of probable success for the program.

date capture	date spawned	days between capture & spawn	date capture	date spawned	days between capture & spawn
3-Apr	15-Apr	12	13-Apr	29-Apr	16
7-Apr	15-Apr	8	10-Apr	29-Apr	19
18-Apr	22-Apr	4	17-Apr	6-May	19
14-Apr	22-Apr	8	18-Apr	6-May	18
17-Apr	22-Apr	5	7-Apr	6-May	29
18-Apr	29-Apr	11	16-Apr	6-May	20
21-Apr	29-Apr	8	10-Apr	6-May	26
16-Apr	29-Apr	13	18-Apr	6-May	18
7-Apr	29-Apr	22	18-Apr	13-May	25
14-Apr	29-Apr	15	17-Apr	13-May	26
3-Apr	29-Apr	26	17-Apr	13-May	26
21-Apr	29-Apr	8	5-Apr	13-May	39
			Total 24 females		**Avg 17.54 days**

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These prior failed attempts for use of wild broodstock in the Skagit basin do not provide a background from which to expect further success in what was apparently a primary goal at the time to provide an alternative hatchery means to provide better sport and tribal harvest opportunities than the Chamber Creek origin hatchery steelhead were providing. On request by NOAA, the information these data came from will gladly be made available. It is otherwise too large to conveniently provide in the limitations to this DEIS. Earlier reference to the Skagit System Cooperative wild broodstock program was briefly indicated in McMillan (2012), but at that time data for the other programs was unknown to exist and the Skagit System Cooperative data was incomplete, and still likely remains so to some extent.

Keogh River Wild Broodstock and Living Gene Bank Examples

As previously commented under Ocean Conditions, at the Keogh River of northeast Vancouver Island in British Columbia, two well monitored hatchery experiments were tried with one using wild broodstock as conventionally used in British Columbia in numerous stream locations, as well as what was called a living gene bank (LGB) attempt at taking wild smolts and keeping them captive for subsequent egg taking. Both programs have been abandoned as failures to succeed at enhancing the wild steelhead

population and in failures to provide increased fishing opportunity. In fact, the long-term result has been greater declines in both (Appendix G, Figure 7). Importantly, BC has used wild steelhead broodstock hatchery programs extensively dating to the 1970s with results also previously described (comments to Habitat Alterations, Figure 1) in the abandonment of the majority of those programs in favor of investments in habitat as their preferred alternative based on costs and benefits (MFLNR 2014).

Hatchery Impact Literature Example

Table 40. Potential mechanisms of hatchery impacts on steelhead populations described in literature.

Potential mechanism	References
Spawning interactions, genetic hybridization	Adults (Reisenbichler and McIntyre 1977; Reisenbichler and Rubin; Seamons et al. 2012) Precocious male parr (McMichael et al. 1999; Tipping et al. 2003; McMillan et al. 2007; McMillan et al. 2011; Christie et al. 2011-a)
Unintended Straying to Natural Spawning Grounds; and Lack of Spawn Time Separation between Wild and Hatchery Steelhead Selected to Be Different	Straying (Shapovalov and Taft 1954; Lirette and Hooton 1988; Schroeder et al. 2001; Jonsson et al. 2003; Keefer and Caudill 2012; Seamons et al. 2007; Seamons et al. 2012) Lack of Spawn Time Separation between Wild and Hatchery Fish Selected to be Different (Mackey et al. 2001; Seamons et al. 2012)
Reduced Fitness and/or Reproductive Success	(Reisenbichler and McIntyre, 1977; Close 1999; Kostow and Zhou 2006; Araki et al. 2007-a; Araki et al. 2007-b; Araki 2008; Araki et al. 2009; Chilcote et al. 1986; Chilcote et al. 2011; Christie et al. 2011; Bernston et al. 2011; McLean et al. 2003; Seamons et al. 2012; Byrne et al. 1992; Byrne and Copeland 2012; Christie et al. 2012)
Reduced or Altered Life Histories	(Jonsson and Jonsson 2006; Zaporozhets and Zaporozhets 2012; Miyakoshi et al. 2012)
Competition/Density Dependence	(Berejikian et al. 1996; McMichael et al. 1999; Kostow and Zhou 2008; Levin et al. 2001; Pearson et al. 2007; Ruggerone et al. 2012; Zhivotovsky et al. 2012) A sub-mechanism in this category is residualization of hatchery smolts (Royal 1972; Cannamela 1992; Viola and Schuck 1995; Tipping et al. 1995; McMichael et al. 1997; McMichael et al. 1999; Washington Trout 2004)
Indirect Predation	The relationship of hatchery releases and predator attraction (Thompson and Tufts 1967; Beamish et al. 1992; Nicholson 2003; Balfry et al. 2011; Collis et al. 1995; Einum and Fleming 2006; Handelmann et al. 1996; Steward and Bjornn 1990)
Overharvest in Mixed Stock Fisheries	(Flagg et al. 1995; Larkin 1977; Wright 1993)

For the Skagit River steelhead study a list (McMillan 2012) and table (Pflug et al. 2013) were developed regarding the identified hatchery-related mechanisms that can impact wild salmon and steelhead and the references related to them (Table 40 above). The full list of references is provided in Appendix F along with Table 1 providing smolt residualism literature found at the time of 2004 when it was created with a list of residualized smolt levels related to hatchery steelhead smolt plants. At the bottom of Table 5 it indicates the hatchery stocks used (including wild broodstock) and whether volitional releases or not if such was described. Some of the highest residualism levels were related to wild broodstock programs including at the Keogh River in BC with percentages of over 40%. My assumption is that Table 40 and its related references will be examined carefully for covering a great breadth of hatchery related impacts and the literature associated with them.

Hood River Example

There is an entire suite of literature on the results of both winter and summer steelhead hatchery programs that have occurred at Hood River and the declining wild steelhead trends (Araki et al. 2007a; Araki et al. 2007b; Araki 2008; Araki and Blouin 2009; Blouin 2003; Christie et al. 2011a; Christie et al. 2011b; Christie et al. 2012; Kostow 2004). In both cases, both more domesticated broodstock and wild broodstock were used with similar resulting declines (Appendix J, Figures 1 and 2).

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Forks Creek Example

Several steelhead studies have occurred related to research at Forks Creek on the southwest Washington Coast related to an early winter steelhead hatchery program there that was presumably isolated by return-time, spawn-time, and use of a weir to prevent interactions with wild steelhead. The results have proved very differently. From Seamons et al. 2012:

"Two strategies have been proposed to avoid negative genetic effects of artificially propagated individuals on wild populations: (i) integration of wild and captive populations to minimize domestication selection and (ii) segregation of released individuals from the wild population to minimize interbreeding. We tested the efficacy of the strategy of segregation by divergent life history in a steelhead trout, Oncorhynchus mykiss, system, where hatchery fish were selected to spawn months earlier than the indigenous wild population. The proportion of wild ancestry smolts and adults declined by 10–20% over the three generations since the hatchery program began. Up to 80% of the naturally produced steelhead in any given year were hatchery/wild hybrids. Regression model selection analysis showed that the proportion of hatchery ancestry smolts was lower in years when stream discharge was high, suggesting a negative effect of flow on reproductive success of early-spawning hatchery fish. Furthermore, proportions of hybrid smolts and adults were higher in years when the number of naturally spawning hatchery-produced adults was higher. Divergent life history failed to prevent interbreeding when physical isolation was ineffective, an inadequacy that is likely to prevail in many other situations."

"...The early migration and spawn timing of hatchery fish were believed to effectively prevent them from interbreeding with wild fish. Instead, it appears that significant proportions of the smolts and adults have been hatchery/wild hybrids. Earlier radio-tagging studies showed that there was some temporal overlap in migration and spawning, mainly hatchery-produced males arriving and spawning when wild fish were present (Mackey et al. 2001). There is considerable variation in migration and spawning timing even among wild fish in this and other steelhead populations (Seamons et al. 2007).

"...Even if barriers were completely effective at preventing upstream migration, the hatchery-produced fish might spawn elsewhere in the basin (Quinn 1993; Dittman et al. 2010). Segregation by life history was thought to complement physical segregation, but our study shows that it failed to prevent genetic interactions between hatchery and wild steelhead populations. Thus, managers should also consider other options for minimizing interactions between wild and cultured animals."

Many smaller streams in Puget Sound, and many of the tributaries of the main river basins have similarities to Forks Creek and it can be anticipated what has occurred at Forks Creek has occurred broadly in Puget Sound.

7

Skagit River Examples

The findings of regular spawning surveys at five Mid Skagit River tributaries from 2010-2014 found significant levels of early wild steelhead spawning along with that of hatchery steelhead spawning (McMillan 2015a; and 2015b). These surveys occurred from October through May to determine the full possible breadth of steelhead spawning. This differed from the spawning surveys by WDFW that typically begin about mid-March in the assumption that wild steelhead do not spawn earlier. Both hatchery and wild steelhead spawning were found in the January to early March period, sometimes together, along with wild resident rainbow males. Some of the more pertinent findings were (McMillan 2015a):

> *"There were 104 total steelhead redds counted in the five years of Mid Skagit tributary surveys (Table 1). Almost half (49%) of the redds were found prior to March 15th, the assumed initiation date of wild steelhead spawning. Over half (53%) of the steelhead were estimated to have spawned prior to March 15th when redd sightings were adjusted for spawn timing (Figure 1). In the five years of surveys a total of 18 O. mykiss (14 steelhead, 2 male residents, and 2 undetermined male steelhead or residents) were observed at 7 active spawning redds between January and June (Table 2). The hatchery proportion of the steelhead in the spawning mix was 40%. If the wild male resident life history was included it decreased to 33% hatchery. Both wild and hatchery origin steelhead were found spawning in the early time period of January to mid March. The hatchery proportion of the steelhead spawning mix prior to March 15th was 67% (Table 3). If the wild male resident life history was included it decreased to 50% hatchery. Although no hatchery steelhead*

were found spawning after March 15th the unknown origin steelhead after that date were 20% of the total steelhead observed. Of particular concern, hatchery steelhead were found spawning to the maximum upstream anadromous extent of the smallest tributaries in the Mid Skagit basin.

"The spawning time of steelhead was found to vary between tributaries. Over 50% of the spawning occurred prior to March 15th in three of the tributaries. The two other tributaries had 50% of the spawning occurring after March 15th. Air/water temperature, precipitation, streamflow, and intermittent or perennial hydrology were all examined as potential explanations for the spawn timing differences. Streamflow hydrology best explained the steelhead spawn timing differences. Specifically, whether a tributary's hydrology was intermittent or perennial was found to be a particularly probable driver regarding whether most steelhead spawned prior to March 15th or most thereafter (Figure 3). This was hypothesized to be due to the need for spawning to be early enough for significant numbers of emergent steelhead fry to move either downstream to perennial waters prior to late June to early July when intermittent flows began to disconnect these tributaries from larger downstream water bodies, or upstream if that option were available. Although intermittency is predicted to increase in northward expansion with climate change, and is sometimes perceived as a great limitation on steelhead reproductive success, there are examples of high steelhead productivity that occurs in intermittent streams and where gravel accumulations may actually provide better spawning habitat if steelhead life histories have effectively adapted with early spawning and emergence."

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The Mid-Skagit River tributary spawning surveys are not the only evidence of hatchery steelhead straying through much of the Skagit basin in a time period that indicates they will soon spawn or have spawned from March onward, when it is well documented many wild steelhead similarly spawn. The Skagit River study intended to determine what the effects of hatchery steelhead may be on the wild population that occurred from 2008 to 2012 found the following (Pflug et al. 2013):

"Unspawned and kelt hatchery‐origin steelhead captured outside the hatchery after March 1 for each return year are shown in Figure 18. Hatchery steelhead shown in this figure had either spawned outside the hatchery or were captured after the established time frame for spawning at the Marblemount hatchery. Stray hatchery adults, both spawned and un‐spawned, have been collected or observed in the mainstem Skagit, Sauk and Cascade rivers as well as in tributaries such as several middle Skagit reach tributaries including Savage, Finney, Mill creeks.

"WDFW scale interpretation information was also used to show evidence of hatchery steelhead repeat spawning from adults captured in a tribal fishery (Figure 19). In most years between 2005 and 2011 there were examples of hatchery steelhead having spawned multiple times based on scale interpretation. Hatchery steelhead that do return to the Marblemount hatchery are spawned a single time and killed preventing repeat spawning. These data provide evidence showing that hatchery‐origin steelhead strays are capable of spawning multiple times outside of the hatchery.

"...The capture of both spawned and unspawned hatchery‐origin steelhead at a variety of mainstem and tributary locations verified the occurrence of straying throughout the Skagit watershed. This finding confirms that there is opportunity for genetic and ecological interactions with natural‐origin steelhead. Furthermore, it was established that a number of stray hatchery adults are returning after February which is far later than desired for the Marblemount segregated hatchery program. These fish overlap with the spawn timing of natural‐origin steelhead throughout the basin creating opportunities for reproductive hybridization. This is especially true for earliest spawning natural‐origin steelhead typically found in the middle Skagit mainstem and its tributaries.

7 *"Our results as well as findings from other researchers found that late returning hatcheryorigin adults, especially males, on the Skagit were found to stay in fresh water for many months (Leider et al. 1984; Seamons et al. 2004). Both studies found that hatchery males in particular are capable of remaining in fresh water until natural‐origin females arrive and mate with wild fish throughout the wild spawning season, thus producing offspring with relatively late return timing. On the Skagit it appears that the largest overlap in spawn timing occurs in the middle Skagit reach, especially in the tributaries where some of the earliest natural-origin spawning takes place.*

"Based on scale interpretation, hatchery strays have also been shown to be capable of repeat spawning outside of the hatchery. Multiple reproductive cycles by a number of strays further extends the potential amount of genetic and ecological interaction with their natural-origin counterparts.

"The degree to which hatchery-origin steelhead stray and residualize in the Skagit remains unclear. However, it is likely that it varies annually depending on several factors such as number of smolt released, smolt to adult survival and freshwater flow conditions during adult upstream migration."

The Skagit River findings further corroborate the research results at Forks Creek.

Genetic effects related to hatchery steelhead on wild steelhead populations

BM Comments:

8 The genetic effects related to hatchery steelhead on wild populations in the case of Chambers Creek origin early return hatchery steelhead have already been discussed as part of the Forks Creek research described in the Hatchery portion comments of this DEIS (Seamons et al. 2012).

Skagit River Example

A thorough discussion of the genetic effects related to hatchery steelhead as presently known was provided in a recent report on Finney Creek of the Skagit River (McMillan 2015d):

Skagit and Finney Creek Steelhead Genetic Findings over Time

1981 Skagit Basin Genetic Findings (Phillips et al. 1981b):

"Genetic differences among steelhead trout populations in 1979 within the Skagit River drainage were examined by means of electrophoretic analysis of fish tissue proteins. Age 0+ steelhead juveniles were collected from tributaries and mainstem areas throughout the Skagit drainage from Burlington, Washington to Newhalem, Washington. The genetic profiles (oe. allele frequencies) from the collected 0+ steelhead were compared to baseline allele frequencies for juvenile South Tacoma winter-run and juvenile Skamania summer-run hatchery stocks (both of which are planted in the Skagit River). Also, Eric Parkinson of the British Columbia Fish and Wildlife Branch provided baseline allele frequencies from his work with steelhead populations (non known hatchery introduction) in British Columbia which were compared to the Skagit data.

"This study was initially planned for three years. This would have allowed comparisons of possible yearly variation in gene frequencies from Skagit samples. This yearly variation would have been included in comparisons with hatchery and British Columbia stocks (both of which had data from more than one year class). However, this report presents data collected on the Skagit for only one year. There are few definite conclusions which can be drawn without additional years' data. This study has presently been terminated due to funding and manpower problems.

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"Steelhead trout from the Skagit River drainage expressed a total of 21 alleles at the seven polymorphic genetic systems routinely examined in all the samples. The results from one year's information indicate that:

1.) Gene frequency differences between individual tributary samples contributed the the greatest variability of all sample comparisons from those collected in the Skagit River.

2.) The Skagit River juvenile steelhead gene frequencies collected in 1979 appear similar to the British Columbia frequencies at all but the SOD locus and similar to the the hatchery stocks at all but the LDH-4 locus, and

3.) This study should be revived for at least two additional years. The baseline work presented here indicates a potential for drawing definite conclusions on the genetic structure of wild steelhead populations within the Skagit River.

"Materials and Methods

"Sample Sites and Juvenile Steelhead Collection

"During October 1979, approximately 50 age 0+ steelhead trout were collected for electrophoretic analysis from 57 sample sites with the Skagit River drainage ... These sample

sites represented four major rivers: (1) the Skagit River, (2) the Cascade River, (3) the Sauk River, and (4) the Suiattle River. Forty-four of the steelhead samples were collected from tributary creeks while 13 of the samples were collected along the periphery or side channels of the mainstem rivers ...

"Summary

"1. This report presents data and comparisons based upon gene frequencies of only one year class of Skagit River juvenile steelhead. Although this would limit, if not preclude, valid comparisons between samples, comparisons were attempted since there is little chance that sampling and data collection will continue.

"2. Comparisons between samples collected from only the Skagit River showed:

a. The greatest significant difference (P < .0001) in frequencies occurred in comparisons between tributaries

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b. Comparisons between samples collected from the mainstem sites were also significantly different (P < .05).

c. The Cascade River was the only sub-area that was significantly different (P < .05) in comparisons between sub-areas ..."

1994 Skagit River Findings Compared to Other Areas (Phelps et al. 1994):

"... In the steelhead genetic studies of Baker (1988) in the South Fork Trinity River, California, and the Washington Department of Game (1981) in the Skagit River, Washington, significant differences among collections within river systems were found, but no discernable spatial patterns of this variation were observed. In contrast, a clinal pattern of genetic variation at several alleles has been observed for steelhead along the coast of Oregon, Hatch (1990). In that study, deviations from the spatial pattern were suggested to have been associated with relative basin size and stock abundance, and their relationship to the potential influence of genetic drift. Reisenbichler and Phelps (1989) did not find significant genetic differences among five major drainages along the north coast of Washington. In that study, the interbreeding of hatchery and wild steelhead was suggested as a possible mechanism for the observed lack of among-stock diversity. In addition, Reisenbichler et al. (1992) recently reported only small differences among coastal steelhead populations from Oregon and northern California, and speculated that this might also be due to interbreeding with hatchery steelhead. In contrast, the nonanadromous form of this species, rainbow trout, has larger levels of among-stock diversity throughout its native range ..."

1997 Skagit River Findings (Phelps et al. 1997):

"For the past several years, the Washington Department of Fish and Wildlife (WDFW) has been characterizing the genetic diversity of steelhead and rainbow trout (Oncorhynchus mykiss) throughout the state. Electrophoretic analysis has been the primary genetic methodology used in this effort. This work is intended to support both the state's Draft Wild Salmonid Policy and the ongoing status review for steelhead being conducted by the National Marine Fisheries Service ..."

"The Nooksack River 1995 collections clustered most closely with summer-run or mixed summer and winter-run collections from northern Puget Sound (Figure 2-A). The closest collections were Deer Creek 1993-1995, Skagit River tributary collections from Cascade and Finney creeks, and the Skykomish Hatchery summer-run strain ...

"Chapter 3. Relationships of summer-run and winter-run types

"Steelhead GDUs that have both summer-run and winter-run steelhead are primarily GDU 8, Northern Puget Sound, and GDU 3, Lower Columbia River ...

"Northern Puget Sound GDU 8

"We divided the collections from Allendorf (1975) in this GDU into four groups: Nooksack River, Skagit River (Sauk), Stillaguamish River summer-run and Stillaguamish River winter-run. All three of the WDFW collections from the Nooksack River had genetic distances that were larger than those from the Allendorf 1975 collection. Only one WDFW collection from the Skagit River, Cascade WR94, had a genetic distance that was smaller than the Sauk River collection from Allendorf (1975). The genetic distances of the three WDFW Deer Creek collections (1993-1995) to CCH93 were about equal to that for the Deer Creek collection from Allendorf (1975). The genetic distances to CCH93 in the winter-run collections from the Stillaguamish River were quite variable. We included WDFW collections from the Skykomish River (GDU 2) also. A few of these distances were smaller than those from the Allendorf collections, but the others were about the same. The mainstem (MS) Skykomish River WR93 had the smallest genetic distance and it had been identified by Phelps et al. (1994) as having a large amount of introgression from CCH. From these comparisons it appears that gene flow from CCH into wild populations in GDU 8has been minor and has not been widespread over the past twenty years.

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"Chapter 7. Examining gene flow between resident and anadromous O. mykiss

"Little is known about the amount of gene flow between resident (freshwater) and anadromous forms of O. mykiss. The resident form of this species is referred to as rainbow trout and the anadromous form as steelhead. Understanding whether these two life-history types represent sympatric forms of O. mykiss or whether residency and anadromy are a polymorphism within O. mykiss populations is important for conserving the genetic diversity of this species. Documenting the amount of interbreeding between these two forms is part of the challenge in defining Genetic Diversity Units and is a major question in defining ESUs. In general it has been thought that where there is more or less unrestricted access to marine waters, the anadromous form of this species would predominate. However, it has been suggested that angling has removed older resident fish and freshwater habitat degradation has not favored long freshwater residency.

"Past work has documented that the resident form of O. mykiss developed from the anadromous form. The evidence for that conclusion was the greater similarity of the two forms within MALs and GDUs than with the same life history types in different locations ...

"Conclusion: The reproductive relationships between anadromous and resident forms of O. mykiss are still unclear. Some of the streams we have characterized show no evidence for reproductive isolation between resident and anadromous forms, while in other streams there

appears to be evidence for distinct gene pools. The amount of gene flow may vary among streams and the amount of genetic differentiation dependent on genetic drift."

2013 Skagit River and Finney Creek Genetic Findings (Pflug et al. 2013):

The genetic findings from DNA of adult steelhead, juvenile steelhead, and resident O. mykiss sampled between 2008 and 2011 from the Skagit basin were assessed using two differing methods at the WDFW genetics lab in Olympia. Older scale samples taken from Skagit basin adult steelhead by hook-and-line and by gill nets from 1980 to 2009 were also included for analysis. Excerpts from Pflug et al. 2013 with descriptions of the collections and the differing findings are provided below:

Initial method findings:

"8.4.4 Genetic Distinction Level Between Adult Collection Groups

"The fishery samples were analyzed using a baseline that was established by aggregating the natural-origin collections, Marblemount Hatchery collections, and the collection from Chilliwack Hatchery into three separate groups...

"The homogeneous genetic makeup of the natural-origin steelhead in the Skagit suggests that there has been significant mixing within the population. Reduced spawning location fidelity is considered to be a logical explanation for this outcome. There appears to be a large enough proportion of the population that does not return to their natal spawning area such that over many generations the genetic makeup of the population has become blended ...

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"9.0 Hybrid Density in Juvenile and Adult Steelhead on a Spatial Level

"9.3.1 Natural-Origin Juveniles

"The juvenile collections showed the presence of presumptive hybrids in all collection areas sampled (Figure 21 and Table 27). The hybrid densities from the Skagit collection areas ranged from 6% in the Sauk collection area to 32.7% in Finney Creek. The two collection areas with the highest hybrid percentages were both from middle Skagit River tributaries; Finney and Grandy creeks.

"The presence of young-of-the-year juvenile resulting from naturally spawned hatchery parents occurred in six of the eight collection locations. Bacon and Diobsud creeks were the only two locations devoid of juveniles resulting from two hatchery parents. Juvenile densities from the other four collection locations ranged from 1.1-10.6%. The two collection areas with the highest incidence were Finney and Grandy creeks, both middle Skagit tributaries...

"9.3.2 Natural-Origin Adults

"The adult collections also show the presence of presumptive hybrids in all collection areas sampled (Figure 22 and Table 28). The hybrid densities within the Skagit collection areas ranged from 15.4% in the middle Skagit collection area to 35.8% in Finney Creek. In contrast, of the 169 adult hatchery steelhead from the Marblemount hatchery collection, only

a single fish was identified as a putative hybrid. In addition, 3 of the 5 Skagit collection-group areas showed some incidence of natural spawned hatchery adults. The upper Skagit, Sauk and Finney collection areas exhibit low levels of naturally spawning hatchery adults mating together ranging from 1.9-4.9% (Table 28). The middle Skagit and Suiattle rivers on the other hand showed no evidence of hatchery fish naturally spawning with each other at the adult level..."

Second method findings (from Warheit 2013):

"10.3.6 Empirical Analysis of Introgressive Hybridization within Skagit River Basin

"... The proportions of the wild populations assigned as introgressed were more similar between the Marblemount and Bogachiel hatchery analyses for the wild juvenile fish than they were for the wild adult fish, however, there were some exceptions. The proportion of the juvenile fish from Diobsud Creek assigned as introgressed dropped from 0.15 to 0.00 between the Marblemount and Bogachiel hatchery analyses, respectively. In fact, in the Bogachiel Hatchery analysis all of the Diobsud Creek individuals assigned as wild fish. As in the analysis of the adult populations, Finney Creek showed the greatest number of juvenile individuals assigned as introgressed, although juvenile individuals from Goodell Creek, Grandy Creek and Suiattle River had a comparatively moderate number of individuals assigned as introgressed (Table 37 and 38, Figures 36 and 37). Grandy Creek had the highest proportion of individuals assigned as pure hatchery, and in the Bogachiel Hatchery analysis the number of Grandy Creek individuals assigned as pure hatchery was greater than that assigned as introgressed (Table 38). For those populations with individuals assigned as pure hatchery, that number remained unchanged between the Marblemount and Bogachiel hatchery analyses for the lower Cascade River, Grandy Creek, and Sauk and upper Skagit river populations (Tables 37 and 38). Finally, Finney Creek, and especially Grandy Creek have individuals with Q ‑ values >= 0.80 and with relatively small 90% CI ranges (Figure 37).

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"10.4 Discussion/Conclusions

"... Part of the reason for the inability to clearly distinguish hybrid from pure fish lies in the fact that wild Skagit River steelhead and Chambers Creek origin steelhead (regardless of the hatchery where they are propagated) share a recent common ancestor and are currently only weakly (but significantly) differentiated (FST ≈ 0.02, Table 19; Kassler and Warheit 2012)...

"For adult populations, Finney Creek stands out as having the strongest introgression signal among the five populations. This is particularly evident in the Bogachiel Hatchery analysis, where the number of individuals assigned as hybrids in Finney Creek greatly outnumbers that in the other four populations. The assignments rates for the wild juvenile populations generally reflect the same patterns as those for the wild adults: (1) higher levels of introgression in the Marblemount Hatchery analysis than in the Bogachiel Hatchery analysis; and (2) higher levels of introgression for the Finney Creek population than the other populations. However, unlike the adult populations, Finney Creek is not alone in showing elevated levels of introgression in juvenile fish. In fact, for both Bogachiel and Marblemount hatchery analyses, all populations (except the Diobsud Creek population in the Bogachiel Hatchery analysis) showed qualitative evidence of introgressed fish. Since I see no

reason to assume that there is a higher proportion of pure wild juveniles that will be assigned as hybrids than that for pure wild adults, higher levels of introgression in juvenile populations compared with adult populations suggests that either hybrid adults are more difficult to find than pure adults due to possible temporal or spatial sorting, or juvenile to adult survival of hybrid fish may be lower than that of pure fish. However, Finney Creek is an exception in that the introgression signal is the same for adult andjuvenile fish.

"It is conceivable and perhaps likely that pure unmarked hatchery - origin fish and fish with pure hatchery ancestry (e.g., offspring of naturally occurring hatchery x hatchery crosses) occur on or near natural spawning areas. This means that unmarked fish assigned as pure hatchery (i.e., Q-value >= 0.80) may indeed be pure hatchery or hatchery-ancestry, and not an introgressed fish with high Q-values. However, in the simulation dataset the Q-value -- 90% CI range joint distributions for correctly assigned hatchery fish and F1 hybrids incorrectly assigned as hatchery fish (Q-values >= 0.80) are nearly identical. Therefore, I do not have statistical support to differentiate pure hatchery and hybrid fish with Q-values > = 0.80, or to identify these fish as either pure hatchery or hybrid fish. That being said, Finney Creek, Sauk River, and upper Skagit River, from the adult populations, and Finney Creek and especially Grandy Creek, from the juvenile populations show Q-value -- 90% CI range joint distribution patterns more extreme than what you may expect from introgressed fish (i.e., very high Q-values and low 90% CI ranges). This suggests that based on these samples pure unmarked hatchery-origin fish or fish with pure hatchery ancestry occur at a greater frequency within these creeks and rivers than other areas within the Skagit Basin.

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"Marblemount Hatchery currently releases smolts from the hatchery itself (Cascade River) and at the Baker River trap, downriver from Marblemount Hatchery near the town of Concrete (Figure 23) (Washington Department of Fish and Wildlife 2012). However, historically, smolts of Chambers Creek origin (either from Marblemount Hatchery or Barnaby Slough – downriver from Marblemount Hatchery between the Sauk and Cascade Rivers) were released throughout the middle and upper Skagit River, most notably the mainstem Skagit River, Cascade River, and Grandy Creek. The confluence of the Skagit River and Finney Creek is nearly adjacent to Grandy Creek, and the middle Skagit River adult collection, and the Finney Creek adult and juvenile populations are sandwiched between the Grandy Creek and Baker River trap smolt release sites. The Finney Creek populations stand out as having a high introgression signal, and pure unmarked hatchery or hatchery-ancestry fish are suggested in the Grandy Creek, Finney Creek (adult and juvenile), and to a lesser extent the Sauk (adult) and lower Cascade River populations. Some of these populations are close to historical or current hatchery smolt release sites, but considering the introgression signal in all populations, proximity to these release sites alone is not a sufficient predictor of hatchery introgression in the Skagit River. Finally, both Finney and Grandy creeks have natural-origin steelhead spawning earlier than elsewhere in the Skagit River basin, during a time more consistent with the early-spawning Marblemount Hatchery populations (Brett Barkdull, WDFW pers. comm. through Dave Pflug, SCL 2013). The higher introgression signal and the possible presence of pure unmarked hatchery or hatchery-ancestry fish in these two creeks are consistent with the early-spawning behavior."

March 2014 Skagit and Finney Creek Genetic Findings (from Warheit 2014a):

"We provide the Structure proportions and the category-specific likelihood-adjusted proportions, with their 90% CI, for the Skagit River OUs in Figure 13a, and for the DIPs in Figure 13b. The final adjusted assignments for both the OUs and the DIPs are in Table 6d and effective pHOS and introgression summary statistics are in Table 8d. Unlike the Green, Snohomish, and Stillaguamish Rivers, the Skagit River does not have an ESH program, but we included in the Structure analyses the Snohomish Reiter Pond samples to search for an ESH-lineage genetic signal.

"OU assignments – Finney Creek: We detected two Skagit River Local categories: Nookachamps Local Winter and Finney Creek Local Summer. Based on our phylogenetic analysis the fish assigned to Finney Creek Local Summer are more closely related to Local Summer Deer and Local Summer Canyon fish (Stillaguamish) than to any of the winter categories in the Skagit River, including the Finney Creek winter OU. Nonetheless, most of the individuals from Finney Creek summer (0.57) assigned to the Hybrid: Basin Winter – Finney Creek Local Summer category, as did one-third (0.32) of the Finney Creek winter OU individuals. Furthermore, 0.13 of the Finney Creek winter OU individuals assigned to the Finney Creek Local Summer category, 0.02 to pure EWH, but the majority (0.53) assigned to the Basin Winter category. The only signal for the occurrence of ESH-lineage fish in the Skagit River was in the Finney Creek summer OU, where 0.12 assigned to the Hybrid:ESH – Finney Creek Local Summer category. Taking the Finney Creek winter and summer OUs together, 0.44 of the fish in the Finney Creek basin assigned to the Hybrid:Basin Winter – Finney Creek Local Summer category, 0.22 to Finney Creek Local Summer category, 0.26 to the Basin Winter category, and 0.06 to the Hybrid:ESH – Finney Creek Local Summer category. The Hybrid:Basin Winter – Finney Creek Local Summer category does not appear to be a "false category" that existed because we lacked the power to differentiate the winter and the local summer categories. Although we did not explicitly test the power to differentiate Finney Creek Local Summer from the Basin Winter individuals, the two categories are genetically distinct. First, Structure analyses clearly separated the two categories. Second, the average F_{ST} between the Finney Creek summer OU and the winter OUs in the Skagit River basin was 0.023, including a $F_{ST} = 0.028$ with the Finney Creek winter OU. Third, the Finney Creek Local Summer category did not cluster with any of the Skagit River winter categories in the principal component analysis (Figure 7).

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"OU assignments – Winter: Except for the Cascade River winter OU, all other winter OUs appeared to be completely or nearly completely composed of Basin Winter fish. In the Cascade River winter OU, 0.17 assigned as Hybrid:EWH – Basin Winter and 0.83 assigned to pure Basin Winter. Marblemount Hatchery, the source of EWH fish in the Skagit River is located near the mouth of the Cascade River, so the higher incidence of Hybrid:EWH – Basin Winter fish in the Cascade River was not surprising. In the upper Skagit adult OU, 0.01 assigned to pure EWH category. Finally, the Nookachamps OU was composed equally of Nookachamps Local Winter, and Hybrid:Basin Winter – Nookachamps Local Winter (0.49 each). The remainder of the OU assigned to the Basin Winter category.

"DIP assignments: The Mainstem Skagit R Summer- and Winter-Run DIP was composed of 0.91 Basin Winter, 0.02 Finney Creek Local Summer, 0.05 Hybrid:Basin Winter – Finney Creek Local Summer, and 0.01 pure EWH. By contrast the Sauk R Summer- and Winter-Run DIP was composed entirely of Basin Winter fish.

"Effective pHOS and introgression: The two larger effective pHOS values in the Skagit River belong to the Cascade River winter (0.08, all to the early winter program) and the Finney Creek summer (0.06 all to the early summer program). These two OUs were also the only units to show introgression (0.17 and 0.12, respectively). The only other signal of potential hatchery effects on the wild OUs in the Skagit River is an effective pHOS – early winter = 0.01 for the upper Skagit adult OU."

October 2014 Skagit and Finney Creek Genetic Findings (from Warheit 2014b):

"Skagit River. The Skagit River samples (N = 333) were composed of 15 collections, aggregated into eight OUs and three DIPs. There was one summer-run OU (Finney Creek summers), and all samples, except from the Nookachamps OU, were from adults (Tables 7, S9). Compared with the Snohomish River, natural-origin samples from the Skagit system showed less influence from either the Marblemount EWH program, or an out-of-basin ESH program (Tables 8, S19, S20, Figure 10). Roughly 5% of the Finney Creek summer OU assigned to ESH-lineage, despite the fact that there are no ESH programs in the Skagit River. If ESH-origin fish are getting into the Skagit basin, they are most-likely straying from either the Whitehorse (Stillaguamish) or Reiter Ponds (Snohomish) ESH programs. The Finney Creek summer OU also showed evidence of EWH influence, with 3% assigned to EWH-lineage, and 7% as EWH-wild hybrids. However, the 90% CI range for the likelihood adjustment to the hybrid and wild categories was greater than 0.25, and therefore, I consider these assignment proportions uncertain. By contrast, the Finney Creek winter OU assigned as 98% wild and 2% EWH-lineage.

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"Unadjusted proportions from Structure showed that 15% of the Cascade OU was composed of EWH-wild hybrids, but zero contribution from EWH-lineage fish. As with the samples from Finney Creek summer OU, the 90% CI range for the likelihood adjustment to the ESH-Wild category was greater than 0.25, and therefore, I consider these assignment proportions uncertain. However, the point estimate for the adjusted EWH-wild hybrids assignment was 6% (Table S19), which, if correct, would be largest hatchery effect for all OUs in the Skagit. The Finney Creek and Cascade OUs were aggregated with the upper Skagit River OUs forming the Mainstem Skagit R Summer- and Winter-Run DIP. This DIP was composed of 96% wild fish, and 2% EWH- and 1% ESH-lineage fish. Because the samples sizes from the Cascade and Finney Creek summer OUs were small compared with that from the upper Skagit OU (Table S9), and since both OUs are a small component of the total spawning population in the DIP, (Table S12), when aggregated with the upper Skagit OU, the DIP showed no F1 Hybrid$_W$ introgression, but 2% PEHC$_W$ and 1% PEHC$_S$ (Table 8).

"The Sauk R Summer- and Winter-Run DIP (aggregated from Sauk and Suiattle OUs) and Nookachamps River OU/DIP were both composed mostly of wild fish (96% and 98%, respectively), with 4% and 2% of the fish assigned as EWH-lineage, respectively. Neither DIP showed evidence of hybridization, so the PEHC$_W$ value for both DIPs reflected the EWH-lineage proportion only (Table 8).

"In summary, samples from the Skagit River showed evidence of hatchery influence around 2 - 4% PEHC$_W$, with the contribution from both EWH-lineage fish and EWH-wild hybrids. The areas with the largest hatchery influence were Finney Creek (summer population), and Cascade River, the location of the Marblemount EWH program. There was also evidence

that ESH-origin fish strayed into Finney Creek and the upper Skagit River. These results are consistent with an earlier analysis of hatchery-wild introgression in the Skagit River (Warheit 2013). The earlier work was conducted with a limited set of microsatellite loci and used unadjusted (and therefore biased) Structure proportions only. In that report's conclusions I state "The SPAN microsatellite loci lack sufficient power to reliably quantify Marblemount Hatchery (Chambers Creek - origin) introgression into the wild Skagit River winter steelhead populations, or reliably identify pure unmarked hatchery or hatchery-ancestry fish using the program STRUCTURE. However, under some reasonable assumptions, the Finney Creek adult and juvenile populations appeared to have a higher level of hatchery¬wild introgression than all other wild populations" (Warheit 2013:119). In this earlier study, the Structure analyses did not include samples from an ESH program or from the Finney Creek summer OU."

The Future in Steelhead Genetics:

The methods for determining genetic relationships and hybridization among fish populations have been continuously evolving with increasingly fine levels of determination for steelhead since at least the 1970s (Reisenbichler and McIntyre 1977). It is apparent that over time the methods for genetic determinations have been a moving target with sometimes altering results that may yet remain incapable of actually identifying critical aspects of steelhead diversity that are genetically passed and which will ultimately determine their ability to effectively adapt – both locally and as potential refuge populations on which the broader future of species adaptation may depend. A promising new method is one that uses "restriction site associated DNA" (RAD) tags (Miller et al. 2007). RAD marker DNA can rapidly produce a low-cost microarray genotyping resource that can be used to efficiently identify and type thousands of RAD markers.

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A relatively recent paper (Miller et al. 2012) has indicated the following about steelhead and O. mykiss as a whole which is pertinent to Finney Creek and the Skagit basin:

"Within Oncorhynchus, the O. mykiss species encompasses both resident-freshwater and anadromous (ocean-dwelling but freshwater-spawning) forms that are referred to as rainbow trout and steelhead, respectively. O. mykiss are native to the Pacific coast of North America from Baja California to the Alaska Peninsula and the Kamchatka Peninsula of Russia and natural populations contain diverse phenotypic adaptations (Hershberger 1992; Taylor et al. 2011). As with other Oncorhynchus species, O. mykiss are threatened, endangered or extinct throughout much of the native range, and restoration is considered a challenging but crucial priority (Busby et al. 1996; National Research Council 1996; Gustafson et al. 2007). Besides the importance of natural populations, ease of culture and experimental tractability have made O. mykiss an important species for biomedical research and aquaculture, and more is known about the biology and physiology of O. mykiss than about any other fish species (Thorgaard et al. 2002). This unique combination of attributes makes O. mykiss a powerful and tractable system for investigating the genetic architecture of local adaptation in salmonids...

"Rate of development is a fascinating trait that varies across natural populations of O. mykiss and other salmonid species (Robison & Thorgaard 2004). Juvenile salmonids suffer high rates of mortality after emerging from their gravel nests (Elliott 1989) and experience intense selection to optimize emergence timing for increased food availability, reduced predation rates and ideal migration conditions (Einum & Fleming 2000; Sundström et al. 2005). Development rate also varies across the O. mykiss clonal lines in a manner reflecting their source populations (Robison & Thorgaard 2004), with two lines, referred to as Clearwater (Cl) and Swanson (Sw), having an accelerated development rate relative to the others (Robison et al. 1999; Sundin et al. 2005). Interestingly, these two lines originate from very distant geographical locations and belong to distinct subspecies of O. mykiss. The Cl line originated near the extreme east of the O. mykiss native range (North Fork Clearwater River, North Central Idaho) and belongs to the inland subspecies, whereas Sw originated near the extreme north (Swanson River, Southcentral Alaska) and belongs to the coastal subspecies (Allendorf & Utter 1979; Behnke & Tomelleri 2002; Brunelli et al. 2010). The parallel adaptation of an increased development rate may have evolved in response to the cold incubation temperatures at both locations...

"Strikingly, we find that not only is a parallel genetic mechanism used for rapid development in Cl and Sw but that a conserved haplotype is responsible for this intriguing parallel adaptation. In addition to providing insight into the genetic mechanisms that underlie parallel adaptation, our finding of the repeated use of adaptive genetic variation across distant geographical areas could be a general theme in salmonids and have important implications for the management and/or restoration of threatened or endangered populations..."

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The authors came to conclude the following along with the implications for conservation in a future that must continually include adaptations to climate change (Miller et al. 2012):

"Parallel adaptation is common among salmonids with two classic examples from Pacific salmonids being the repeated evolution of beach and stream spawning within sockeye (Wood 1995) and adult run-timing variation within chinook (Waples et al. 2004) and steelhead. In both cases, populations with different phenotypes but from the same watershed are genetically more similar than populations with the same phenotypes but from different watersheds (Wood 1995; Waples et al. 2004)....

"Implications for conservation

"The recent, rapid and global decline in biodiversity has left conservation biologists searching for methods to distinguish unambiguous units within species for conservation purposes. Much work has utilized patterns of genetic diversity at a relatively small number of loci to help define these units. However, a limited amount of genetic data often fails to distinguish adaptively distinct populations, and therefore, the additional collection of phenotypic and ecological data is recommended (Utter et al. 1993; Fraser & Bernatchez 2001)...

"Recent and continued advances in genomic technologies are making possible the collection of extensive (or even complete) genetic information from many individuals in many

populations of many species. If these data were collected, they will facilitate the identification of signatures of selection and adaptive genetic variation on a comprehensive genome scale (Hohenlohe et al. 2010b) and provide great power to distinguish closely related but adaptively distinct populations. Furthermore, identifying the genetic diversity that is important for the adaptation of populations to their local environment could provide a framework for designing supplementation and restoration programmes ...

"The repeated use of adaptive genetic variation across distant geographical areas also underscores the importance of conserving populations throughout a species range for the future adaptability of that species. Particular populations could serve as reservoirs for alleles that become important for the successful adaptation of other populations upon environmental changes. For example, southern populations probably contain alleles that confer adaptation to warmer conditions, and these alleles could be utilized by more northern populations as temperatures increase. Unfortunately, many southern populations are already extinct (National Research Council 1996; Gustafson et al. 2007) and others too depressed to provide adequate stray-based gene flow ..."

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Finney Creek (and the Skagit basin as a whole) has experienced great decline in former abundances of early-return wild winter steelhead (with run-timing from November through February), in early spawning wild winter steelhead (January through early March), and in summer-run steelhead. These all represent the former life history diversity of steelhead that was in Puget Sound as a whole and in numerous other areas of the North Pacific Rim. However, while it is recognized that these life history attributes are commonly, and even generally represented with genetically passed differences, the methods of genetic determinations being made in the Skagit basin and Puget Sound as a whole are lacking in finding a similar level of distinct genetic diversity in steelhead from one major river basin to another and within the major river basins. This is despite the fact that within-basin habitats have differing environmental characteristics in elevations, gradients, water sources, and hydrologies. In the latter 1970s to early 1980s, however, electrophoretic analysis of Skagit basin steelhead found considerable within-basin genetic diversity represented by the steelhead in the smaller tributary streams (Phillips et al. 1981b; Phelps et al. 1994). Yet, today this has not been similarly identified with the present methods being used for genetic analyses. This suggests potential widespread loss of genetic diversity that has already occurred in the Skagit basin, or that present methods used for genetic analyses (or the samples being evaluated) are not providing an accurate indicator of the genetic diversity that remains. Given that considerable breadth of life histories remain within the O. mykiss of Finney Creek and the Skagit basin, albeit some at remnant levels, it suggests that use of finer levels of genetic analyses such as that by RAD marker DNA are a critical need if genetics is to be an effective management guide for wild steelhead recovery.

The bottom line in the case of the varied Skagit River steelhead genetic evaluations is that the most recent interpretations developed in 2014 often do not well fit the actual observations that have been documented in the greater Skagit basin relative to the presence of hatchery steelhead found throughout the spawning grounds. There is apparently much that is presently not being detected in the most recent genetic evaluations. The commonly small numbers of wild steelhead spawning in tributary

8 creeks, in particular, results in seemingly small numbers of hatchery steelhead being very significant parts of the spawning population as previously shown in my Hatchery related comments to this DEIS (McMillan 2015a; 2015b).

Socioeconomics provided by hatchery programs 8

BM Comments:

Nowhere is it discussed in this DEIS what the socioeconomics are as provided by wild steelhead to compare with that provided by hatchery programs and what the comparative costs to the public are in a cost/benefit analysis. However, it is apparent that hatchery steelhead contributions to harvest in Puget Sound have been little as compared to what historic harvest contributions were 60 years ago when most returning steelhead and steelhead harvest in Puget Sound streams were that of wild steelhead. The comparative examples of the 60+ year histories of total steelhead harvest (hatchery + wild; sport + tribal) at the Skagit River has been that of great decline, whereas the wild winter steelhead returns of the North Fork Umpqua River on the Oregon Coast, with but a short history of winter steelhead hatchery plants, have remained stable over time along with the sport harvest (Appendix K). The only reason the North Umpqua sport harvest has dropped off in the most recent years is because of anglers requesting increased catch and release regulations, which has occurred. It is apparent that the socioeconomic benefits are far greater and justifiable to the public than the case with the Skagit River.

9

Regarding the differences between the Skagit River steelhead harvest trend (which for the period of 1978-2012 also parallels overall run-sizes and presumably also does so in the earlier era prior to data to determine that), some have considered that this could be a difference in the habitat qualities between the two river basins. However, it is apparent from the overall watershed habitat quality evaluations made at nearly 1,600 rivers around the North Pacific Rim (including Kamchatka, Alaska, and British Columbia) that the Skagit watershed ranks in the upper 19% (309th) of the many rivers evaluated while the Umpqua watershed ranks in the upper 37% (586th) (data from the Flathead Lake Biological Station of the University of Montana http://rap.ntsg.umt.edu/overallnolakerank). This is shown in the rankings for a number of the river basins (Appendix K, Figure 1).

There is also no discussion of what the socioeconomic benefits would be with wild steelhead recoveries sufficient to provide long-term sustainable harvest without the debilitating effects of hatcheries on wild productivity as is evident in the North Umpqua River. This is surely the very purpose of developing a Puget Sound recovery plan that has yet to occur, and which would include a goal of providing sustainable wild steelhead harvest as occurs at the North Umpqua.

It is further apparent that the greater economic benefit related to several of the hatchery steelhead programs related to this DEIS would provide greater poundage of harvest if it occurred at the smolt level on release rather than await the great diminishment of harvest poundage on the adult return (Appendix K, Table 1). This has similarly been the case on the Skagit River until the most recent years when hatchery steelhead smolt plants were

9 cut in half with the adult harvest return finally becoming somewhat greater than the weight of the smolts released (also Appendix K, Table 1).

Environmental justice and the importance of harvest and harvest opportunity

10 **BM Comments:**

Based on the evaluations of this DEIS, it is evident that the history of Puget Sound hatchery steelhead programs has provided no environmental justice to anyone, especially the tribes in the ever-diminishing harvest that has occurred related to these programs.

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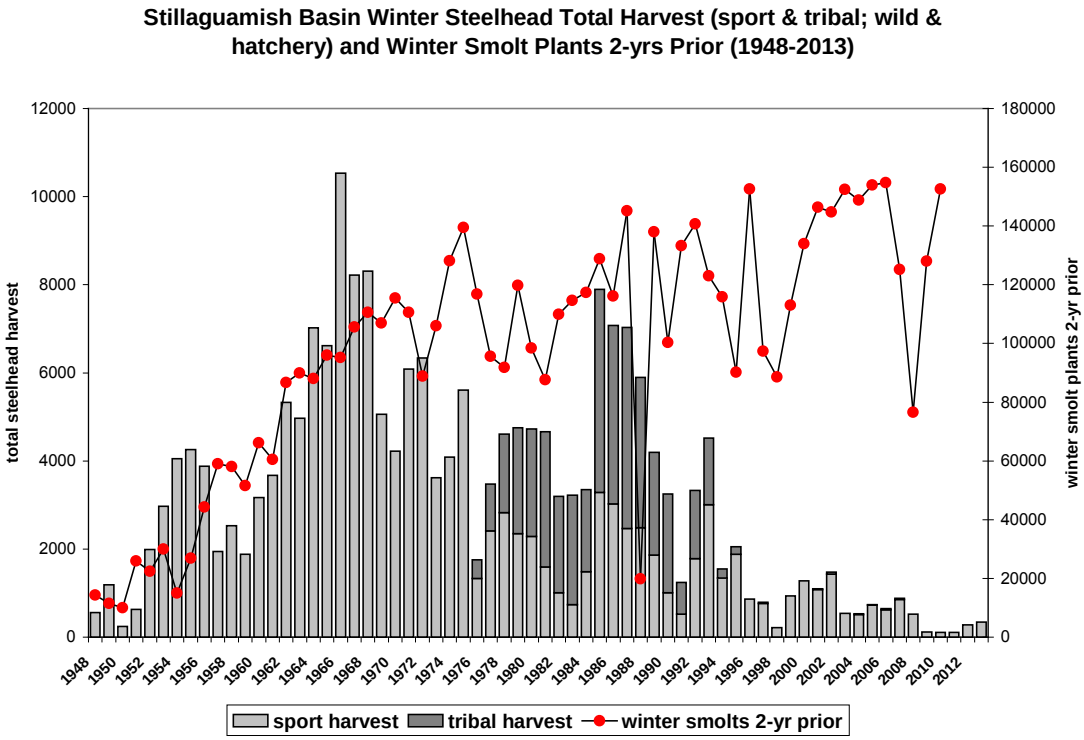
Appendices

Appendix A

Figure 1.



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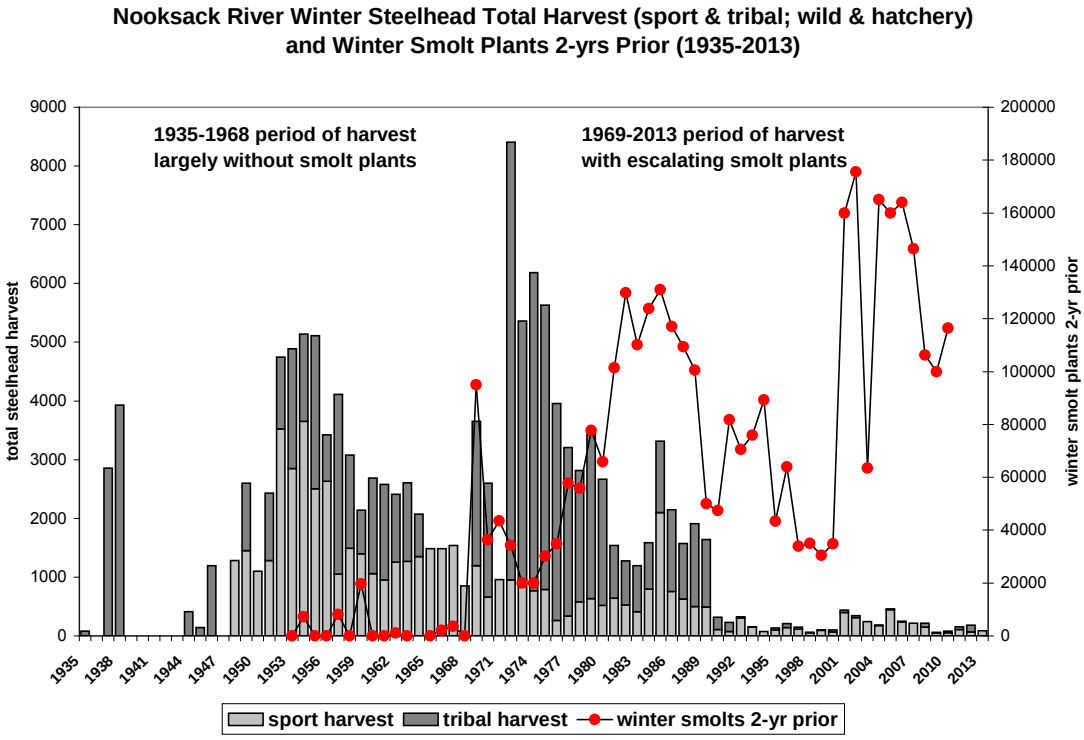

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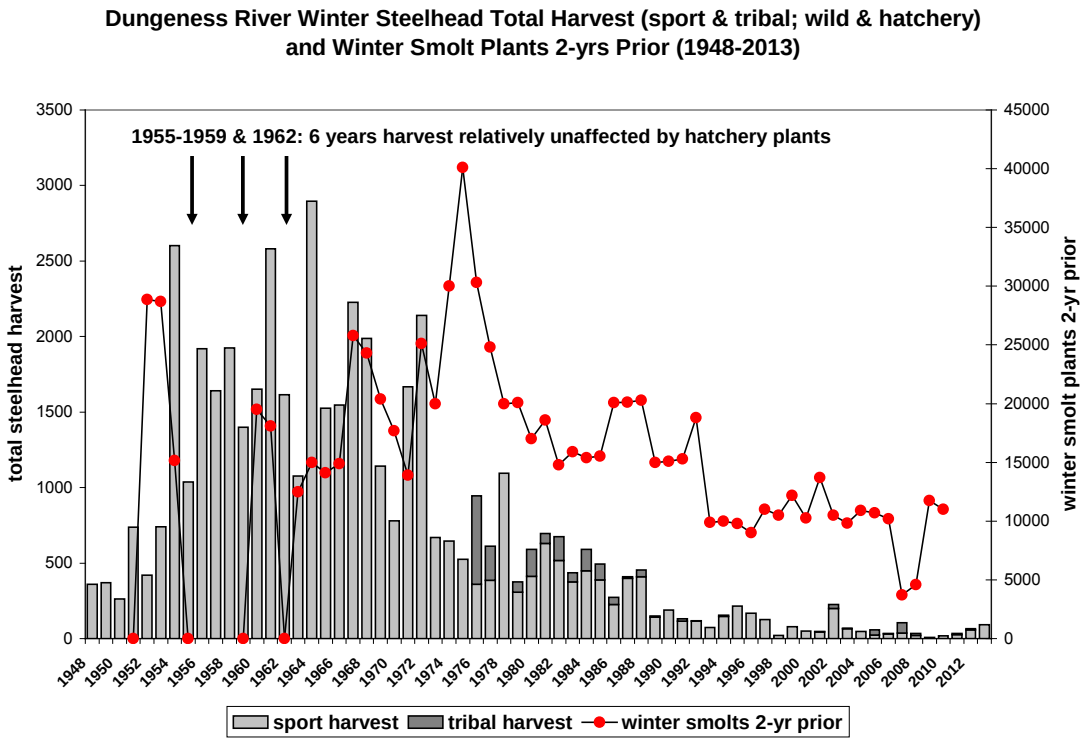

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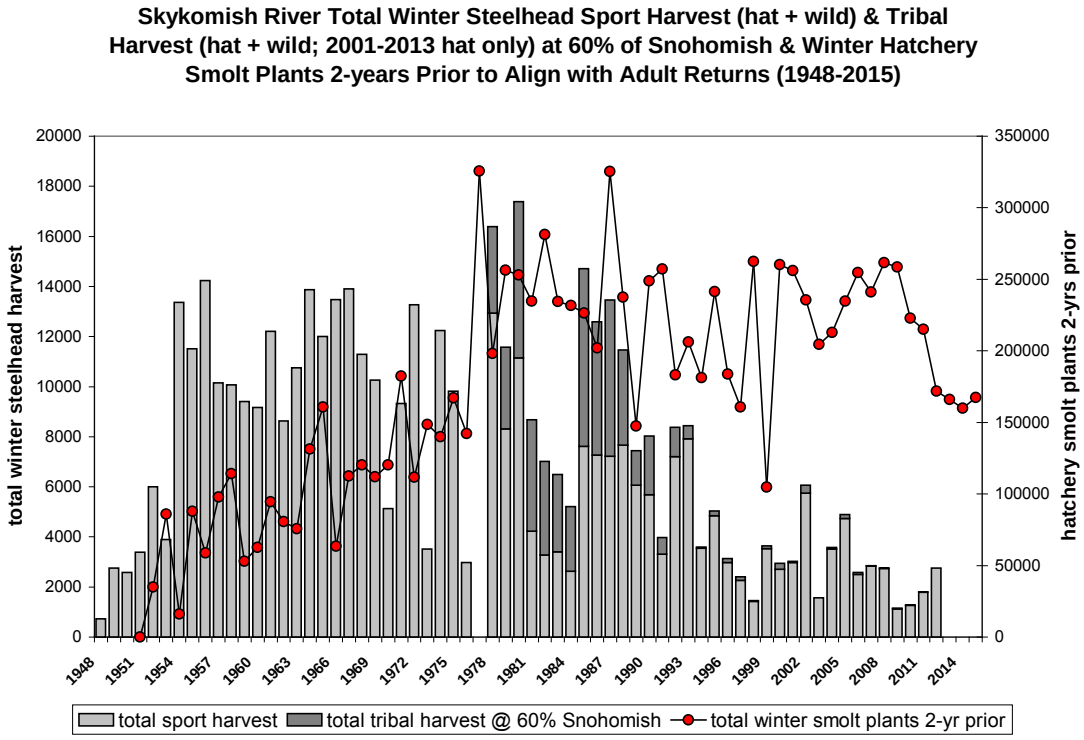

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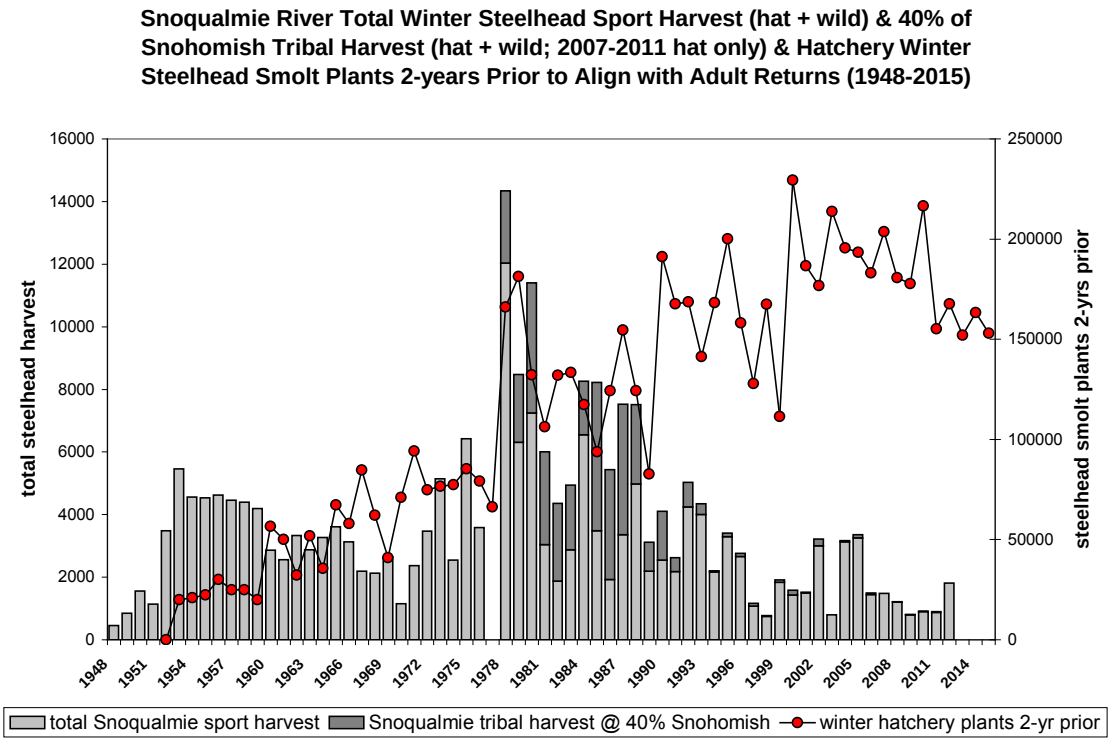

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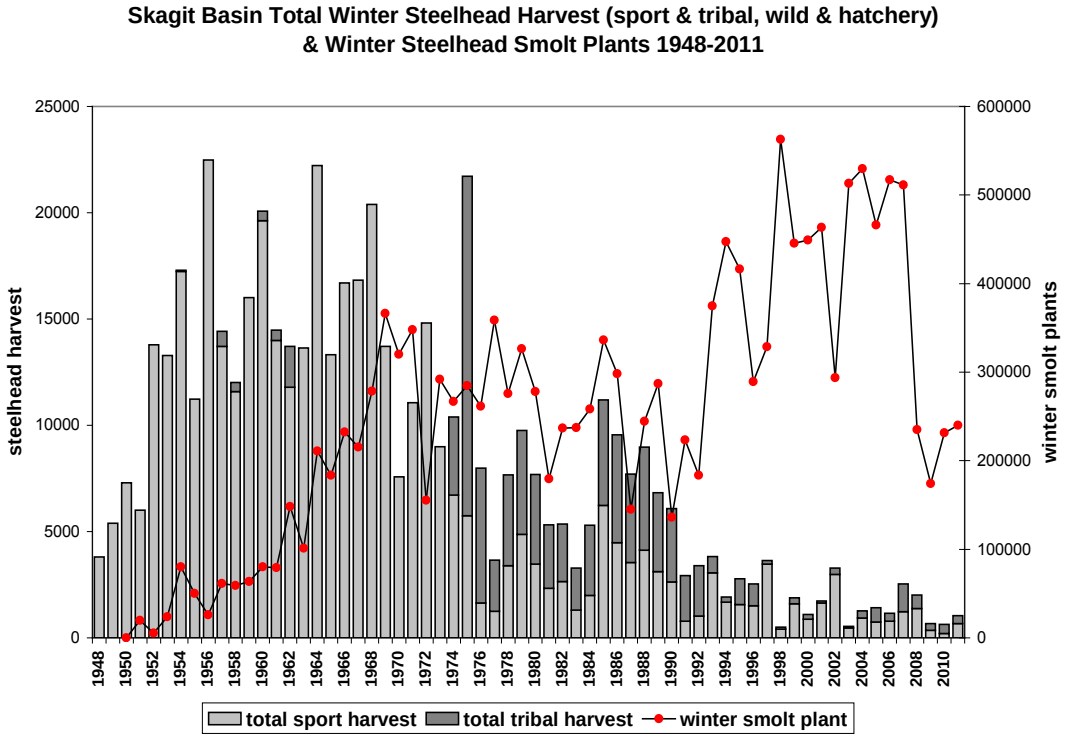

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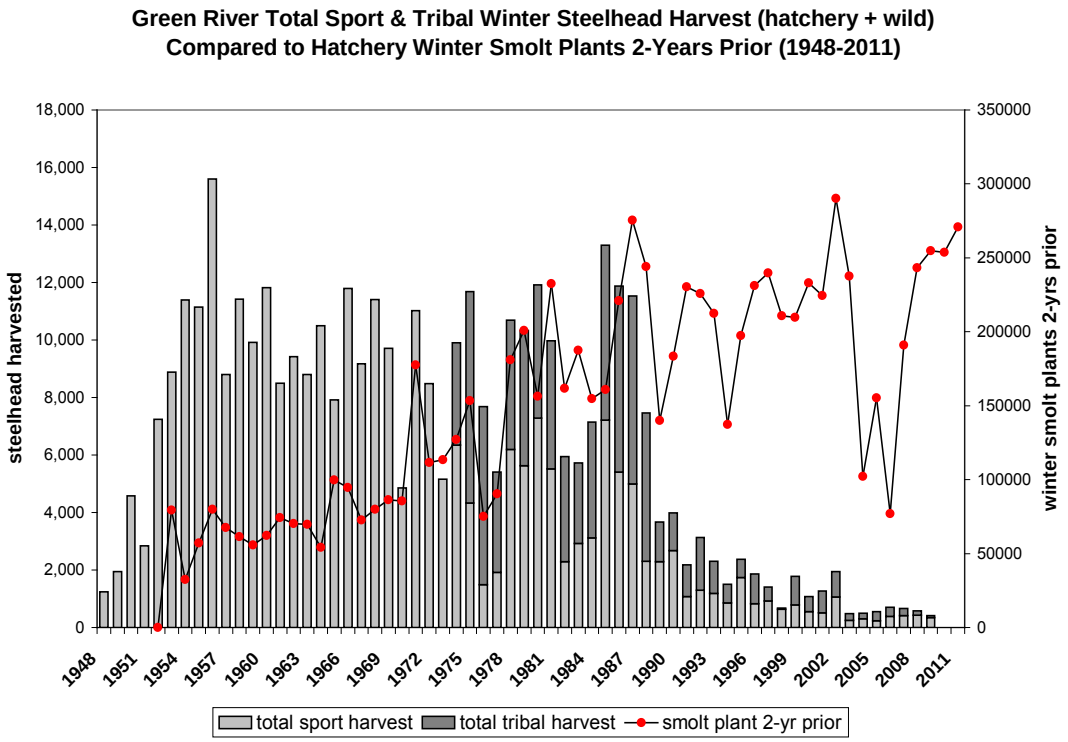

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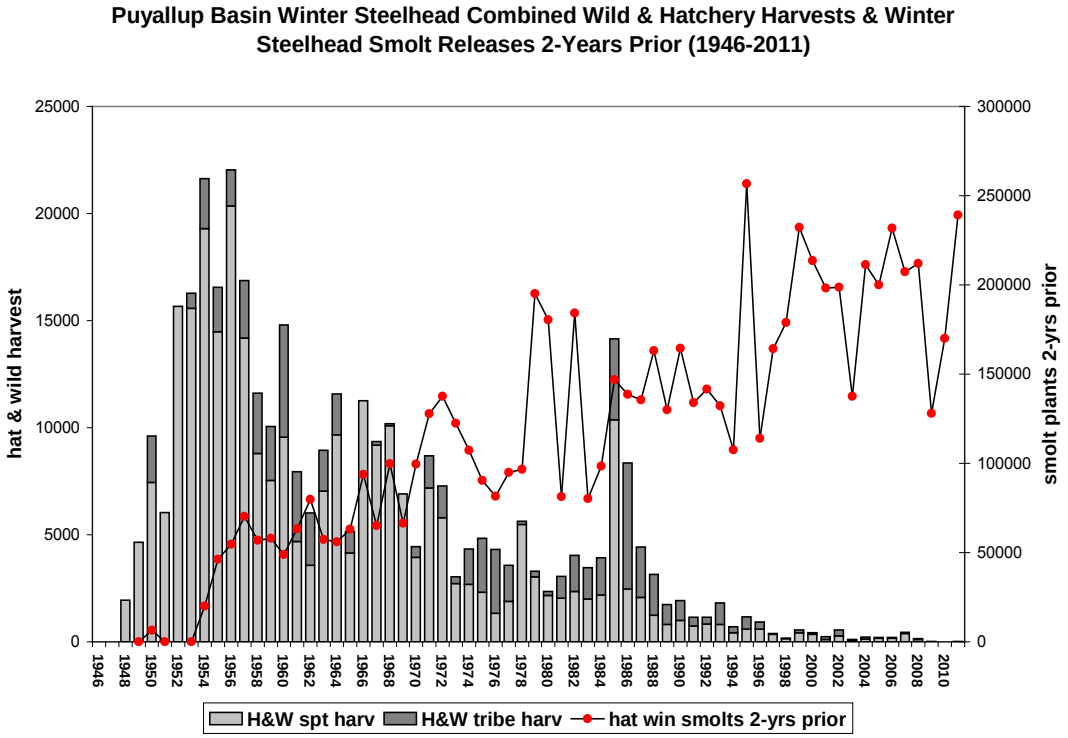


Appendix B.

Table 1. Sport harvest/smolt data from Royal (1972) for four Puget Sound steelhead streams with increasingly less harvest (1969 & 1970 data updated from what Royal had)

River	Year planted	Smolts planted	Catch 2-Yr later	Smolt to adult	River	Year planted	Smolts planted	Catch 2-yr later	Smolt to adult
Green	1960	70 000	15 700	4.45	Skagit	1960	80 000	18 541	4.31
	1961	20 000	14 664	4.77		1961	83 000	21 420	3.87
	1962	54 000	17 484	3.08		1962	133 000	34 900	3.81
	1963	90 000	13 613	6.61		1963	74 000	20 829	3.55
	1964	95 000	19 468	4.88		1964	224 000	26 683	8.39
	1965	67 000	15 271	4.39		1965	144 000	24 833	5.79
	1966	79 000	18 906	4.18		1966	175 000	31 524	5.55
	1967	86 000	15 998	5.38		1967	128 000	21 958	5.82
	1968	85 442	8 061	10.60		1968	187 400	11 441	16.38
	1969	155 000	17 303	8.96		1969	269 000	17 303	15.54
	1970	112 000	13 909	8.05		1970	224 000	22 796	9.83
River	**Year planted**	**Smolts planted**	**Catch 2-yr later**	**Smolt to adult**	**River**	**Year planted**	**Smolts planted**	**Catch 2-yr later**	**Smolt to adult**
NF Stillaguamish	1960	34 000	4 974	6.83	Skykomish	1960	29 000	8 754	3.31
	1961	39 000	4 815	8.09		1961	33 000	8 450	3.90
	1962	41 000	6 786	6.04		1962	41 000	10 131	4.04
	1963	40 000	6 098	6.55		1963	37 000	8 031	4.60
	1964	55 000	7 844	7.01		1964	49 000	10 834	4.52
	1965	70 000	7 814	8.95		1965	65 000	12 155	5.34
	1966	68 000	7 631	8.91		1966	58 000	9 531	6.08
	1967	61 000	4 011	15.20		1967	55 000	7 586	7.25
	1968	55 475	3 392	16.35		1968	55 045	4 010	13.73
	1969	67 000	4 745	14.12		1969	100 000	6 849	14.60
	1970	71 000	4 701	15.10		1970	60 000	12 649	4.74

Appendix C.

Figure 1. SF Toutle River (winter run population)

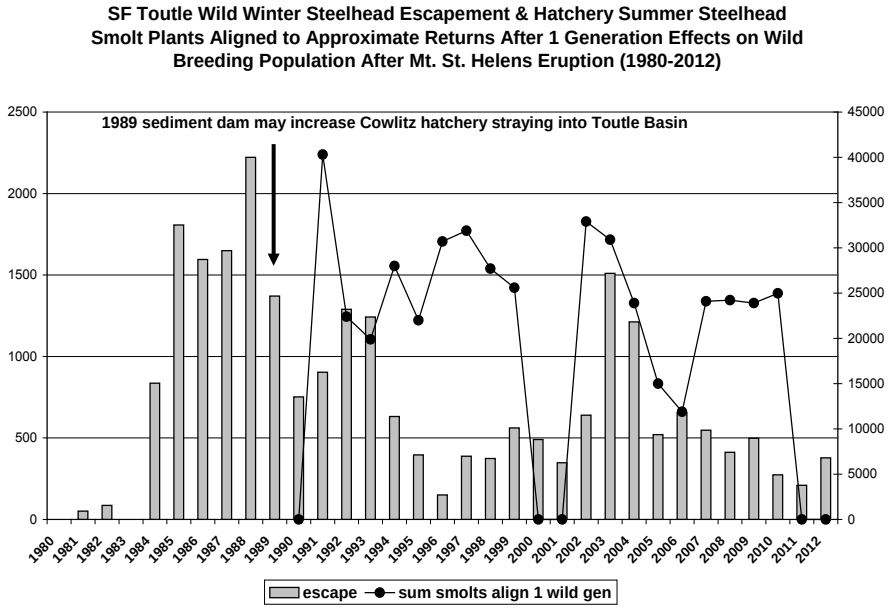


Figure 2. Green River (sub-population of NF Toutle) (winter run population)

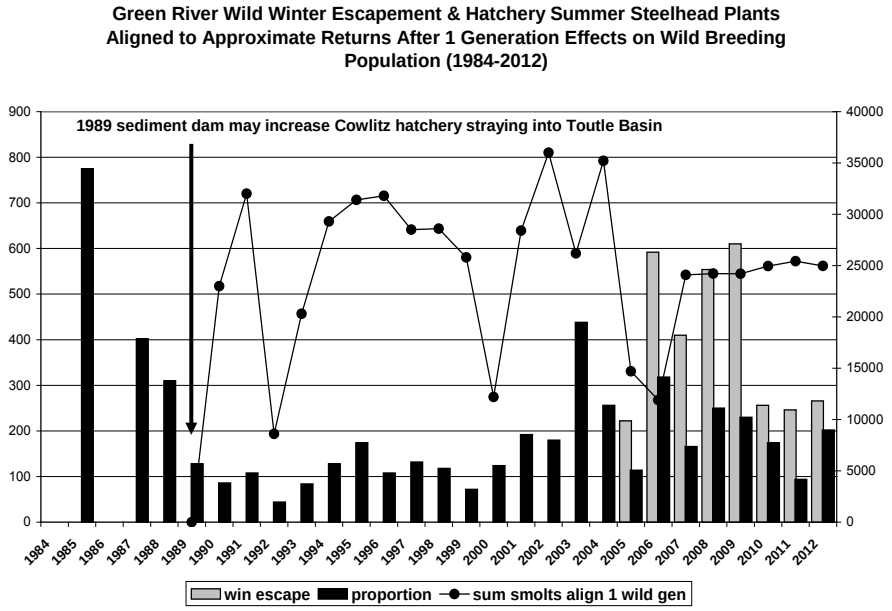


Figure 3. Coweeman River (winter run population)

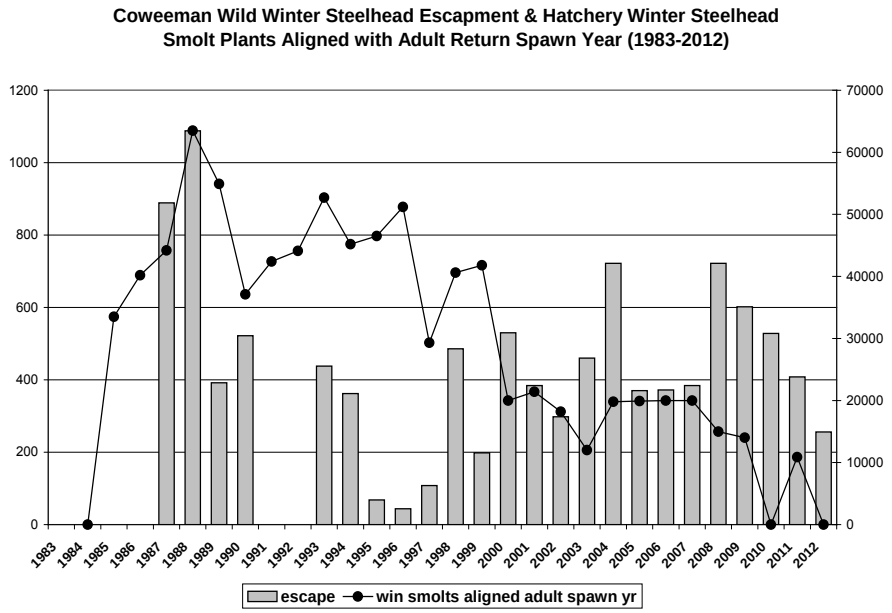


Figure 4. Kalama River (winter run population)

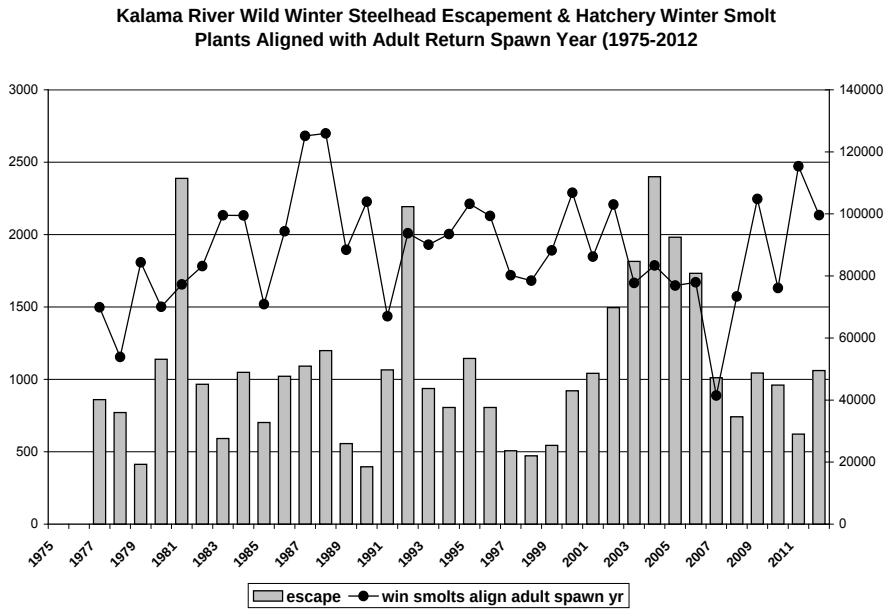


Figure 5. Kalama River (summer run population)

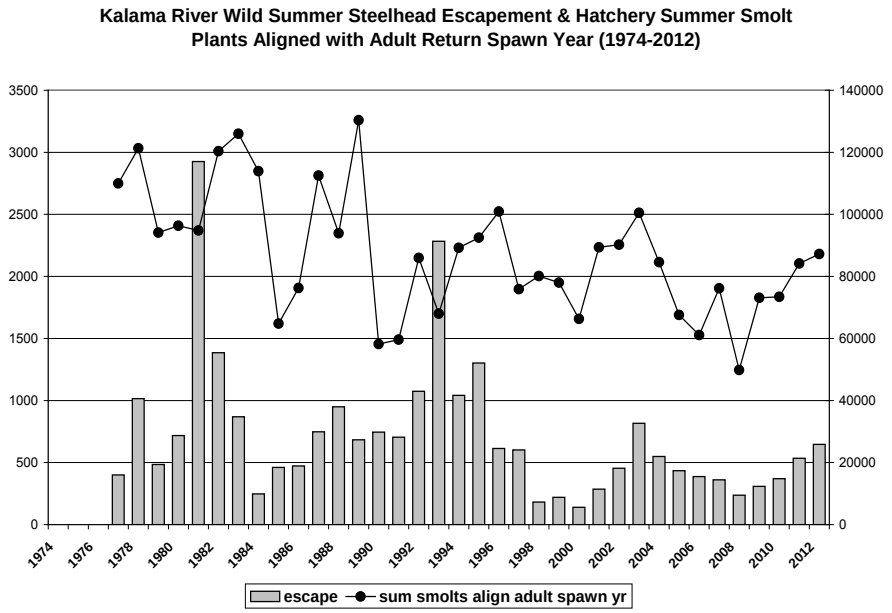


Figure 6. SF Toutle Creel Survey Findings of Hatchery and Wild Sport Catch

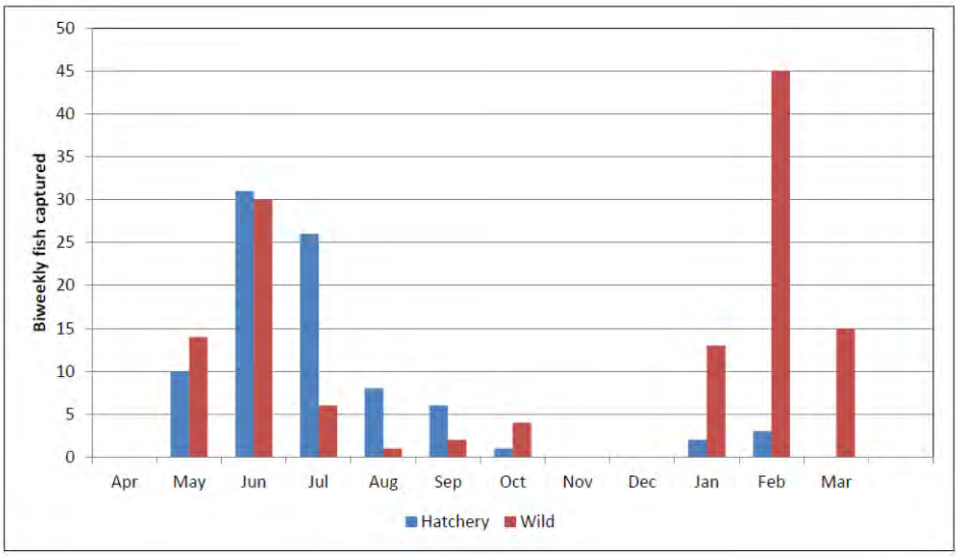


Figure 2. Origin of angled fish by month on S.F. Toutle River 5/20/2011 through 3/15/2012.

Appendix D

Figure 1. (blue lines represent wild winter steelhead past NF Clackamas dam)

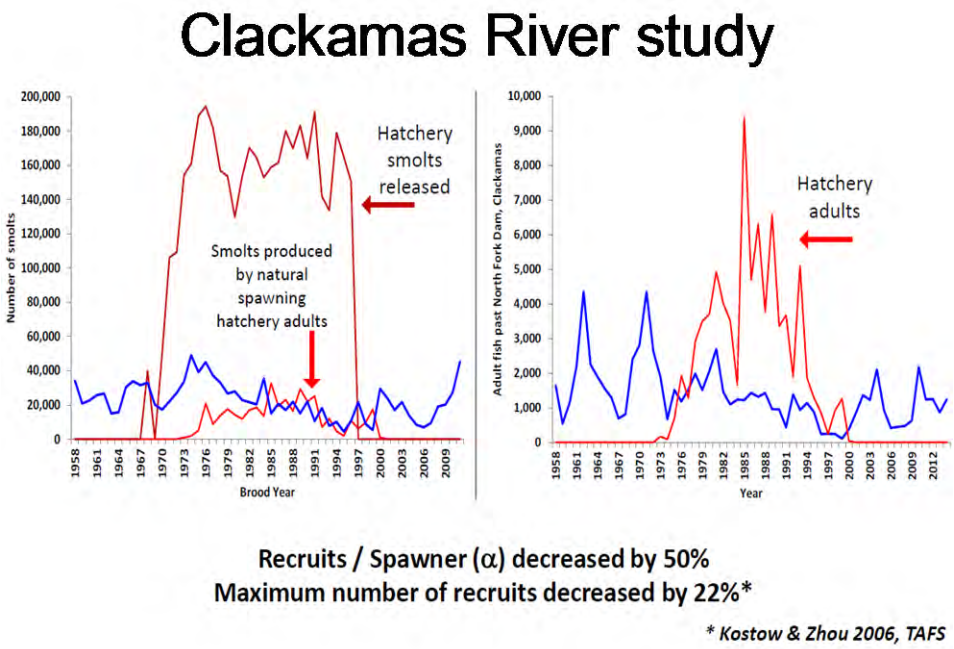


Figure 2. (blue line represents wild winter steelhead past NF Clackamas dam)

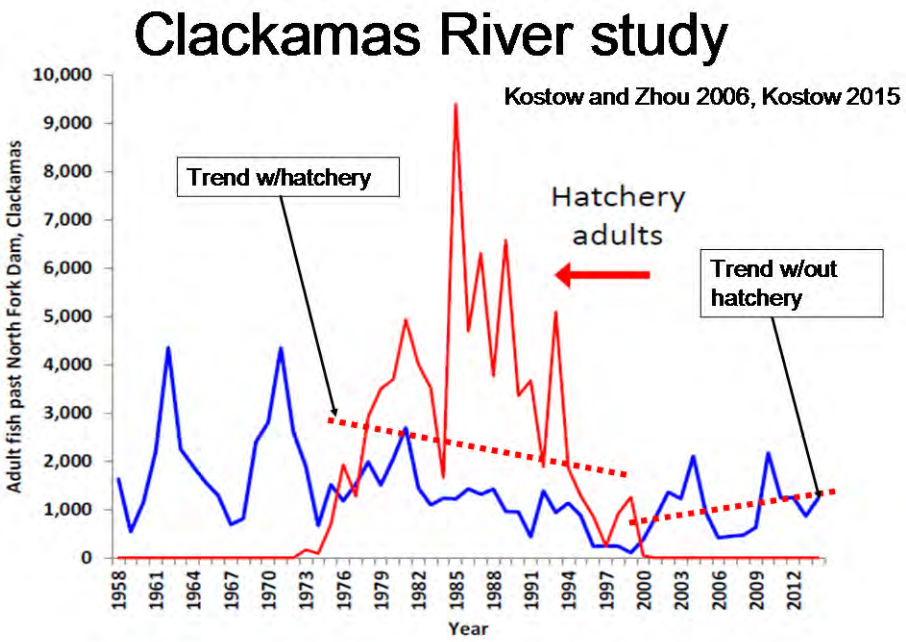
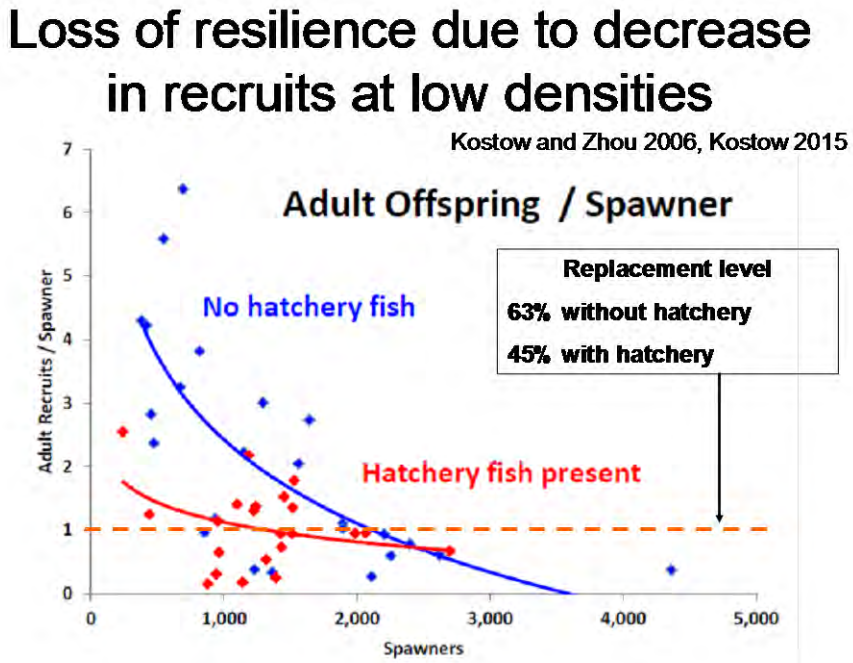


Figure 3.



Appendix F.

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Table 1. Hatchery steelhead smolt residualism levels found in the fishery literature:

Residualism %	Year	Location	Source
1.6% *	2003	Keogh R, Vancouver Is.	Werlen 2003
17.7%	1991	Tucannon R, WA	Viola & Schuck 1991
10.3% **	1992	Tucannon R, WA	Viola & Schuck 1992
3.1%	1993	Tucannon R, WA	Viola & Schuck 1993
26.1% ***	1991	Snow Ck, WA	Tipping et al. 1995
13.8%	1992	Snow Ck, WA	Tipping et al. 1995
19.6%	1993	Snow Ck, WA	Tipping et al. 1995
44% ****	1966	Elochoman R, WA	Royal 1972
35%	1966	Elochoman R, WA	Royal 1972
42%	1990	Keogh R, Vancouver Is.	Ward & Slaney 1990
47%	1990	Keogh R, Vancouver Is.	Ward & Slaney 1990
26% *****	2000	Teanaway R, WA	McMichael et al. 2000
39%	2000	Teanaway R, WA	McMichael et al. 2000

* Smolts acclimated in netpens in lake in upper watershed and then released in the lower Keogh at mean length of 180mm. Smolts above 200mm considered problematic as precocious males. Broodstock was wild.
** Smolts acclimated in lake, volitional emigration, release time 4/19-5/3, smolts released weighed 10.4 fish/kg. Broodstock was Lyons Ferry Hatchery Stock.
*** Smolts transported from South Tacoma Hatchery to release site 4.7 km upstream of fish trap. Residuals identified as primarily smolts released below 190mm. Smolts above 200mm were not found problematic, although the Methods section indicates precociously mature smolts were selected out prior to release which in many ways invalidated the experiment which was not discussed. Nevertheless, residualism remained comparatively high. Broodstock was Chambers Creek Hatchery Stock.
**** Smolts were reared at hatchery on Beaver Creek at 7 fish per pound and released on 4/15. Outmigrating fish were then counted at trap one mile downstream. Broodstock was Chambers Creek origin.
***** Smolts were transported from WDFW's Yakima Hatchery and released into Jungle Creek trying to mimic volitional releases from an acclimation pond over a 10 day period. The study occurred from 1991-94 with varied levels of residualism and precocious males each year. Smolts released were from 179-201mm. Broodstock from Yakima Hatchery.

Appendix G.

Figure 1.

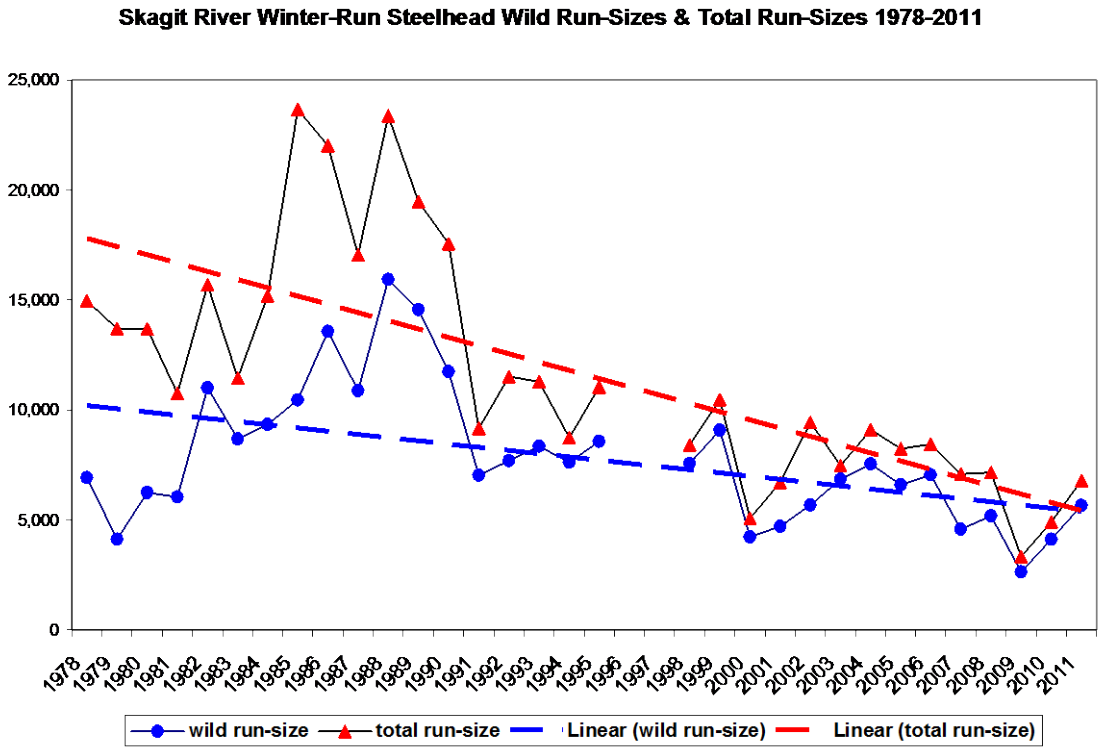


Figure 2.

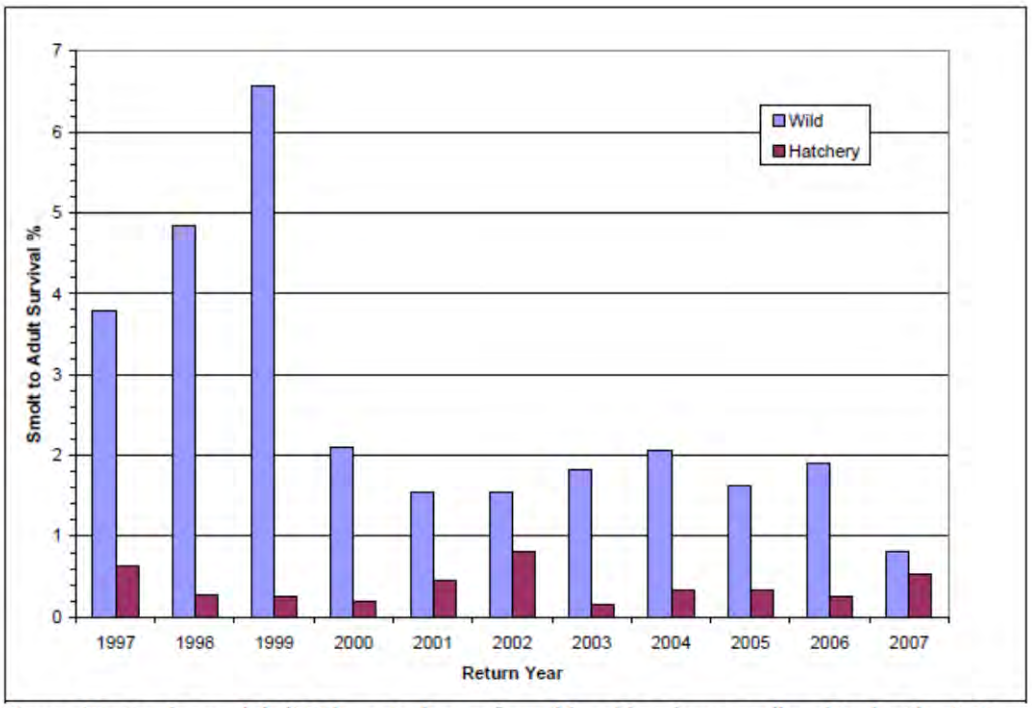
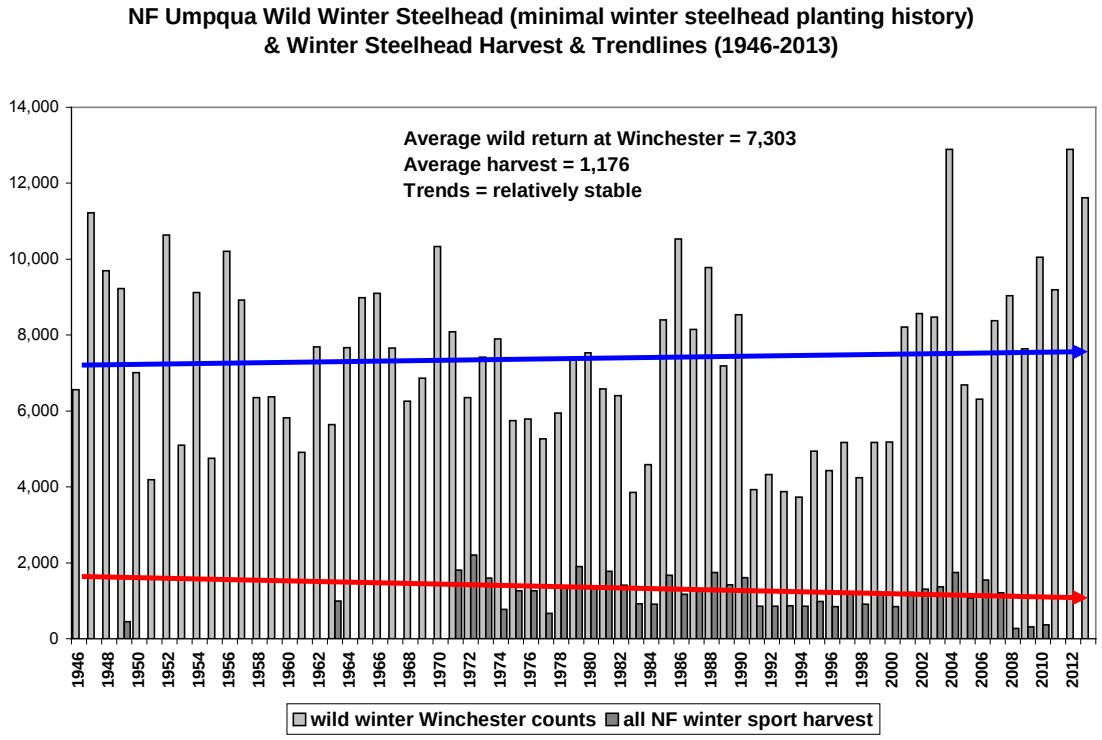


Figure 46. Smolt-to-adult (SAR) survival rates for wild and hatchery steelhead in the Skagit River basin, 1997 – 2007 return years.

Figure 3.



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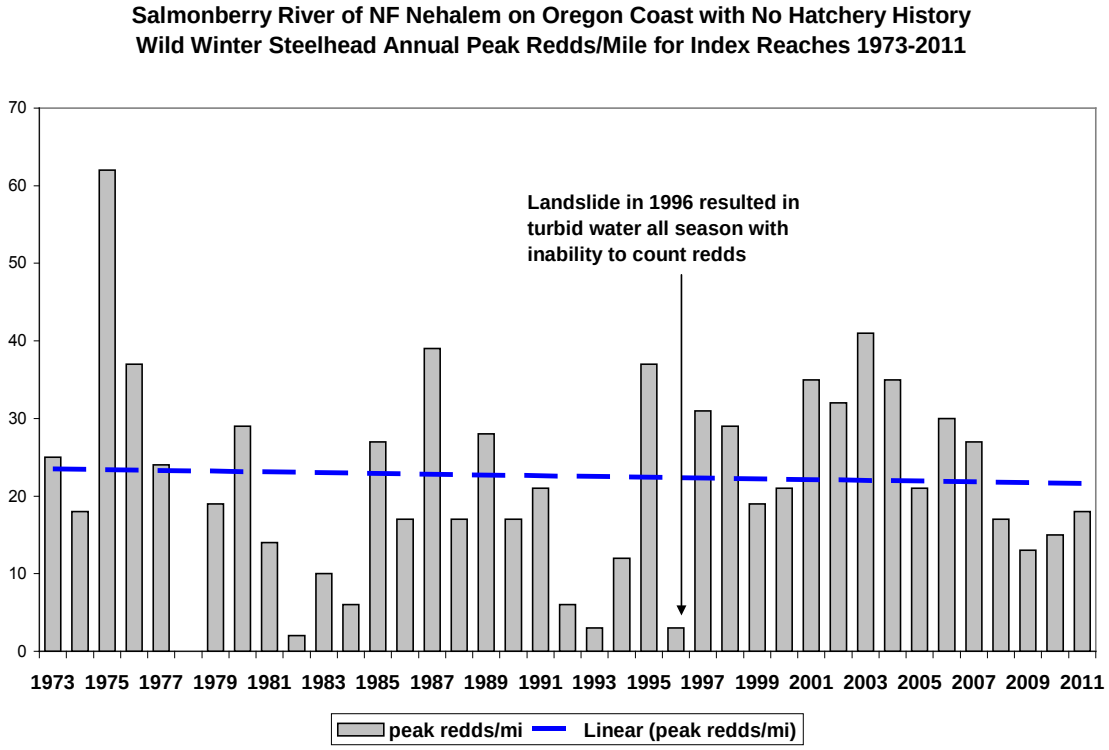

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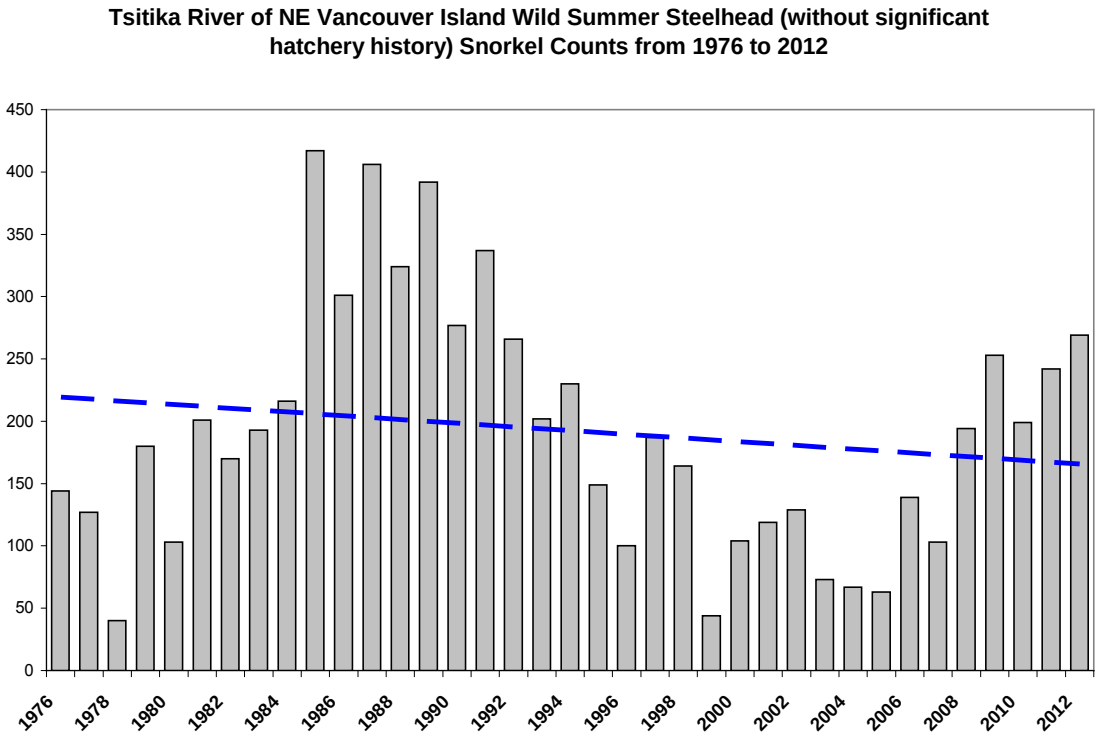

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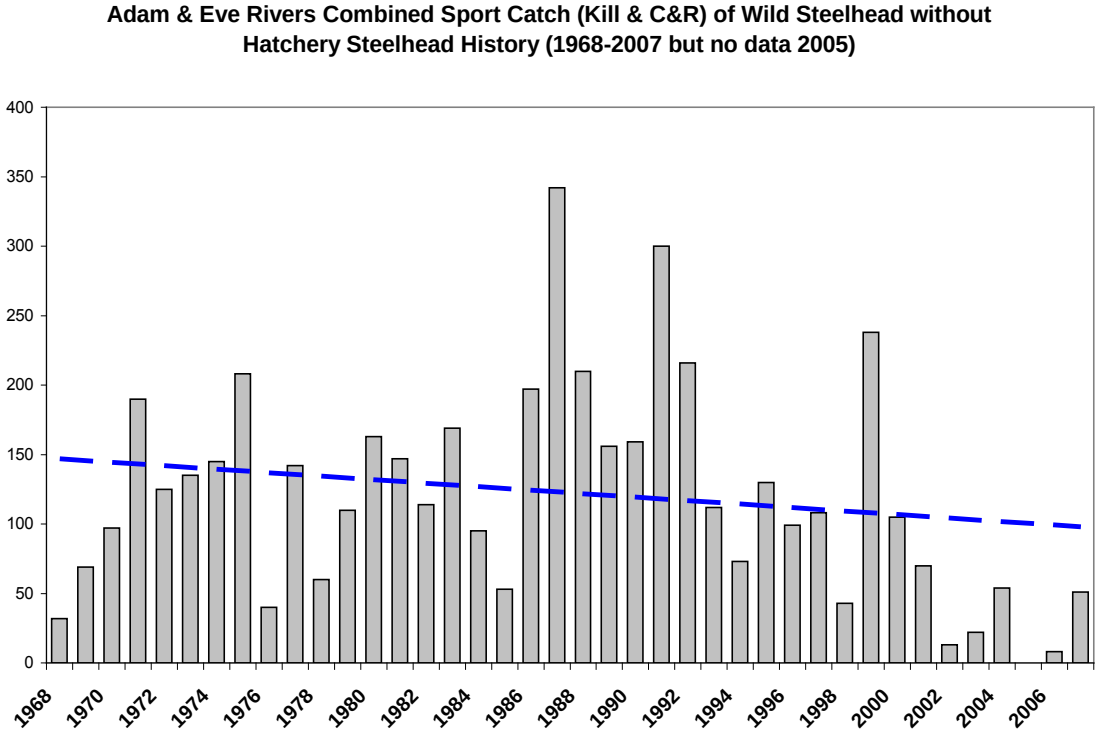

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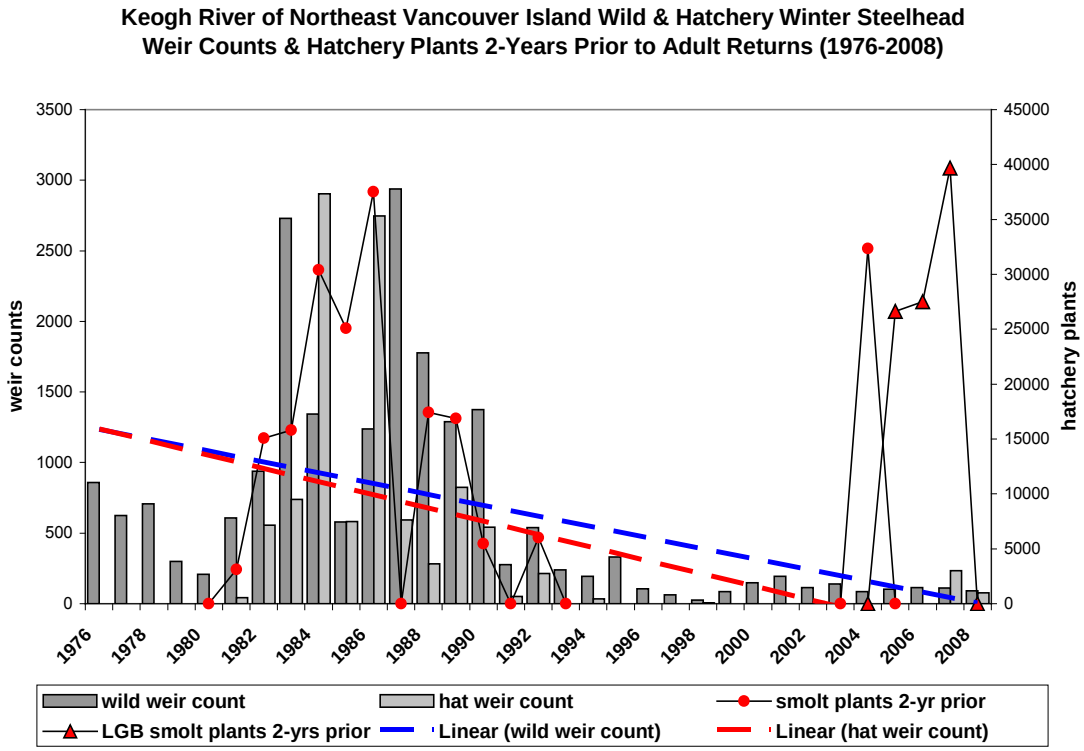
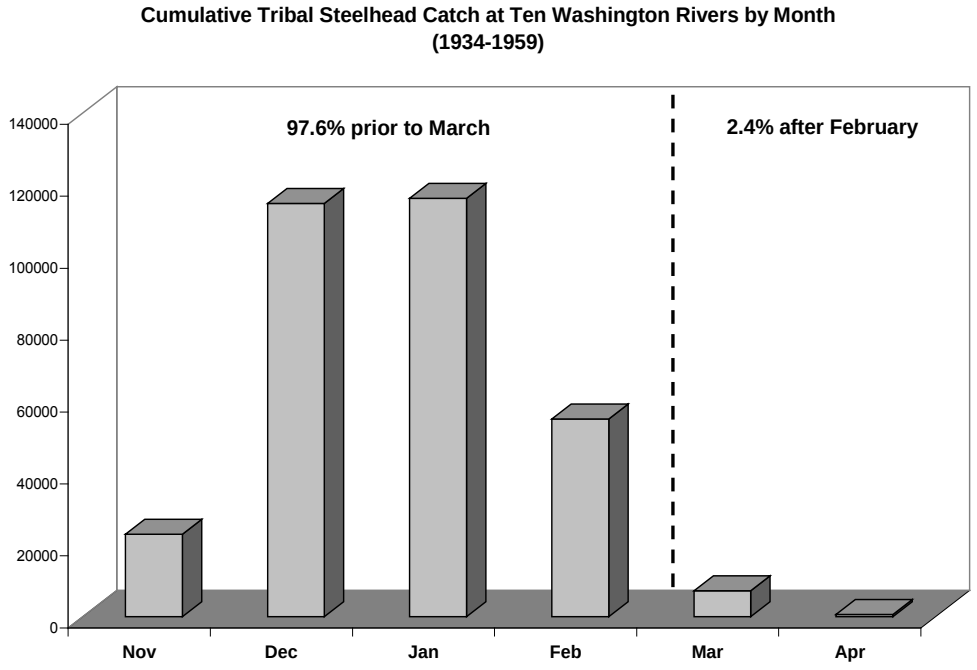


Appendix H.

Figure 1.



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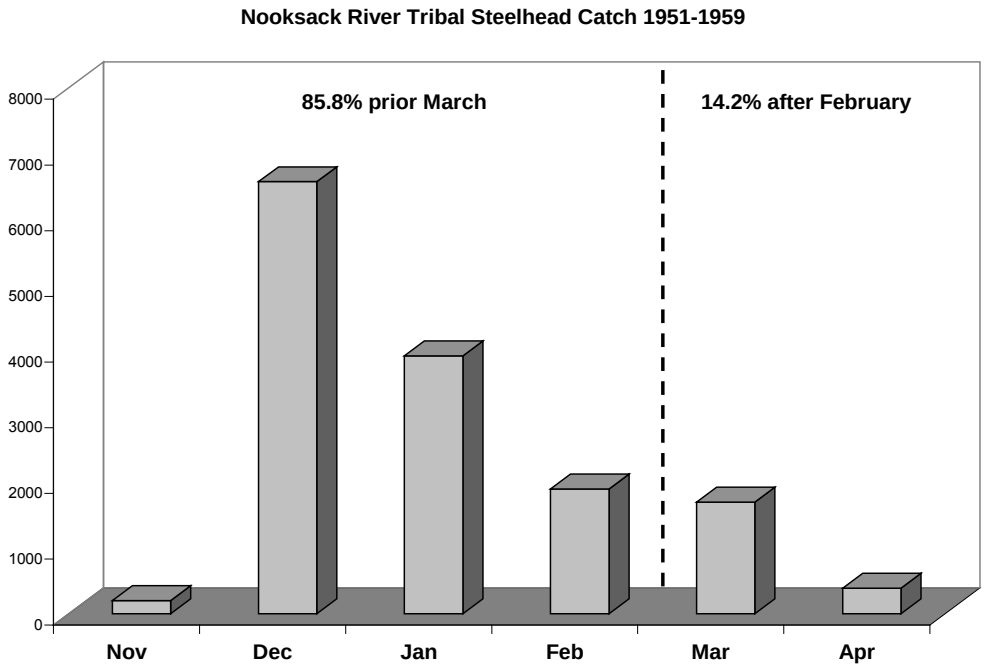
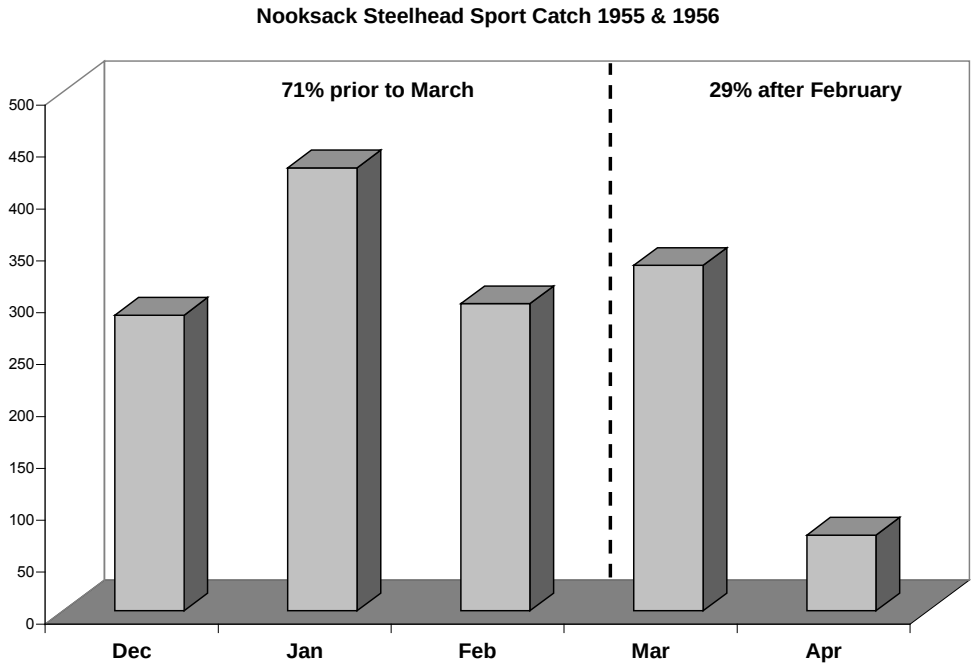


Figure 3.



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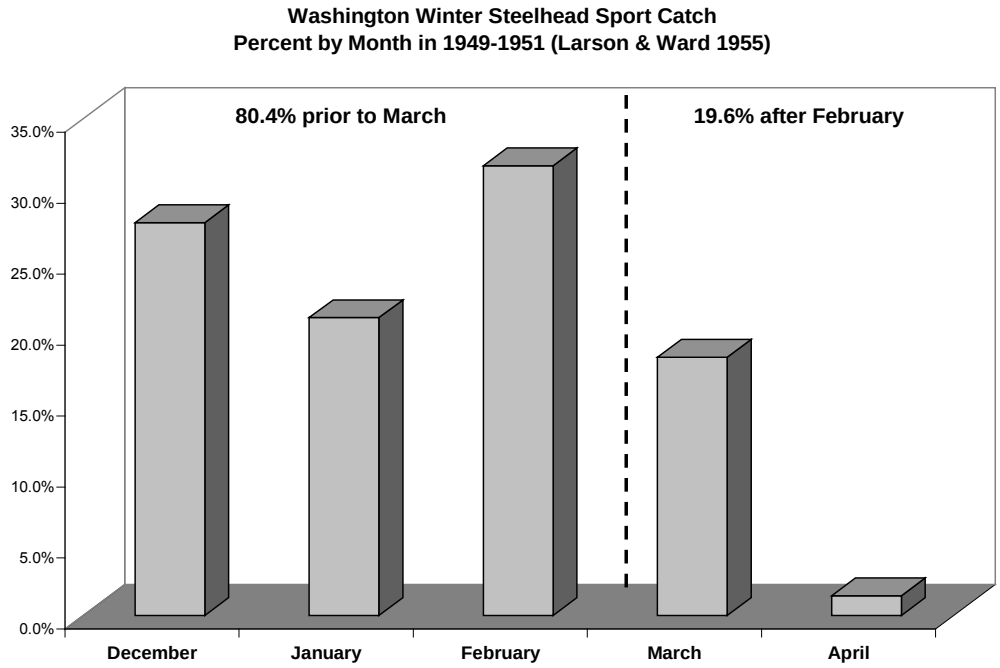

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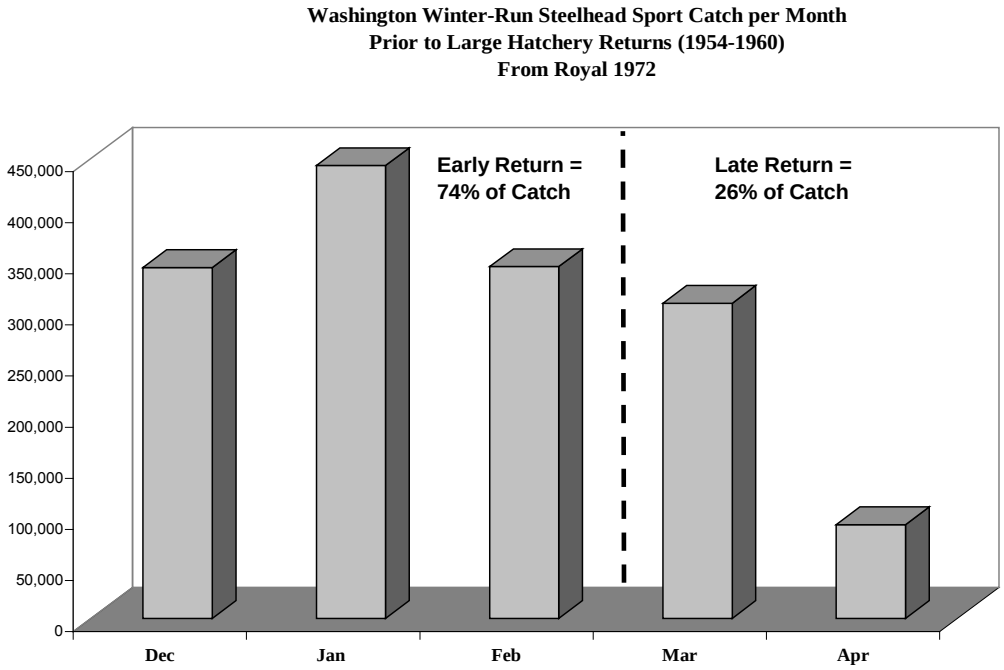
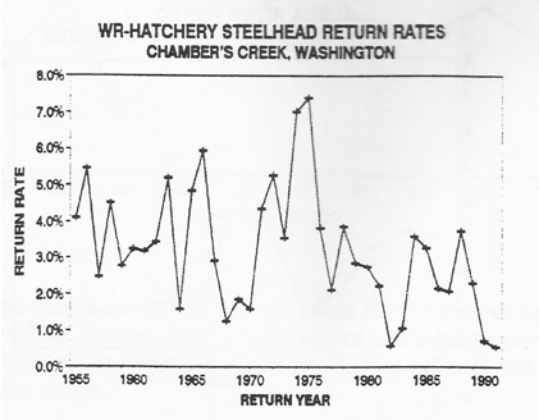
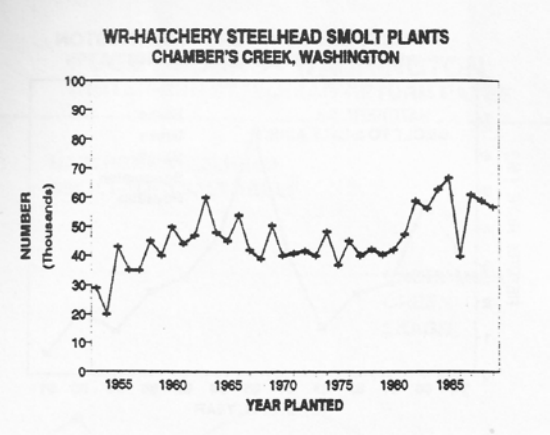


Appendix I.

Figures 1 and 2. From Cooper and Johnston (1992)

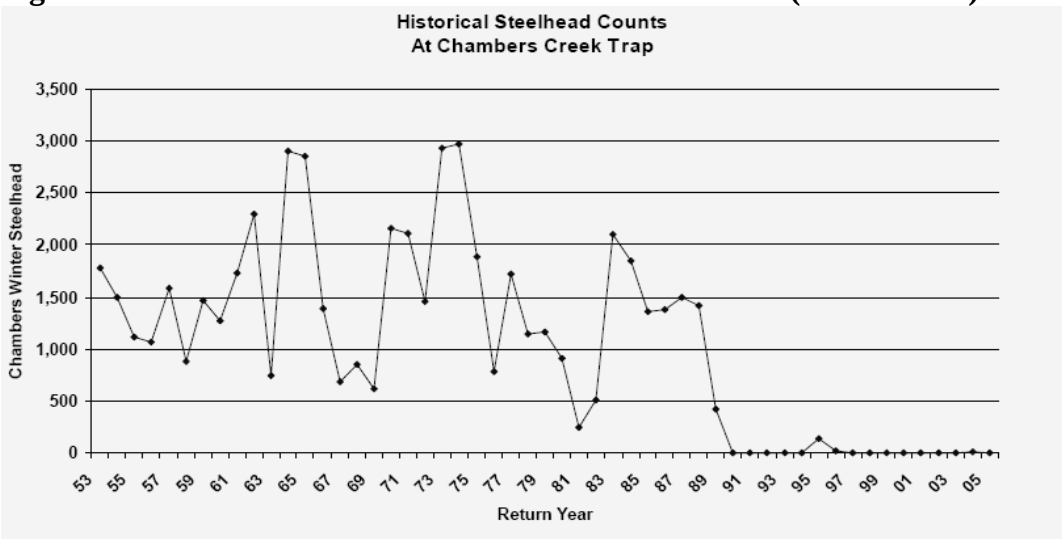


Chambers Ck continuous return rate decline



Solution: just plant more

Figure 3. Results: Chambers Creek Steelhead Extinction (Eltrich 2007)



Appendix J.

Figure 1.

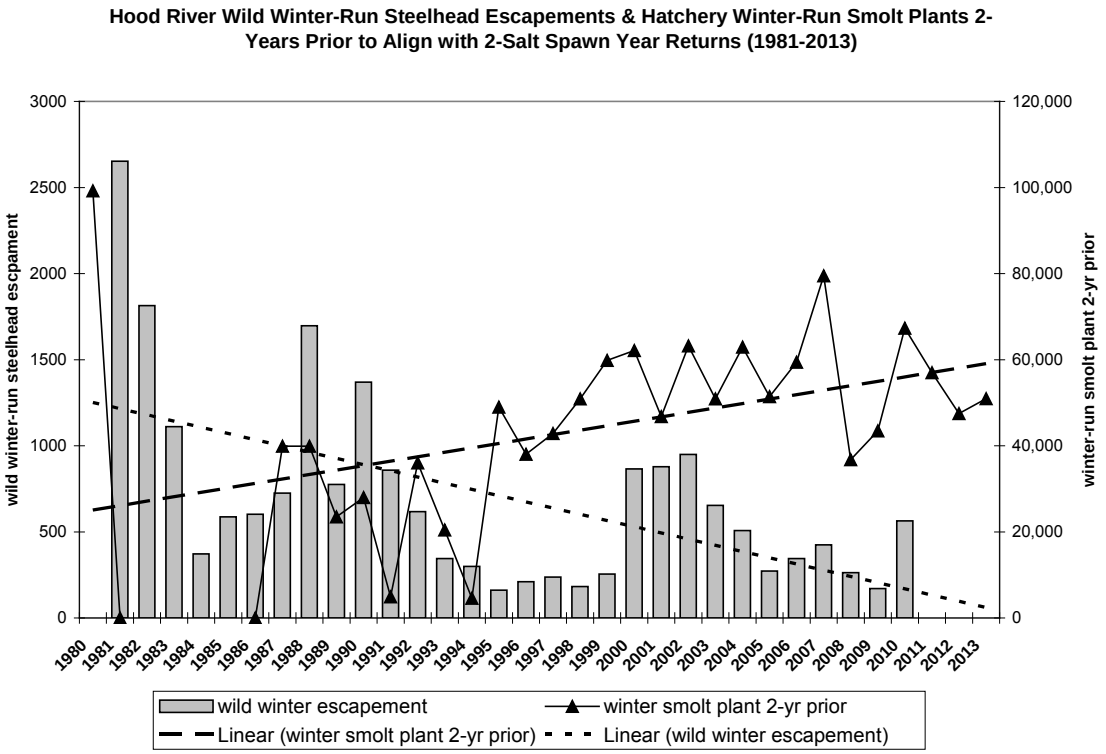
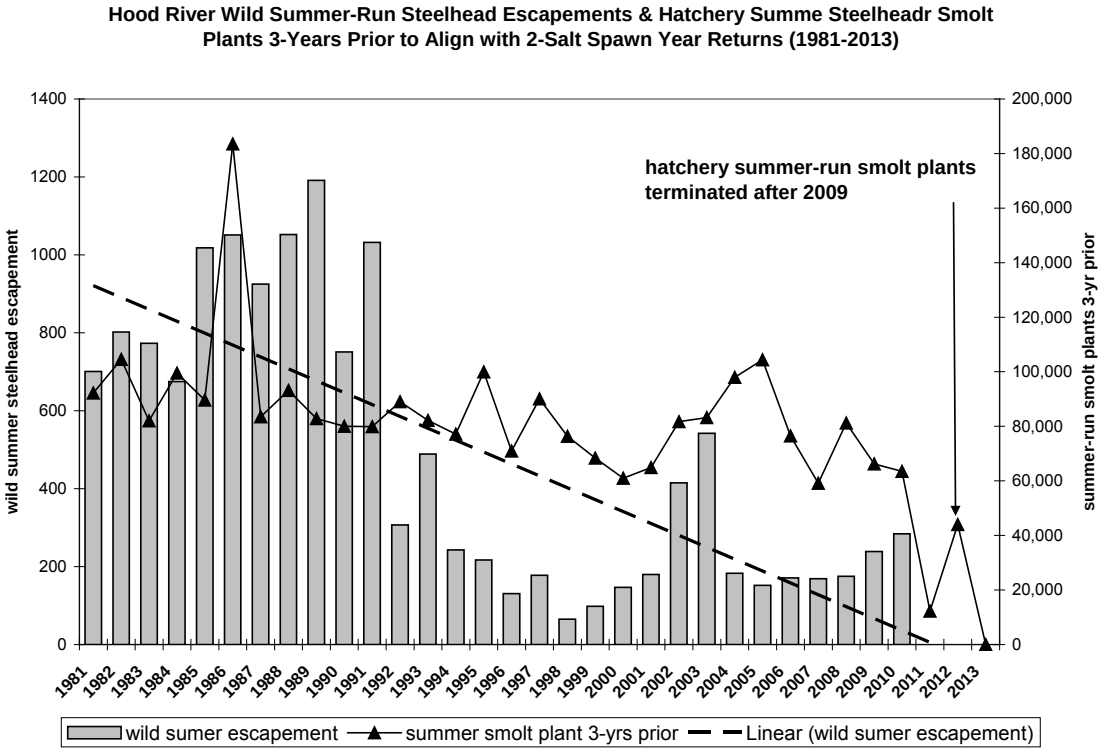
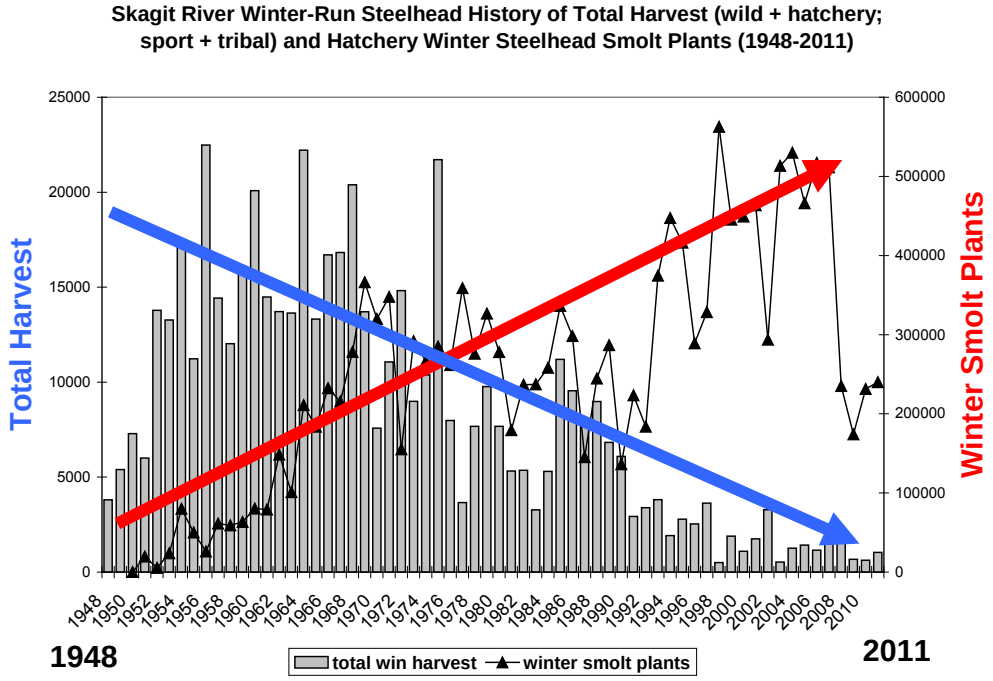


Figure 2.

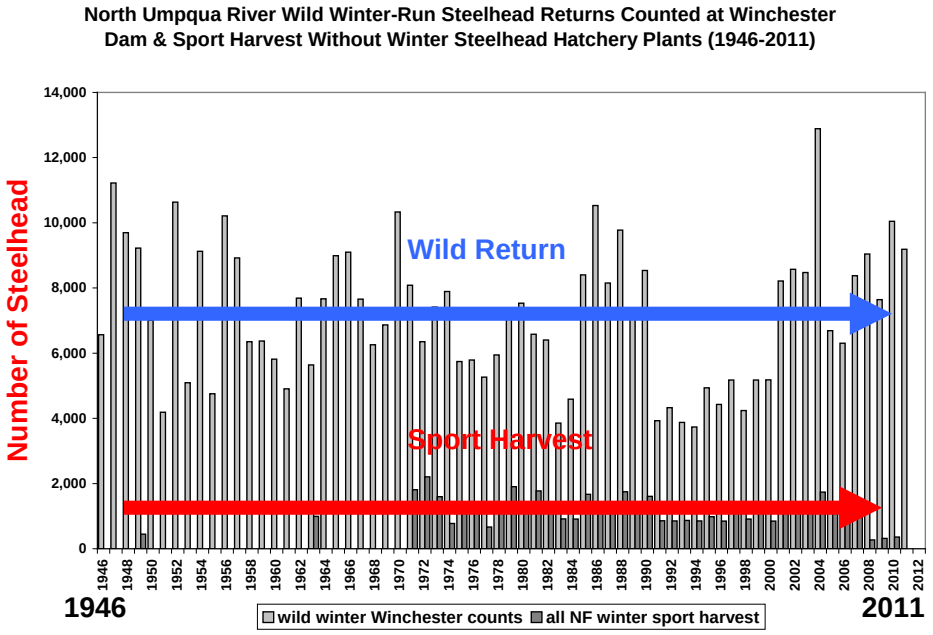


Appendix K.

Comparisons of Over 60 Years of Winter Steelhead Trends at Two NW Rivers



Skagit River steelhead harvests in 1951-60 averaged 15,000, nearly all wild. The 2001-10 combined harvests of wild and hatchery steelhead averaged 1,500. This loss coincides with a 1994-2007 average of 450,000 hatchery steelhead smolts planted annually in the Skagit — 6,235,000 total. At $1 per hatchery smolt, $6.23 million was spent in 14 years with resulting 90 percent loss of harvest once provided by wild steelhead 50 years ago.



NF Umpqua River wild winter runs of steelhead without hatchery winter steelhead plants have remained stable for 64 years with a return average of 7,150 wild steelhead per year. Steelhead harvest has been similarly stable at 1,200 steelhead per year for 40 years. This record of sustainability has come at no public cost.

Figure 1. Skagit watershed ranked 309th (upper 19%) & Umpqua 586th (upper 37%)

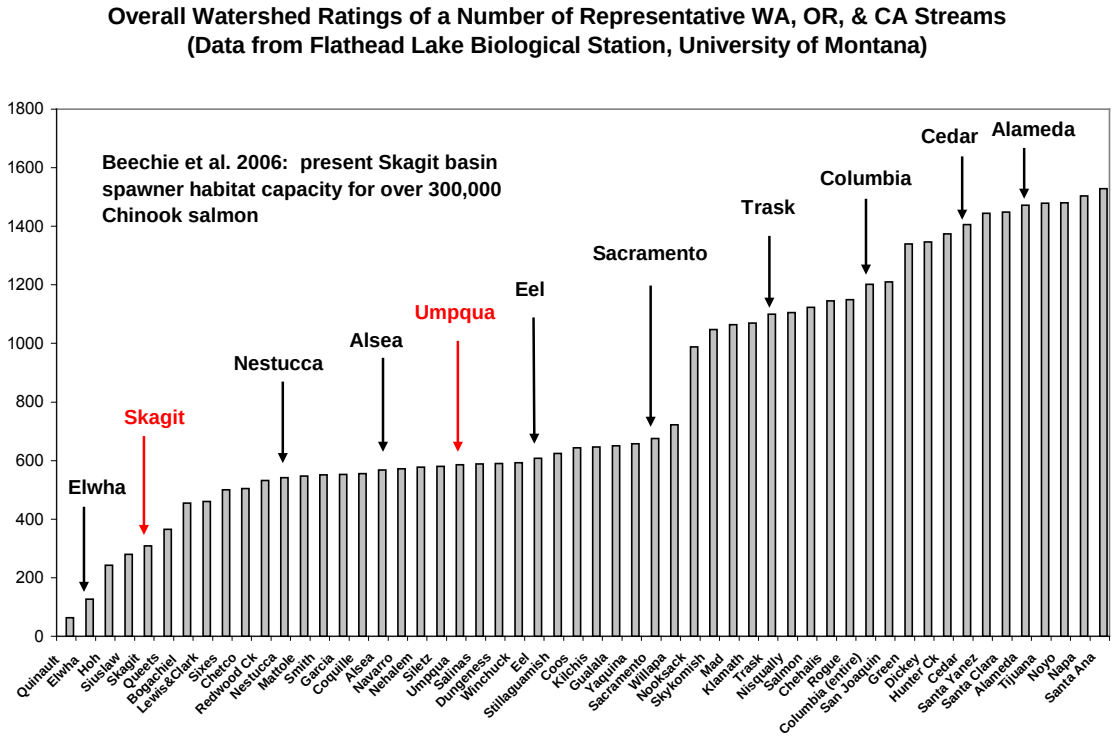


Table 1.
Poundage of smolts released compared to hatchery adult steelhead poundage harvested on their return at four Puget Sound hatchery programs

hatchery (River basin)	avg. no. smolts planted	avg. pounds of smolts (smolts/lb)	avg. no. hat. sthd. harvested	avg. lbs. hat. sthd. harvested (at 7 lbs each)	x smolt weight greater than adult harvest
Kendall Ck (Nooksack R.)	106,233	19,315 lbs (at 5.5/lb)	226	1,582 lbs	4.2 x greater
Whitehorse (Stillaguamish R.)	134,750	22,458 lbs (at 6/lb)	584	4,088 lbs	12 x greater
Dungeness (Dungeness R.)	9,893	1,832 lbs (at 5.4/lb)	49	441 lbs	5.5 x greater

hatchery (River basin)	no. smolts planted (2000-2007)	lbs. of smolts planted_weighed (2000-2007)	total hatchery sthd. harvested 2-yrs later (2002-2009)	lbs. hat. sthd. harvested (at 7 lbs each)	x smolt weight greater than adult harvest
Marblemount (Skagit River)	3,724,285	630,548	11,070	77,490 lbs	8.1 x greater

Skagit comparison after hatchery plants cut in half in 2008

hatchery (River basin)	no. smolts planted (2008-2010)	pounds of smolts (smolts/lb)	no. hat. sthd. harvested	lbs. hat. sthd. harvested (at 7 lbs each)	x adult harvest greater than smolt weight
Marblemount (Skagit River)	640,510	10,675 lbs (at 6/lb)	2,684	18,788 lbs	1.8 x greater

Responses to Bill McMillan Comments

Letter Dated December 28, 2015

1. Analysis - See Global Comment 4c.

2. Comment noted.

3. Analysis – The comment suggests that habitat is not necessarily the overarching current problem limiting the Puget Sound steelhead DPS, and that the draft EIS overstates the role of habitat as a problem. The comment provides several examples – mid-20th century harvest numbers compared to hatchery smolt releases (Puget Sound) and the post-eruption conditions and response in the Toutle River (lower Columbia River tributary in Washington) drainage after the 1980 eruption of Mt St Helens; and others – related to the relative impact that contemporary habitat conditions have on the status of the Puget Sound steelhead populations, and asserts that releases of hatchery-origin steelhead have a more substantive effect on natural-origin steelhead. As noted in the PS Hatcheries Draft Environmental Impact Statement (e.g., Subsection 3.2.2, General Factors that Affect the Presence and Abundance of Salmon and Steelhead), that is incorporated by reference to this EIS, has NMFS acknowledged that past hatchery production and the resulting harvest impacts have likely had an impact on Puget Sound steelhead, and substantively so. However, we disagree with the comment regarding the relative magnitude of effect that the historical and continued habitat degradation have on the status of these populations for the reasons described below.

   As Ford (2011) notes in a recent 5-year status review for ESA-listed Puget Sound salmon and steelhead that "*The BRT identified degradation and fragmentation of freshwater habitat, with consequent effects on connectivity, is a primary limiting factor and threat facing the Puget Sound Steelhead DPS. In the 3 years since listing, the status of this threat has not changed appreciably.*" There are many factors that have contributed to decline of salmon and steelhead as noted in the EIS (Subsection 3.2.1, General Factors that Affect the Presence and Abundance of Salmon and Steelhead). Through status reviews and the recovery plan (see Subsection 1.7.12, Recovery Plans for Puget Sound Salmon and Steelhead), NMFS will continue to update its assessment of the relative importance of limiting factors affecting the PS Steelhead DPS.

4. Analysis/Steelhead - The comment suggests the draft EIS should discuss indirect predation—that releases of hatchery-origin fish increase the predator population's impact on natural-origin salmon and steelhead that co-occur in time and space, and suggests that indirect predation is a significant source of mortality in natural-origin juveniles attributable to hatchery releases. NMFS acknowledges the general effects of indirect predation in the PS Hatcheries Draft Environmental Impact Statement that is incorporated by reference, noting that it may affect some species more than others, but that predation is likely inconsequential for natural-origin steelhead due to juvenile rearing timing and the relatively large size of natural-origin steelhead smolts that tend to out-migrate promptly to sea. See PS Hatcheries Draft Environmental Impact Statement Subsection 3.2.2, Methods for Determining Risks (Predation); Subsection 3.2.7.4.2, Risks-Predation; and Appendix B, Subsection 2.1.2.1, Predation – Freshwater Areas, for a full treatment of the risks associated with predation, including indirect predation.

5. Analysis/Ocean Conditions – The comment suggests that the EIS should acknowledge that releases of hatchery-origin steelhead may effect marine survival of salmon and steelhead, especially under conditions associated with climate change, and presumably due to effects of density dependence.

Subsection 3.2, Salmon and Steelhead, and Subsection 5.5.2, Salmon and Steelhead, are revised to discuss such density dependent effects in the context of the Proposed Action. It does not appear that the comment is connecting an effect between marine survival of hatchery-origin steelhead with an increased negative effect to natural-origin steelhead; rather, the comment reinforces the idea that hatchery programs for steelhead in Puget Sound under current and recent marine conditions result in a low and diminishing return for the investment. Information on oceanic conditions and climate change can be found in Subsection 3.2.1, General Factors that Affect the Presence and Abundance of Salmon and Steelhead, Subsection 5.4.1, Climate Change, and Subsection 5.5.2, Salmon and Steelhead.

6. Analysis/Climate Change – The comment suggests climate change can alter the abundance, productivity, and distribution of salmon and steelhead through changes in water temperatures and seasonal stream flow regimes, which then affect the type and extent of aquatic habitat that is suitable for viable salmon and steelhead populations. NMFS agrees, as discussed in the draft EIS in Subsection 5.5.2, Salmon and Steelhead, including the likely future effects to salmon and steelhead populations.

   The comment states that the EIS assumes steelhead would be unable to adapt to these environmental changes. This is incorrect. NMFS has acknowledged (e.g., McElhany et al. 2000), that life history variation, including run and spawn timing, are aspects of diversity that are important to population viability and recovery, which can contribute to the long-term health and evolutionary potential of fish species because by fostering resiliency in the context of uncertain future environmental conditions.

   The comment asserts that a significant early-timed component of natural-origin Puget Sound winter steelhead, historically present but now less abundant, will be instrumental for steelhead to recover and adequately adapt to future climate change. The draft EIS acknowledges that in the past a larger proportion of early-timed returns of natural-origin winter steelhead existed than is typically observed currently, likely because of the effects of inadvertent harvest of early-timed winter steelhead during fisheries targeting early winter steelhead (Subsection 3.2.3.5, Incidental Fishing Effects). As described above, the draft EIS acknowledges that diversity will be important for recovery.

7. Alternatives/Native Broodstock – See Global Comment 1b.

8. Analysis/Genetics – See Global Comment 4a.

9. Analysis/Socioeconomics – The comment suggests that beneficial socioeconomic impacts (lost opportunity costs) of fisheries targeting natural-origin steelhead should be described and compared to those associated with the Proposed Action. This comparison is beyond the scope of this EIS, in that alternative regimes or strategies for harvest management of steelhead are not part of the Proposed Action or any of the alternatives analyzed. The EIS does analyze the socioeconomic impacts of the proposed hatchery programs and several alternatives to them, including No Action (Alternative 1) in which the programs would be terminated, but does not review potential replacement activities in the absence of the hatchery production, where for example, catch-and-release fisheries would be directed at natural-origin steelhead populations. Regardless, any attempts to quantify the likely number of fish caught and released, or the economic impacts thereof, would be highly speculative.

   The comment's comparison of the pounds of juveniles produced to the estimated total pounds of returning hatchery-origin adults harvested is unclear. Table 1 (appendix K), submitted and referenced as part of the comment, appears to develop this relationship, but its utility is unclear.

10. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery reform public comment

1 message

Alexander Kochman <alexanderhayeskoch@gmail.com> Mon, Dec 28, 2015 at 6:21 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Dear NOAA

My name is Alexander Kochman, I am writing to you regarding plans for hatchery programs in the puget sound area with regards to genetic management. I was born and raised in the Lynden and Bellingham area, and am very familiar with the Nooksack and Skagit systems. I believe that a hatchery broodstock program on these puget sound rivers would be the best course of action in managing the genetics.

1

The current issues that these hatchery programs face are poor return rate and interbreeding with native fish in the area. The current existing hatchery program on the Nooksack river is in a sad state. Every year, the river is forced to be closed until they meet their egg take, because it is unclear that they will get their egg take. The fish are heavily affected by their environment, and as a whole, are not very hardy. This makes the hatchery programs in the area have a very low return rate, and planting a significant number of fish, almost a waste of money. Very few people fish the Nooksack river for hatchery steelhead, and it isn't considered a very productive fishery. This happens with many of the streams in puget sound, namely the Skagit, which achieved an astonishing 0.2% return rate in the year of 2014 on its 200,000+ smolts released. Typically, hatchery programs in Washington State achieve around a 1% return rate. Contrast this with a broodstock program such as Oregon has adopted, and the very successful program on the Vedder/Chilliwack system right across the border. These programs achieve a near 5% return on their fish, making the hatchery a worthwhile fishery and a worthwhile investment by the state.

As far as native interbreeding goes, I currently believe that such an issue does not exist in such rivers because of the very low numbers of hatchery fish returning to the system compared to the number of wild fish in the system, as well as the gross difference in run timings.

As far as money is concerned, a broodstock program is very economically viable. Fisherman would be more than happy to help in the collecting of native stock, and essentially this would be a zero cost operation. Once the stock is collected, the fish could be live spawned then released into the river. The hatchery faculty would help with the spawning of the fish, and I am sure the Bellingham Technical College students and Whatcom creek hatchery employees would help. This would be a very low cost endeavor, and the benefits would be awesome. If the 118,000 smolts that are currently planted achieved a 5% return rate that is not uncommon among broomstick programs. the system could produce almost 6000 hatchery fish in a given year. This not only would benefit sport fisherman, and have a positive economic impact on the towns of Nugent's corner, Deming, and the Lynden/Sumas area, but it would provide tribal commercial fisherman with a viable December fishery that is currently unavailable.

There are foreseeable obstacles to this plan. If a broodstock hatchery were to be implemented on any system, the amount of wild steelhead in the area would have to be heavily monitored. Creel reports, spawn surveys, and by-catch by commercial fisherman would have to be tracked to ensure that the overall wild fish population is trending in a positive direction. Currently, the Nooksack wild steelhead population is increasing. If a variance from this trend is seen and the direct cause of it is viewed as the new hatchery program, than the program would be shut down.

Response to Alexander Kochman Comment

Email Dated December 28, 2015

1. See Global Comment 1a. See also Global Comment 1b for more information on hatchery programs that would use steelhead native broodstocks (broodstock programs).

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget Sound Steelhead EIS Comments

1 message

Chris Ringlee <cringlee@gmail.com> Mon, Dec 7, 2015 at 5:56 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 After reviewing the DEIS for PS EW steelhead, I believe the Alternative 3 is the best option for the future of PS steelhead hatcheries that is a blend of all options benefiting all user groups and further reduces impacts of recovering wild stocks. This allows for treaty tribes to harvest hatchery steelhead and recreational anglers the opportunity to attempt to harvest hatchery steelhead.

Alternative 1 is too extreme and will not allow treaty tribes to harvest hatchery fish along with recreational anglers. Alternative 4 impedes wild stock recovery by further mining wild fish to create hatchery fish.

2 Some angling groups have pledged to attempt to force NOAA to speed up the EIS process for PS Steelhead, but I request a rigorous and thorough process to review these HGMP's and WDFW's Steelhead hatchery facilities.

Please do whats best for the Puget Sound Wild Steelhead recovery because that's what this is all about.

Thank you,

Chris Ringlee

--
Chris Ringlee
[redacted]
Cringlee@gmail.com

Response to Chris Ringlee Comments

Email Dated December 7, 2015

1. See Global Comment 1a.

2. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Draft Steelhead EIS Comments

2 messages

Beyer.Don <beyer.don@comcast.net> Mon, Nov 9, 2015 at 10:44 AM
To: EWShatcheriesEIS.wcr@noaa.gov

As a long-time fisheries biologist (35 years) and an ardent steelhead fisherman, I am saddened to see that NOAA/WDFW are still considering elimination of steelhead sport fishing in some Puget Sound streams. One only needs to look to the Columbia River system to see where successes have been made and wild fish are returning in large numbers (in many areas) coupled with a viable hatchery and sport fish program. Will Stelle was part of this success and should be fully familiar with the 4 H's (i.e., Harvest, Hatcheries, Habitat, and Hydro) which were all considered and plans made for them. It appears that for the Puget Sound area, hatcheries are being revisited (over and over). The planning and implementation for the successful Columbia River process should be adapted and not overlooked (i.e., why do we have to go through this process over and over - while shutting down hatcheries (very abruptly) in some Puget Sound streams?)
The bottomline (speaking as a steelhead fisherman) is the hatchery program has already been devastated by the interactions of WDFW and special interest groups through the non-release (into migratory waters) of steelhead smolts (in some Puget Sound rivers). If we have future droughts on these streams, there now is no reserve or back-up by hatcheries. For example, the Redfish Lake sockeye would not be returning to viable levels if a hatchery program was not implemented. Historically, hatcheries produced incredibly good steelhead fishing several decades ago (and still do on many areas in the Columbia River system).
The non-release of smolts in some Puget Sound rivers has probably set-back the hatchery program on those streams by many years, or, in all likelihood, totally eliminated sport fishing on those systems forever (through lack of broodstock, funding, etc.).

1 Any alternative that doesn't look at improving the opportunities for expanding and invigorating the steelhead fisheries of Puget Sound should not be the favored alternative. Granted, there are some areas that might be appropriate for "wild fish" only. However, the habitat in the lower reaches on many streams is a mess (urban runoff, urban and farm development, etc.). Therefore, the only way to have a viable steelhead fishery is to approve an alternative that includes hatcheries (and to continue research on hatcheries to improve any deficits).

If a non-hatchery alternative is selected, it is a selection for no future fishing opportunities for steelhead in the affected systems. If the wild fish would return to some sustained level, it is likely that the special interests groups would lobby for either "no fishing", "hook-and-release", or "fly-fishing only". This would provide them with basically exclusive use of the stream affected and the fisherman that wants to retain a fish would be excluded.

Beyer.Don <beyer.don@comcast.net> Mon, Nov 9, 2015 at 10:56 AM
To: EWShatcheriesEIS.wcr@noaa.gov

From: "Beyer.Don" <beyer.don@comcast.net>
To: "EWShatcheriesEIS wcr" <EWShatcheriesEIS.wcr@noaa.gov>
Sent: Monday, November 9, 2015 10:44:42 AM
Subject: Draft Steelhead EIS Comments

[Quoted text hidden]

Don Beyer
Bothell, Washington 98021
beyer.don@comcast.net

Columbia River Inter-Tribal Fish Commission reports new record for adult fall chinook returns – by Mark Yuasa (Seattle Times – Nov. 10, 2015)

It was another record-setting season for Columbia River fall chinook, which has started to become a fairly common occurrence in the past decade.

The Columbia River Inter-Tribal Fish Commission reported the 25 adult fall chinook that passed up Bonneville Dam on the Lower Columbia River as of 9:05 a.m. on Tuesday (Nov. 10) raised the count to 953,240 fish for 2015, breaking the 953,222 set in 2013.

Fish counting first began at the dam in 1939.

Tribal fish managers in an email attributed the great return to a variety of environmental factors and human efforts to improve survival. This year's fall chinook enjoyed excellent ocean conditions and, unlike the fish migrating during the summer, they enjoyed good migrating conditions.

2

The tribe also pointed to their efforts using hatcheries to rebuild naturally spawning populations throughout the Columbia River Basin, harvest management actions on the Pacific Ocean and mainstem Columbia, and strong collaborative efforts to improve habitat.

"Breaking this record today is truly something to celebrate," Paul Lumley, Executive Director of the Columbia River Inter-Tribal Fish Commission said in the news release.

"The success of this fall chinook run reflects the region's commitment to healthy salmon runs and the collaborative spirit that has made it possible," he said. "The tribes celebrate this year's return and pledge to continue our protection and restoration work that helped make it

2 possible. The lessons the region has learned in achieving the success we've seen so far will help us address upcoming impacts such as the predicted El Niño this winter and the long-term effects of climate change."

……

For the remainder of the article, see:

http://www.seattletimes.com/sports/columbia-river-inter-tribal-fish-commission-reports-new-record-for-adult-fall-chinook-returns/

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Fwd: Draft Steelhead EIS Comments - 2nd Comment

1 message

Beyer.Don <beyer.don@comcast.net> Tue, Nov 10, 2015 at 6:06 PM
To: ewshatcherieseis.wcr@noaa.gov

2 The attached speaks for itself - on the Columbia, hatcheries do work and although this relates to Chinook, the same principles apply to steelhead. Over the decades of haggling, they have a comprehensive and successful approach. Puget Sound managers should look at this example and not eliminate hatcheries nor eliminate the sportfishing for steelhead in Puget Sound rivers. The same goes for attempts to shut down other species hatcheries.

From: "Beyer.Don" <beyer.don@comcast.net>
To: "EWShatcheriesEIS wcr" <EWShatcheriesEIS.wcr@noaa.gov>
Sent: Monday, November 9, 2015 10:56:51 AM
Subject: Fwd: Draft Steelhead EIS Comments

From: "Beyer.Don" <beyer.don@comcast.net>
To: "EWShatcheriesEIS wcr" <EWShatcheriesEIS.wcr@noaa.gov>
Sent: Monday, November 9, 2015 10:44:42 AM
Subject: Draft Steelhead EIS Comments

As a long-time fisheries biologist (35 years) and an ardent steelhead fisherman, I am saddened to see that NOAA/WDFW are still considering elimination of steelhead sport fishing in some Puget Sound streams. One only needs to look to the Columbia River system to see where successes have been made and wild fish are returning in large numbers (in many areas) coupled with a viable hatchery and sport fish program. Will Stelle was part of this success and should be fully familiar with the 4 H's (i.e., Harvest, Hatcheries, Habitat, and Hydro) which were all considered and plans made for them. It appears that for the Puget Sound area, hatcheries are being revisited (over and over). The planning and implementation for the successful Columbia River process should be adapted and not overlooked (i.e., why do we have to go through this process over and over - while shutting down hatcheries (very abruptly) in some Puget Sound streams?)
The bottomline (speaking as a steelhead fisherman) is the hatchery program has already been devastated by the interactions of WDFW and special interest groups through the non-release (into migratory waters) of steelhead smolts (in some Puget Sound rivers). If we have future droughts on these streams, there now is no reserve or back-up by hatcheries. For example, the Redfish Lake sockeye would not be returning to viable levels if a hatchery program was not implemented. Historically, hatcheries produced incredibly good steelhead fishing several decades ago (and still do on many areas in the Columbia River system).
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on those systems forever (through lack of broodstock, funding, etc.).

Any alternative that doesn't look at improving the opportunities for expanding and invigorating the steelhead fisheries of Puget Sound should not be the favored alternative. Granted, there are some areas that might be appropriate for "wild fish" only. However, the habitat in the lower reaches on many streams is a mess (urban runoff, urban and farm development, etc.). Therefore, the only way to have a viable steelhead fishery is to approve an alternative that includes hatcheries (and to continue research on hatcheries to improve any deficits).

If a non-hatchery alternative is selected, it is a selection for no future fishing opportunities for steelhead in the affected systems. If the wild fish would return to some sustained level, it is likely that the special interests groups would lobby for either "no fishing", "hook-and-release", or "fly-fishing only". This would provide them with basically exclusive use of the stream affected and the fisherman that wants to retain a fish would be excluded.

Don Beyer
Bothell, Washington 98021
beyer.don@comcast.net

Columbia River Inter.docx
16K

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead Releases - EIS process

3 messages

Beyer.Don <beyer.don@comcast.net> Sat, Dec 5, 2015 at 3:05 PM
To: EWShatcheriesEIS.wcr@noaa.gov, Robyn_Thorson@fws.gov
Cc: urabeck@comcast.net

Mr. William W. Stelle, Regional Administrator, NMFS, west Coast Region
Ms. Robyn Thorson, Regional Director, USFWS, Pacific Region

1 The timely review and completion of the EIS for the Hatchery Genetic Management Plans for 5 Puget Sound steelhead hatcheries is critical for both the existing programs and the further effects that the non-releases in 2014 and 2015 may have already had on other ESA-listed species (e.g., predators such as birds - eagles, ospreys, etc., mammals - seal, sea lions, whales, and fish - bull trout, etc.). Any discontinuation of releases in 2016 will likely devastate the runs for decades, with no recovery (i.e., no broodstock).

2 The predator populations have likely built up in response to hatchery programs and may be severely impacted by the already abrupt discontinuation of releases. If a similar situation (i.e., abrupt cessation of hatchery releases) were to occur on the Columbia River system (where a long-term successful program based on hatcheries, harvest, hydro, and habitat improvements has been implemented to recover ESA-listed species while continuing harvestable numbers), the environmental effects on other listed or protected species would likely be devastating (e.g., sea lions below Bonneville Dam).
This longer term transition is much more valid and will likely have fewer effects than the abrupt approach already used in Puget Sound. In addition, the other elements of recovery outside of hatcheries (i.e., habitat, hydro - and irrigation/water supply, and harvest) must be considered along with the profound economic impact the abrupt discontinuation of releases

Hatcheries also serve a very function for assisting in recovery of ESA-listed fish species. With the recent drought this last summer, hatcheries protected a group of fish (i.e., critical reserve) when the "wild" populations were likely severely affected by lack of water. A prime example of positive functioning of hatcheries is the Redfish Lake sockeye that would likely no longer exist if an extensive hatchery program was not undertaken to bring this run of fish back from near extinction. Hatcheries have been in place for over 100 years in Washington state (some haven't met expectations whereas others have been very successful and supported viable returns). To abruptly end the hatchery releases is not biologically sound.

Don Beyer
Bothell, Washington

Beyer.Don <beyer.don@comcast.net> Sun, Dec 13, 2015 at 8:10 PM
To: "wcr, EWShatcheriesEIS" <EWShatcheriesEIS.wcr@noaa.gov>, Robyn Thorson <Robyn_Thorson@fws.gov>
Cc: urabeck@comcast.net

Each species of salmon/steelhead has specific habitat requirements. For example, Chinook salmon life history requirements are different from steelhead, etc.). The differences are well-known to biologist.

Steelhead are particularly affected by freshwater habitat requirements because juvenile steelhead spend 1 to 2 years in freshwater before they migrate downstream to marine waters. Drought summers like last summer are potentially devastating to "wild" steelhead (i.e., those not raised in a hatchery) because they get trapped in stream side-channels that dry up, are subject to smaller areas to live (thus more subjected to predation), and are likely severely affected by high water temperatures. Similarly, high flood conditions that are currently occurring can devastate existing adult spawning redds of salmonids.

If stream habitat in the Puget Sound region was "natural", these stresses might not be as bad. However, habitat conditions have been severely altered by conditions imposed by the millions of people that now live in this region. Examples include altered stream habitat through channelization, water removal, land uses (e.g., farming, logging, urbanization, water pollution, etc.). Habitat improvements are being evaluated and implemented, but they take a long time to demonstrate positive results that increase the overall “wild” populations. Similarly, even the marine environment has tilted in an unfavorable direction with the massive population increases in predators such as seals, porpoise, and sea lions. However, the negative conditions in marine waters cannot be address unless laws such as the Marine Mammal Act are changed (an unlikely situation).

Under the above conditions, hatcheries are a <u>critical refuge</u> for maintaining salmon/steelhead populations that hopefully, in the long term, can be sustained naturally if habitat conditions can be improved. As such, they serve as a “back-up" resource to sustain steelhead/salmon populations during poor summer conditions, harsh winter conditions, and altered

habitat conditions.

The critical role of hatcheries under existing habitat conditions in the Puget Sound region has apparently been ignored in the current process. The burden of proof for eliminating hatcheries (and particularly steelhead hatcheries in Puget Sound) should be on the special interest groups that want to abruptly eliminate them. They should be required to prove that the current habitat in Puget Sound streams can provide the habitat requirements that can lead to de-listing of ESA-listed steelhead/salmon. This has apparently been brushed aside in the current proceedings in favor of only targeting hatcheries (i.e., the habitat must be there before the populations of “wild” fish can achieve sustainable populations).

Hatcheries in Washington State have been in operation over many decades - over 100 years in some locations). As a result of the current process, two years of steelhead hatchery releases (in 2014 and 2015) have been abruptly eliminated in five Puget Sound hatcheries due to lawsuits. If no releases are made in 2016, there will likely be few or no returning adults to use as brood stock in the future – thus the hatchery programs in those streams will likely be permanently eliminated.

Contrast this to the situation in the Columbia River system where regulators have carefully developed a long-term program that doesn't abruptly shut down hatcheries, but considers and implements ways to address and resolve habitat, hatchery, harvest, and hydro impacts on salmon/steelhead production. A better understanding of improvements that can be made to hatcheries is incorporated into this planning.

The Columbia River situation has reaped large benefits from this approach including record runs of some species in recent years. The overall goal of the Columbia River situation, although complex, is to return "wild" sustainable populations to levels that will achieve de-listing of the ESA

salmon/steelhead species affected. It still has many years to go to fully achieve de-listing of all affected ESA steelhead/salmon in the system, but it is headed in a positive direction.

The abrupt approach being pursued in the Puget Sound region has already had severe effects on steelhead populations (when both "wild" and hatchery fish are considered the overall populations have mostly declined). These effects have likely been magnified by the drought conditions of last summer. As a result, it appears that the process in this region is going in the wrong direction and requires that hatcheries continue releases until it can be proven that other aspects of the life history requirements for steelhead and salmon can be returned to levels that sustain viable populations that can be de-listed. This should be an absolute requirement before any further reduction or elimination of hatchery releases is undertaken. As such, it is incumbent on the National Oceanic and Atmospheric Administration (NOAA) to expedite this already lengthy ongoing process and assure that hatchery releases are made this next spring (2016). This must be done to assure a more supportable approach is made to hatchery/steelhead interactions rather than the abrupt and possibly wrong approach that has been utilized so far.

Beyer.Don <beyer.don@comcast.net> Sun, Dec 20, 2015 at 9:18 AM
To: "wcr, EWShatcheriesEIS" <EWShatcheriesEIS.wcr@noaa.gov>, Robyn Thorson <Robyn_Thorson@fws.gov>

Additional Comments to the EIS Process

Yesterday (12/20/2015), one of the WDFW Commissioners and the commentators discussed (on radio) the steelhead situation in South Puget Sound. They indicated that no hatchery releases of steelhead have been made for a number of years and that the runs in the Puyallup and Nisqually rivers were based on "wild" populations. They also indicated that the number of outmigrants was positive but that the adult returns are poor. They attributed this to the likely problem with a massive numbers of predators such as seals and sea lions that are consuming the outmigrants before they leave Puget Sound. Other factors included ocean conditions for this species.

This points out that the current efforts by NOAA, WDFW, and Fish and Wildlife Service likely are focusing solely on the wrong limiting factors to steelhead populations and that the

ultimate goal promoted by special interest groups to shut down all hatchery operations is misguided. As indicated in previous comments, focusing on this one part of the life cycle of steelhead clearly is meant to eliminate hatcheries altogether (as indicated in a recent KINGTV interview with NOAA staff).

2 If the problems presented in yesterday's radio discussion are correct, NOAA should complete its EIS process expeditiously and assure that what remains of the hatchery program and releases are maintained until a full analysis is made on all limiting factors in the Puget Sound steelhead life cycle including, but not limited to habitat, harvest, any hydro operations, hatcheries, and predation. If the predator situation is South Sound is having such a negative effect, hatcheries may be required to sustain the steelhead populations in these streams (and elsewhere), much the same as was done in the Redfish Lake sockeye situation where hatcheries were the only alternative to bringing this run of fish back to a reasonable level of returns. If hatcheries (which have been existence for decades) were the sole problem, the steelhead populations in Puget Sound would have disappeared long ago. However, it was just a few decades ago that steelhead runs in Puget Sound were very impressive and supported a very active and sound sport fishery. Once the hatchery releases were diminished, so were the returns to Puget Sound streams.

Thank you .

Don Beyer
Bothell, Washngton

Response to Don Beyer Comments

Emails Dated November 9, 10, and December 5, 20, 2015

1. Comment noted. See also Global Comment 1a.

2. Comment noted.

3. See Global Comment 2a.

DAVID L. YAMASHITA
LAWYER
[redacted]
MOUNT VERNON, WASHINGTON 98273
[redacted]
E-MAIL: davidyamashita@frontier.com

November 19, 2015

William W. Stelle, Jr.
Regional Administrator
NMFS West Coast Region
7600 Sand Point Way NE
Seattle, WA 98115-0070

Re: Written Comments to Draft Environmental Impact Statement for Early Winter ' Steelhead Hatchery Programs in Puget Sound

Dear Mr. Stelle and Steve Leider:

This is a combination letter in response to the "request for comments" sent on November 4th and also a response to the invitation at the bottom asking if we have any questions and that they be directed to Steve Leider by email. I am sending this letter by hard cover and also by email to Mr. Leider because it has numerous questions.

1 First of all, one of my comments is that it is apparent that the Skagit River System is conspicuous by its absence from the list of rivers that are included in the winter steelhead hatchery management plans.

That raises several comments on my part as well as several questions.

2 One comment is that there is absolutely no doubt there once was a relatively robust "native" early steelhead run on the Skagit River because I used to catch them starting in mid-November when I was fishing for late silvers and chum salmon. These steelhead were rather large in the 10 to 15 pound range. Although they were not in great abundance, they were clearly early winter run fish and not late summer run. I can see no reason why the smart biologists working for the state and the tribes cannot identify an early return strain of steelhead that they can plant in all of the identified river systems including the Skagit.

3 As for a question which I need answered: What strain of hatchery steelhead are going to be planted in all of the other rivers identified in the Puget Sound rivers listed? What, if any, of those fish are indigenous to those rivers and what are not?

2 My next question is: What benefit, negotiated financial arrangement or intertribal perk has been given to the three Skagit River treaty tribes in exchange for their willingness to give up their treaty rights to winter hatchery fish in the Skagit River? Even though there has not been a viable winter steelhead hatchery program for a number of years, our Skagit River tribal interests

certainty had the treaty rights to insist they be included in this winter steelhead hatchery program. Why aren't they are insisting so?

Is this winter steelhead hatchery plan just the first program of several that the state, feds and tribes are going to be implementing that will **exclude** the Skagit River from hatchery programs for the other species of anadromous fish (with the exception of sockeye) ?

In the same vein, is this part of the overall plan to implement Chairman Anderson's agreement/ settlement that was so hastily and illegally entered into in the last couple of months of his tenure?

Again, if this winter steelhead program is but the first step in overall hatchery programs that will exclude the Skagit River system when it comes to the other species of anadromous fish, where do the Swinomish, Upper Skagit, Sauk-Suiattle tribes stand when it comes to their treaty rights to Skagit River salmon?

The next question is: I hope to God they are not going to be allowed to harvest native salmon or steelhead in the Skagit River as part of their treaty rights, because it is obvious the non-tribal user groups will not be allowed to harvest any native fish other than sockeye. I need not remind you that the law provides that we all have the right to harvest "fifty percent of the harvestable return" which means if the tribes are allowed to harvest 5,000 Chinook bound for the Skagit or x number of Coho, pinks, chum, etc., then non-tribal users are entitled to harvest an exact same number.

2

My next questions is: How, pray tell, are you going to make absolutely certain that enough fish return to their spawning beds if the local tribes are allowed to net any anadromous fish in the river, if none of them are hatchery origin?

My next question is: Do the Skagit River tribes believe there are going to be sufficient returns of native salmon to have in-river harvest where they can have a reasonable harvest and the non-tribal users can likewise expect an in-river sport fishery? Do the non-tribal managers believe that is a reasonable expectation as well?

If the answer to the above two questions is "yes," can you please explain in detail how that can be so?

The VIABILITY OF HATCHERIES IN THE SKAGIT RIVER SYSTEM:

Why chose the Skagit River as the "guinea pig" to test the fly fishermen's argument that hatchery fish dilute the gene pool of native fish? Why don't you test that theory in a far less important river system which is just about every other river system in the state of Washington?

I don't need to point out that the Skagit River is the third largest river on the west coast of the U.S. and has been historically one of the greatest destination rivers in North America and once as popular as the Kenai River in Alaska and even more so! That was through the 1970s and we had viable hatcheries during that era. It was not unusual to have 20 pound steelhead and 70 pound Chinook as well as Coho up to 20 pounds. A lot of those fist came out of hatcheries as well as native stock. If there is a river system that could be used to try all different types of

hatchery programs on, it is the Skagit. It was one of the systems that had a number of different hatcheries on it in the past including Grandy Creek, Marblemount, Barnaby Slough, plus brood stock programs, all of which were successful. Politics and money led to their demise.

One terrific advantage that the Skagit River has over many other streams is that a large portion has been designated "wild and scenic" so hatcheries can be utilized within sensible, eco-friendly ways without intrusion by development and logging. There are also some ready-made facilities that can be reutilized with very little remodeling and less expense to tax payers than what otherwise might be necessary in other river systems.

2

I doubt if any of the other river systems where hatchery programs are planned are as environmentally and logistically as suitable as the Skagit River system. I would be willing to wager you cannot possibly explain to me how they are anywhere near the quality both ecologically and economically as the Skagit River system is.

Finally, if you answer my questions but finally conclude that you are going to have hatchery programs for Chinook, chum, and Coho for the Skagit River system and they will be significantly bigger and better in the Skagit than any other Washington system, then maybe I can understand why an early winter steelhead program may be by-passed. Also, if NOAA decides to implement a late winter steelhead program using wild Skagit River steelhead as brood stock as I have been suggesting in a manner similar to the Idaho steelhead program and the Quileute/Queets hatchery programs, then perhaps we will then see eye-to-eye. However, at this point in time, it certainly appears that you have not, cannot and perhaps will not respond to my concerns, my questions and those of ninety percent or more of the sports user group in the state of Washington.

Please address my concerns and answer my questions directly rather than giving political answers. Thank you for your consideration.

Respectfully submitted,

David L. Yamashita

DAVID L. YAMASHITA

Cc: via Email to Steve Leider
Reel News
Holiday Sports
Yeager's Sporting Goods
Wildcat Steelhead Club
Larry Carpenter, Master Marine
Randy Parker
Dick Cook
Justin Young
Kevin LeDuc
Kurt Wilson
Washington Department of Fish and Wildlife – Mill Creek

Response to David Yamashita Comments

Letter Dated November 19, 2015

1. Editorial - The comment correctly notes that a hatchery program in the Skagit River watershed is not included among the rivers reviewed in the EIS. This is because the purpose and need for the EIS is to address the proposed HGMPs submitted by the co-managers to NMFS for review and approval under the ESA (as described in Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal), and an HGMP for Skagit River steelhead has not been submitted.

2. Comment noted. We refer the commenter to the WDFW and treaty Indian tribes for more information on the potential for hatchery programs involving Skagit River steelhead. Note the action reviewed in the EIS does not address fisheries management or allocation decisions.

3. Editorial - The comment asks what strain of hatchery-origin steelhead are proposed to be released in Puget Sound rivers. The EIS only pertains to releases of early winter steelhead of which there are five as represented by the HGMPs submitted to NMFS for review and approval. Hatchery programs using other source stocks (e.g., as shown in Appendix A of the EIS) will be subject to other environmental reviews, as submitted to NMFS by the WDFW and the tribes.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Please move hatchery deadline up

1 message

Zingleman, Fred <Fred.Zingleman@kingcounty.gov> Mon, Dec 21, 2015 at 9:14 AM
To: "ewshatcherieseis.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>
Cc: "robyn_thorson@fws.gov" <robyn_thorson@fws.gov>

Mr. Stelle, We haven't met officially, but I attended your famous speech.

Miss Thorson We haven't met either, Eight years ago I limited my volunteer hours, I figured 23years supporting fisheries improvement was leading to brain damage. ☺

1 Please rule early on Steelhead Hatcheries, so the fish can experience a normal release cycle.

In 1985 I was with many sportsmen in a conservation club raising Blackmouth (delayed release Chinook salmon that stayed in Puget Sound) & Coho. We did that until the blackmouth program was cancelled by the State of Washington.

If the hatchery steelhead are retained too long they won't go out and circle the Pacific as genetically programmed, but you know that!

2

Nineteen years ago, yes, NINETEEN YEARS AGO, I was 1 of 125 admitted in the Channel 9 Studio, I was seated behind the 3 County Executives as you declared that progress had to be made by the State or the Federal Government would take over.

There is a poem about a lost battle, For want of a .....

Time is critical.

When your great grandchildren search Wikipedia will they see that you (NOAA NMFS EXECUTIVE) broke the cycle of life?

2 It would read like this; After Puget Sound Salmon collapsed, Commercial fishing was halted. Steelhead collapsed, Ceremonial Tribal and Sport harvest was halted. Cormorants, eagles and seagulls disappeared, seals and sea lions disappeared, orcas too! The economy suffered, and HUMANS were soon to follow.

All the thousands of volunteer hours have done little good in the past nineteen years, and all we see is a string of WDFW Directors coming onboard just to increase their pensions. Criminal?

My apologies to the Beatle's that fished at the Edgewater Inn,

"All I am saying is give fish a chance."

Thoughtfully,

Fred Zingleman

Fred Zingleman

North Base Body Shop Lead

41 years of Proud Public Service

2012 VM. Employee of the Year

[redacted]

Shoreline, WA. 98133-5851

[redacted]

" I can fix it!" Kerry Killinger, CEO Washington Mutual Savings Bank " The Friend of the Family"

Response to Fred Zingleman Comments

Email Dated December 21, 2015

1. See Global Comment 2a.

2. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

wild steelhead

1 message

Greg Thomas <greg@reelfast.us> Mon, Dec 14, 2015 at 3:01 PM
To: EWShatcheriesEIS.wcr@noaa.gov, Robyn_Thorson@fws.gov

1 I want to thank you both for taking the necessary time to insure the likelihood that wild steelhead may survive. I understand the big push from the put and take angles to hurry up and approve hatchery releases, but as the science is clear on this topic, your insuring that wild steelhead have a chance is far more important a goal.

2 Limiting or eliminating hatchery steelhead on the selected rivers makes a ton of sense to me. Let's hope you can hold the line and produce a working solution even if it infuriates the put and take crowd.

More power to the wild fish any way they can be supported.

Greg Thomas

Sequim, WA

Response to Greg Thomas Comments

Email Dated December 14, 2015

1. Comment noted.

2. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Winter Steelhead Hatchery Program for the Puget Sound.

1 message

Butch Bressler <ramblinrose7282@gmail.com> Thu, Dec 17, 2015 at 2:28 PM
To: EWShatcheriesEIS.wcr@noaa.gov

William, please consider my remarks with sincerity, this is a very emotional subject as Winter Steel-heading is my love and passion. It is during this process that I find my true soul with nature. I served twenty six years on active duty with the U.S. Marines and I can truly say, from my heart, that this Hatchery Program needs to remain in place for us to enjoy.

First off, Our Federal government has to remember, (and this is you, NOAA), all decisions made to the Winter Steelhead programs in the Puget Sound are a result of the Bolt decision. Somehow, it seems to the recreational fishermen that this decision was forgotten. This decision protects all parties with the right to access their fair share of each available fish return. This decision protects everyones rights not just the parties that want to sue.

The way I see it all decisions must be enforceable and there in lies the problem, they are not.

The only entity you can really enforce and impact is the recreational fishermen. Their take quota, on any fish run, when looked at against the commercials and tribes have never been equal in amounts harvested.

1 THE FIX:

All Washington Hatchery programs in question should collect wild fish from the river they are located on. These fish should be used for their program.

Each Hatchery program should be run independent of the other and analyzed as such. One shoe fits all has been our demise.

The Skagit River is not being mentioned, this river is the heart and soul of our Puget Sound blood line.

The Skagit should never be considered as a gene pool nor the Sauk River. We are not going to ship fish from the Skagit to other rivers. This defeats the whole program. Do not introduce/plant other fish in other rivers. These rivers should be allowed to use bait during the hatchery run and then after that remain open for a additional fishery of selective gear only. The Skagit and Sauk Rivers have winter steelhead numbers that could support a catch and release program. These numbers seem to be guarded because the tribes kill a bunch as by catch when they net the spring run of chinook.

The Nooksack, Stillaguamish, Sauk and Cascade should all have Hatchery programs that collect brood stock from their location. These fish should be clipped and released ahead of the native run. These programs should be modeled after the Qunault programs. The number of released juveniles should be increased to sustain a thriving winter fishery. This will boost the economy of local markets and generate more revenue to sustain the hatchery programs.

Thank you for your consideration,

Harold Bressler

Response to Harold Bressler Comment

Email Dated December 17, 2015

1. See Global Comment 1a. Note the action reviewed in the EIS does not address fisheries management or allocation decisions.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS Hatcheries DEIS

1 message

Johnny Brown <jbrown@illumres.com> Fri, Nov 6, 2015 at 9:20 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1

I read the NOAA statement about hatcheries and their impact on the gene pool on wild fish. I think you are all missing the point. The point is mankind in ever increasing numbers continue to move into this area and with that comes man's impact on the habitat. The reason we have hatcheries is man impact has reduced the habitat's ability to produce wild fish, and no matter what remedial steps are taken, as long as we are here the fish will not be.

Taking out the hatcheries to preserve the genetics, sounds good, but wild fish are never going to return as they were a hundred years ago. Taking out the hatcheries will only speed the decline of what is left of the fish. I say keep the hatcheries let them try and propagate the remaining population. Some fish with less than prefect genes, is better than no fish, which is where this proposal is going to take us. Whomever is pushing this proposal is clueless.

Johnny M. Brown

Response to Johnny Brown Comment

Email Dated November 6, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EIS Hatcheries Wa. State.

1 message

Ken j. McIeod <alpinequest08@yahoo.com> Sat, Nov 14, 2015 at 9:18 PM
Reply-To: "Ken j. McIeod" <alpinequest08@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 Herewith I oppose any and all reduction of hatchery steelhead (early-timed or not) herein Washington state. I support the use of early-timed Chambers Creek stock that historically do not interface whatsoever with wild stock in rivers. Further, I do support the use of in-river wild stock of same genetics propagated in hatcheries to help aid low-ebb wild runs such as the Wynoochee River program and Snider Creek/Sol Duc River program, liken to the Vedder River B.C. program. It is of utmost importance that NOAA continue the process to an end result conducive to having hatchery steelhead programs throughout Washington state long into the future - anything less is simply not acceptable to the vast majority of the stake holders/license buyers, local communities, and the resource as a whole.

Ken J. McLeod
(57 yrs. steelhead license buyer)

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget Sound Hatcheries:

1 message

Ken j. Mcleod <alpinequest08@yahoo.com> Sun, Nov 15, 2015 at 9:46 AM
Reply-To: "Ken j. Mcleod" <alpinequest08@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

The following attachment is submitted from NMFS Retired Bio Geneticist Jim Mighell in support of maintaining & continuing all Puget Sound Steelhead Hatcheries to the utmost production using early-timed Chambers Creek stock, for the overall resource itself:
Jim Mighell

Fish Hatchery Jim Mighell NMFS Bio.rtf
6K

Subj: Fish Hatcheries

From: Jim Mighell, NMFS Retired Bio/Geneticist 30 + yrs.)

Our fishing opportunities are under fire from environmentalists who have only one thing in mind - namely: stopping harvest of salmonids. They have adopted the mantra that hatchery fish are, in all cases, detrimental to wild fish recovery, but they ignore some real facts that may actually prove that hatchery fish are helpful in maintaining the status quo, rather than decline of many wild populations. Right off, it is virtually a truism that any river system that has a dam on it that removes spawning and rearing area for immature fish has NO capability to restore historic wild runs, and should be used to its highest capability to allow outmigration and return for recapture, fishing opportunity, and continued production of hatchery runs. Other streams have been SO ALTERED by human activity to be totally unrecognizable from their once free flowing state, and thus, again, practically useless for restoring the runs that had once become adapted to the now unrecognizable`habitat conditions - those streams should be used to their highest capability for hatchery fish, and for realization that, over time, the hatchery strain will adapt to the new conditions just as readily as the remaining specimens from the original stream. For Pristine streams, if there are ANY left, hatchery fish should be used as in (1), (2), and (3) below, OR USE OF STRAINS THAT HAVE BEEN STUDIED AND FOUND TO HAVE NO ADVERSE INFLUENCE ON NATIVE RUNS - SUCH AS THE CHAMBERS CREEK STRAIN IN Washington STATE.

2 Large numbers of hatchery fish in the oceans are more likely to be **helpful** to wild strains than a **detriment** ; how can that be? **Very simply** due to the **dilution** factor the more hatchery fish t he lesser chance that wild fish will be caught by fishing in the ocean or predation from native predators - the old notion that hatcheries will overstock the oceans is tantamount to nonsense, when one considers that at one time thousands upon thousands of salmonids spawned in virtually every stream along the west coast, thus producing numbers of smolts that cannot even be close to duplication by modern hatcheries - the only other possibility for this to happen is that the oceans have undergone a massive loss of productivity in the past century, something that has never been proven. Recent massively historic runs of Chum and Pink salmon and some Fall Chinook runs belie any thought that ocean is less productive due to hatchery fish production.

Wild fish restoration proponents **acknowledge the risks (?????????)** of artificial propagation. They say reforms are already in the works. (1) **Many hatcheries now use native breeding stock**. (2) **They also avoid mixing hatchery and wild fish on the spawning grounds.** (3) **Other hatcheries have been scaled back or turned off.** {But "much of the effort is to try to figure out ways to both maintain significant hatchery production and limit impacts to wild populations," said Mike Ford, conservation biology division director for NOAA Fisheries' Northwest Fisheries Science Center in Seattle.}
As Ford and other proponents say: "artificial breeding has benefits: It can bring back fish to rivers where they have been wiped out". That's already happening on the Hood River, where the Confederated Tribes of Warm Springs and Oregon biologists have reared Chinook salmon for over two decades. Their population has increased, enough to re-establish limited fishing for the tribe and other fishermen.

2

"But hatchery fish and their progeny now dominate the run, just as they do on the Snake River, where another tribal hatchery has vastly increased the numbers of returning fall Chinook salmon" . Mighell says: This should indicate that hatchery fish have provided the genetic material to adapt to the new environment of 2000 and the present, much better than the original gene pool that no longer can adapt to the changed environment. I believe this is true for all streams in the Puget Sound region as well. Why did a hatchery strain of Cowlitz river strain of Coho Salmon do so well in a Puget Sound stream where Coho were just limping along (answer: their gene structure was more ready for adaptation to new environments than the old strain).

Ford says "If the only societal goal for salmon was conservation and recovery of wild populations," Ford said, "I think **hatcheries would** play a much more limited role than they do now." Mighell (retired Fishery Research Biologist - NMFS) **says**: If any stream can boast nearly identical environmental parameters to the turn of the century (1800-------1900) then, and only then should hatchery fish be tempered or eliminated.

Jim Mighell

Response to Ken J. McLeod and Jim Mighell Comments

Emails Dated November 14 and 15, 2015

1. See Global Comment 1a.

2. Comment noted.

Steve Leider - NOAA Federal <steve.leider@noaa.gov>

PS Steelhead draft EIS comments

1 message

Joe <jpjp1964@gmail.com> Thu, Nov 12, 2015 at 2:54 PM
To: steve.leider@noaa.gov

Please accept the following comments on the draft EIS:

1. I support option 2, option 4 or a combination of option 2 and 4
2. An additional option should be considered with increased steelhead plants of up to 1 million
3. Option 2 would minimize impact to wild steelhead while still providing the economic and social benefits.
4. A combination of options 2 and 4 should be strongly considered as both options have minimal impact to wild steelhead, while the social and economic benefits will be much greater than any of the options, due to steelhead run timing increasing angler opportunities. Perhaps two of the rivers be planted with wild brood while the remaining with chambers. This also provides WDFW with flexibility to adjust the management approach in the future.
5. Option 1 would be detrimental to small businesses, anglers, and Society in general while doing very little for wild steelhead recovery.

1

Sent from my iPhone

Response to Joe Comment

Email Dated November 12, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

"EWS Hatcheries DEIS"

1 message

lou0314@comcast.net <lou0314@comcast.net> Tue, Nov 17, 2015 at 7:40 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I propose that you go with alternative 4 until the native stock is strong, then transition to Alternative 3, and if the native stock is still in good shape, transition to Alternative 2.

This may take years but it will meet the mandate of sustaining the natural population. We can't take a chance with that as there are still unknowns in our future so we need to position ourselves to take a surprise hit and still maintain the population. I think we have learned enough about having hatchery bred fish to know that there are related risks so we have to move away from that, for now. As much as I would love to catch a lot of hatchery fish, the long term perspective is the only reasonable one.
Good luck.
PS - fishing should either be banned altogether, or if you can count on fisherrmen to monitor each other - release all natives or make it all catch and release(my preference).

Response to lou0314 Comment

Email Dated November 17, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Genetic Management Plan / Draft Environmental Impact Statement (HGMP/DEIS)

1 message

Mark Gavin <mark.gavin011@gmail.com> Thu, Dec 24, 2015 at 11:12 AM
To: "Robyn.Thorson" <Robyn.Thorson@fws.gov>, "EWShatcheriesEIS.wcr" <EWShatcheriesEIS.wcr@noaa.gov>
Cc: jim.unsworth@dfw.wa.gov, "kirk.pearson" <kirk.pearson@leg.wa.gov>

Dear Sirs:

Please approve the permits that allow for the release of hatchery steelhead in ALL of the Puget Sound Basin Rivers.

The human caused impacts on both the habitat in Puget Sound Basin plus the steelhead themselves necessitate the continued release of steelhead into all Basin Rivers to ensure the survival of the genetic material in each river. With all these human impacts, the steelhead will not survive without hatchery supplementation.

1 10's of millions of dollars have been spent on hatchery reform to make the hatchery produced fish as close as possible the non-hatchery produced fish.

Additionally, it is important to remember that the hatchery produced fish and the non-hatchery produced fish have been interbreeding for many generations. There is no longer such a thing as a "pure stock wild run" in this Basin.

Your agencies have had the necessary information for years. The permits should have been issued long before we have reached the brink of losing the the hatchery produced fish.

Do not extend the comment period.

Further delay is unacceptable, now is the time to issue the permits.

Please do so.

Thank you and Merry Christmas.

Mark Gavin

Response to Mark Gavin Comment

Email Dated December 24, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Steelhead Puget Sound

1 message

Mike West <fishguy60@gmail.com> Wed, Nov 4, 2015 at 6:42 PM
To: EWShatcheriesEIS.wcr@noaa.gov

This goes for most rivers in Washington. The rivers that don't apply do get strays, so they have still been effected. Now most of us know that hatchery programs in most tributary's of Washington were adapted in late 1800's to early 1900's. We also know that there was no fin clipping in till the late 1980's to early 1900's. (Segregation) Minimum of about 88 years of hatchery fish spawning with wild fish. Our wild steelhead runs had been enhanced by the hatchery fish being able to spawn with the wild fish. We had good wild runs prior to segregating. Hatcheries were a must do all the habitat destruction from mankind.

Then for some stupid reason fin clipping was adapted, causing poor wild runs or more wild than hatchery. Do the math, these so called wild steelhead that are on the endangered list are not wild, they are integrated wild and hatchery fish, only to be considered more wild than a segregated hatchery steelhead. Wild steelhead are not endangered they are extinct in most cases. Our for- fathers knew they had ruined our spawning habitat in most cases and created hatcheries to enhance what could not be fixed.

1 Now lets talk about the segregated hatchery steelhead. (Clipped) The hatcheries started clipping the hatchery born fish so they could tell the deference from the ones that were born in the gravel on a spawning bed. The first few cycles of runs from this time period had more wild than hatchery. We had to catch 2-3 wild steelhead to catch a hatchery steelhead. This went on for quite some time, then the table turned to more hatchery than wild at the same time hatchery steelhead being released had also dropped in numbers. The math is not adding up. This is were the sport fisherman will cringe and disagree, but I know different. The reason the math is off is because the segregated hatchery steelhead produces way less adult steelhead back to the system from a natural spawn, compared to integrated stock. (Wild and Hatchery spawning together).

In case anyone is having trouble following this: Segregated means clipped and only clipped fish were spawned for hatchery fish. Integrated means hatchery and wild spawning together. To create the run. Integrated fish have a much higher rate of an adult to return to a system from a natural spawn. The answer is still in exactly the same place it started some 80-100 years ago. The wild steelhead need enhancement from hatchery integration. So we need to replace all segregated hatchery steelhead with integrated runs and mark them as such till we see no more return of the segregated steelhead.

Once this is accomplished we can by selective measure, take the more wild fish that has spawned naturally and spawn it with the clipped fish to continue what our for-fathers new needed done. We select the the naturally born fish with the larger adipose fin to spawn with the hatchery fish so as to have as wild a fish as possible. I hope that in my lifetime we will see this all come to be true. Who knows how long it will take for the powers in control to figure it out? I'm not a biologist and don't need to be one to know that this will some day be the end result.

Your first river to be a gene bank river in my area was the Wind River about 18 years of no hatchery steelhead, now you have an estimated 500-600 so called wild fish there to date. They are not a native or truly wild with 80-100 years of integration prior to segregation, they are just more wild than segregated. Who are you trying to fool? If you aren't trying to fool anyone, then how come it takes a stupid river guide to do the math for you? Get a grip and integrate before it is to late and you don't have the number of so called wild fish to make a good integrated run.

Michiel L. West

--
River Guide
Professional Taxidermist
[redacted]

Response to Mike West Comment

Email Dated November 4, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Comment on EWS Hatcheries DEIS.

1 message

Ronald Dion <r.mdion@comcast.net> Tue, Dec 22, 2015 at 1:37 PM
To: EWShatcheriesEIS.wcr@noaa.gov

Here are my comments regarding the 4 Alternatives listed in the “EWS Hatcheries DEIS”.

Being a native Washingtonian, born, raised, lived and fished here since 1937, I have sadly observed the depletion of our native steelhead. With this background, here are my comments.

1 Alternatives 2 and 3 are ludicrous. They are just like doing the same things that have been done for several generations and expecting different results. So far those results have not improved the returns of wild steelhead. If we continue in this mode, the survival of our wild steelhead genetics is doomed.

Therefore, my recommendation is to implement Alternative 1, close the 5 streams to all fishing for an adequate duration to allow the wild strains to grow without competition, harassment and human predation.

If Alternative 1 is not viable, then giving Alternative 4 a try would be acceptable only if adequate protection to the wild stocks were implemented. That would include closing all 5 streams for an adequate duration to allow the wild strains to grow without competition, harassment and human predation.

Ron Dion
r.mdion@comcast.net

Response to Ron Dion Comment

Email Dated December 22, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Draft EIS Early Winter Steelhead Hatchery Programs In Puget Sound

1 message

Raymond Ellis <ray.ellis80@gmail.com> Sat, Nov 14, 2015 at 8:57 AM
To: EWShatcheriesEIS.wcr@noaa.gov

Dear Mr. William Steele, Jr.,

I have grownup in the state of Washington and have been resident all my life. I have been fishing for salmon and steelhead since I caught my first salmon at the age of 6 in 1962. My first salmons was a 32 lb. chinook and I have been hooked on fishing for salmon and steelhead since. Additionally, I have been employed by Grant County PUD for nearly 30 years and have seen successful hatchery programs such as our Priest Rapids fall chinook hatchery provide a positive impact to the river, anglers and co-managers. As you know, the Hanford Reach is immediately below our fall chinook hatchery and it has operated successfully for decades without negatively impacting the Hanford Reach with it's strong wild runs.

I concur with the Puget Sound co-managers and NOAA fisheries and agree we should proceed with Alternative 2 because of the following:

1) It meets Rule 4(d)
1 2) If proposes to use adaptive management (similar to our hatchery & anadromous fish programs) to continue to improve effectiveness and efficiency and
3) Use of BMP's to improve effectiveness and efficiency.

My son is an active steelhead fisherman and I would like my recently born grandson have the opportunity to grow up and enjoy the fishing opportunities I have fishing for salmon and steelhead. Therefore, I recommend we proceed with Alternative 2. Thanks for your time and this opportunity to provide input to the process.

Raymond O. Ellis
Ellensburg, Washington

[redacted]

Response to Raymond Ellis Comment

Email Dated November 14, 2015

1. See Global Comment 1a.

Rory O'Connor
2715 Walnut St.
Bellingham, WA 98225

December 18, 2015

Mr. Will Stelle, Regional Administrator
National Marine Fisheries Service 7600
Sand Point Way NE Seattle, WA 98115

Dear Mr. Stelle,

I am writing to you regarding the Early Winter Steelhead HGMP/DEIS you are currently working on for the five Puget Sound Rivers. I know you have heard from many others regarding this, and I want to add my voice to the chorus...please approve these plans by April 1, 2016! If steelhead smolts are not released on time, we'll miss our last chance to resuscitate this valuable winter opportunity.

1

I find the litigious bullying tactics of the Wild Fish Conservancy (and the like) to be absolutely alarming. Please do not let a small group of extremists - who are most definitely NOT reflective of the public at large – dictate the process. They have had an undue influence so far and that needs to stop before they threaten even more of our fisheries.

Steelhead angling is a precious opportunity for residents of this state. To lose it would be a terrible tragedy both in terms of the loss of opportunity for us, but also the hit our economy would take. Steelhead brings many anglers outdoors, both local and from long distances. They contribute to our local economies (many rural) in terms of tackle, food, fuel, lodging, guide services and so much more. Not to mention, Steelhead is our state fish and thus carries a certain amount of pride. To not be able to interact with them would be a terrible loss.

2

Hatcheries themselves represent our angling opportunity in WA, and they are of obvious value to Washington. Hatchery reform has been a high priority for this state over the last 20 years and continues to be so. It's a process and we are constantly learning and improving. Closing or restricting hatchery programs will have devastating consequences.

Regards,

Rory O'Connor

Response to Rory O'Connor Comments

Letter Dated December 18, 2015

1. See Global Comment 1a and Global Comment 2a.

2. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Endangered Species Act

1 message

StephanieChristoff <StephanieChristoff@yahoo.com> Tue, Nov 10, 2015 at 4:45 PM
To: EWShatcheriesEIS.wcr@noaa.gov
Cc: PETA Info <info@peta.org>

I believe that all analyses conducted by your organization and all governmental agencies responsible for our environment should include those animals that fall under the Endangered Species Act. A partial analysis that does not include those animals at risk under the Endangered Species Act does our beloved animals and our country a disservice. We have an ethical responsibility to ensure that animals can coexist with humans in their natural habitat. They deserve our protection with the full right to thrive in their natural environment.

The best analogy that I can think of to help illustrate this point is as follows. For example, if a water conservationist's job is to study methods to conserve water, part of his or her study should include the review of all of the water pipes; as well the local water tables with annual rainfall. Ignoring leaky pipes that transport water could lead to all of the water tables running dry, if annual rainfall is low. Therefore, a partial study would provide an incomplete picture and could lead to drought in the worst case scenario. Or better yet, if I call a plumber because water is not dispensing out of my kitchen faucet; if the plumber fails to check the pipes, he did not do his job. Leaky pipes would lead to black mold, destruction of property with no water; ultimately making someone's home uninhabitable and harming the inhabitants of this dwelling.

1

By our government failing to study those animals protected under the Endangered Species Act with their analyses, we humans might be making our world uninhabitable for our endangered species, as well as for humans. Just like the plumber made the homeowner's dwelling uninhabitable. In both scenarios everybody suffers.The plumber did not do his job, the homeowner no longer has a dwelling or he or she becomes ill with black mold and the costs to correct the problem, if building a new dwelling become insurmountable.

Back to our original discussion regarding protecting our endangered species which is what this email is really about. Our government agency did not do his or her job, if they ignore endangered species. Our endangered species go extinct and our planet becomes uninhabitable.

The leaky pipes don't go away, until they are fixed. Ignoring our environment won't make our problems go away until they are fixed. Animals and more specifically endangered animals are part of our environment and should not be ignored. You wouldn't ignore those leaky pipes in your own walls would you? Do your job!

Stephanie

Sent via the Samsung GALAXY S®4, an AT&T 4G LTE smartphone

Response to Stephanie Christoff Comment

Email Dated November 10, 2015

1. The comment asks that the action be compliant with the ESA. The EIS addresses effects on listed species. Subsection 1.3, Purpose of and Need for the Proposed Action, clarifies NMFS' and the co-managers intent for the proposed action to be compliant with the ESA.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget Sound DEIS Steelhead Draft Comments

1 message

Sean Mitchell <mitch184@hotmail.com> Mon, Dec 7, 2015 at 1:57 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

To whom it may concern,

1 First, I would like to ask why all 5 basins would be grouped into the same management plan? Do all 5 basins contain the same fishing pressure, run timing, stock strength, fish carrying capacity, hatchery capabilities, habitat issues, fish genetics, etc?? It seems to me that each basin is a DRASTICALLY different situation.

For instance, The Nooksack has SEVERE netting and co-management issues while the Snoqualmie and Skykomish basins contain no netting? The NF Nooksack also has a somewhat glacial origin and runs dirty most of the season whereas most of the others are runoff type rivers? Access is also different between a few of the basins. There is no boat access, so to speak, on the Dungeness whereas the skykomish/Snohomish, Snoqualmie and mainsteam Nooksack all enjoy easy access for jet boats and drift boats.

2 This seems to be a common problem throughout our state's management. The best example being the Skagit River and its native/wild steelhead. I seem to recall the escapement on the Skagit being 8000-9000 fish for the past few years with almost no other systems in Washington being able to rival this. Yet no season due to the fact that it is grouped together with other systems, with completely different situations, that do not benefit from the Upper Skagit/Sauk's habitat. Although not on the this draft, the Skagit is the gem for all Puget Sound steelhead.

3 With Alternative 4, will these Broodstock fish even be allowed to be fished for? Since the run timing will largely overlap with Native/Wild runs, will these different basins allow the increased impact for released fish? If each system cannot sustain an increase in native/wild fish impact, what good does a Broodstock program do? Sportsmen won't be allowed a chance at these broodstock fish because the impacts won't allow it?

4 I think we all know how Alternative 2 works because we've seen it. Early run timing avoids the majority of the native/wild run but the Chambers Creek fish are drastically inferior to the native origin genetics. Thus the minimal intermingling of the stocks poses a greater threat.

However, providing MORE overall opportunity for these fish reduces the magnitude of our impact on any given stream. It spreads the sportsmen (impact) out. Also, with no hatchery fish returning, our CNR chances become that much more difficult to obtain even in systems that can support them.

4

I guess if I had to choose one single alternative, I'd like to see Alternative 4. HOWEVER, I don't see why we can't have a mix of Chambers Creek AND Broodstock fish based on each individual basin? Why not take the two basins with the strongest native/wild runs and try a Broodstock program with shortened seasons to start? Or possibly rivers with a higher hatchery/wild mingling rate and use a broodstock approach. Or even glacial rivers where the returns are generally later. Then on other systems with low mingling rates, weaker/later native runs, keep the early returning Chambers Creek stocks. Oregon has adopted MANY broodstock programs and it seems to be working very well.

In the end, sportsmen just want the chance to be on the river. We want opportunity. This increased opportunity is not only a HUGE benefit for local economies, funding for habitat spreading out the pressure and tradition, but it gets eyes and attention on our rivers. As more and more rivers close, us sportsmen are confined into smaller and smaller spaces and thus create greater impact on those individual streams. Such as the Olympic Peninsula which has dealt with the majority of the overflow from the Puget Sound river closures. If even more Puget Sounds and Grays Harbor rivers closed (Due to no hatchery fish or CNR opportunity), how long before there's too much impact on the Peninsula rivers and they have to close? Then there's nothing. People that used to fish the Skagit, Sauk, Sky, Snoqualmie, Green and Stilly don't enjoy driving 5 hours to fish the only rivers left open. We would MUCH MUCH rather fish in our backyards, support the local economy, reduce our gas/fuel usage and pollution and spread out pressure. The same result can be had by offering both early Chambers Creek AND Broodstock fish.

2

Back to the eyes and ears in the rivers. Without a season, poaching on our local rivers increases dramatically. Not having sportsmen on the river allows poachers and illegal nets to go unseen. Netted and poached fish are DEAD fish 100% of the time. Bottomline. With a lack of funding for increased patrol/officer presence, the sportsmen become the best source of patrol to keep these poaching/netting situations visible to enforcement.

I originally wasn't going to discuss all my thoughts, but I feel like this is my last chance at continuing my way of life. I know the sportsmen, in general, are very disorganized, but we all share the same passion and just want the chance to be out on the rivers that we love. Harvest or not. Wild, Native or Hatchery.

Thanks for your time.

Sean Mitchell

Response to Sean Mitchell Comments

Email Dated December 7, 2015

1. The comment asks why five basins are grouped into the same management plan. The reason the five HGMPs are grouped into one EIS as described in the EIS Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, is because the HGMPs were submitted as a group by the state and tribal co-managers to NMFS for evaluation and approval. Also, the five HGMPs represent all of the early winter steelhead hatchery programs in Puget Sound area. Differences, including the watersheds and natural-origin populations that inhabit them, differences in hatchery facilities, and genetics, are considered in the EIS.

2. Comment noted. Note the proposed action reviewed in the EIS does not address fisheries management or allocation decisions.

3. See Global Comment 1b for more information on the Native Broodstock alternative (Alternative 4).

4. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

PS early winter steelhead draft EIS comment

1 message

Thomas Hagarty <thomashagarty@gmail.com> Tue, Nov 10, 2015 at 12:17 PM
To: EWShatcheriesEIS.wcr@noaa.gov

Dear Mr. William Stelle Jr.,

As a sport fisherman, I am in favor of alternative #2 listed in the DEIS for PS early winter steelhead.

I am also in favor of future efforts to create brood stock programs using native fish in the 5 river systems listed (alternative #4). The reason I am in favor of #2 vs #4 initially is the uncertainty of how long it would take to implement alternative #4 to create viable sport fishing opportunities. Would it take 3, 5, 7 or 10 years before alternative #4 could create adequate sport opportunity? If there are no fish, we lose interest in the species and then people like me stop caring about or supporting the resource. 1

In my opinion, #2 would bring back sport opportunity within a short period of time. I would support a required license endorsement to participate in this fishery, similar to Columbia River endorsement for salmon and steelhead. Might be a hard sell, but something to consider in order to help preserve the opportunity.

Thank you for taking the time to read my comments.

Thomas Hagarty
Fall City, WA
[redacted]

Response to Thomas Hagarty Comment

Email Dated November 10, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Steelhead and Salmon

1 message

vzeik@comcast.net <vzeik@comcast.net> Mon, Dec 7, 2015 at 3:02 PM
To: EWShatcheriesEIS.wcr@noaa.gov

Dear Mr. Stelle,

1

I am a puget sound angler and love to fish for hatchery steelhead and salmon. I understand an organization who I will refer to as "Natural Origin Fish Conservancy", also known as the

Wild Fish Conservancy, has been successful in stopping hatchery releases because they want to preserve so called, Wild Fish. Now Natural Origin, I guess. All these fish hatchery, and so called

wild fish are of natural origin. Was this the same person who came up with Northern Pike Minnow. That idiot never lived in Minnesota, or Canada Eh?

I stand by the fact there is no proof, (DNA) available from a true "Wild" steelhead, or salmon for that matter. This DNA sample would have to have been taken before any hatchery existed on any

river in the US. Since there is no DNA from these fish, no one can prove a fish with an adipose fin, is indeed a "True" wild fish. It is a mute point.

So why are we destroying hatchery fish anyway. Some one will be held responsible for this oversight.

We need hatchery fish now just like we need chickens being raised on farms. Hatchery fish support many economies and provide food for lucky fisherman.

As far as identifying fish from different basins, that is a joke because the fish stray from basin to basin and do propogate. Again you do not have any proof this does not happen.

They proved it in Alaska where I lived for some time. I do not understand your position here but hope you make the right decision and quickly so hatchery fish can continue or they

will be all gone. Then we will have to get fish from different basins anyway. As if that is such a big deal anyway.

Vince Zeik
[redacted]

Response to Vince Zeik Comment

Email Dated December 7, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Alternative 4

1 message

adam good <adam_good@hotmail.com> Thu, Nov 5, 2015 at 1:36 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>

1 Reviewing the information from the DEIS, alternative 4 makes the most sense as it would help sustain native genetics for that basin. Thank you for your time and consideration of my comments.

Adam Good

Response to Adam Good Comment

Email Dated November 5, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Steelhead

1 message

Andrew Worth <fishaddict9@gmail.com> Tue, Dec 8, 2015 at 3:58 PM
To: EWShatcheriesEIS.wcr@noaa.gov

Dear Mr.Steele
1 I'm writing this letter in regards to the recent information about abolishing hatchery steelhead in Puget Sound and the review of your organization. I've been a fisherman my whole life and chasing these wonderful species for a very long time. You see abolishing hatchery steelhead would cut the very foundation of our state. Sport fisherman put more money into conservation than any other group of people. It's in our roots and many of us are extremely disappointed in the recent decisions by the wild fish conservancy to abolish hatchery fish without the proper dater proving what they claim.. Cutting hatchery steelhead to Puget sound would be a detriment to this state and to be quite frank would go against everything that you and other organizations are paid to do. Allowing this to happen would go against everything this very state was founded on, Opportunity. Opportunity for the citizens to freely take what we believe is our right. Please take into consideration of how many people will be affected by these decisions.
Thank you for your time
Sincerely
Andrew G. Worth

Sent from my iPhone

Response to Andrew Worth Comment

Email Dated December 8, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

"EWS Hatcheries DEIS"

1 message

Bob Foster <rj62074@wavecable.com> Mon, Nov 16, 2015 at 12:58 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 Please allow the Washington State Hatcheries to continue to provide the Washington Rivers with Hatchery Steelhead & Salmon, so that my Grandchildren and following Generations have the same availability to fish for species that will other wise disappear and no longer be available,for example,'The elimination of hatcheries also presents a great risk because these hatcheries provide a back-up for recovery in case the wild fish populations completely collapse, such as the case was with the Redfish Lake sockeye". if Radical Groups like the Wild Fish Conservancy (WFC) of Washington State are allowed to continually drive unfounded regulations to the Fisheries of Washington Sate. It also is very troubling that this Group WFC is allowed to use Public Funds (GRANTS) to pay for the Legal attack and pay their Lawyers ! – PLEASE PUT A STOP TO THIS ATTACK ON OUR FISHERIES __

Bob Foster
[redacted]
Camano Island WA. 98282
rj62074@wavecable.com

Response to Bob Foster Comment

Email Dated November 16, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

PS steelhead

1 message

Brady Maguire <bradymaguire0@gmail.com> Wed, Dec 16, 2015 at 9:25 AM
To: EWShatcheriesEIS.wcr@noaa.gov
Cc: Robyn_Thorson@fws.gov

1 We cannot lose these hatchery programs, this is the only opportunity for people who live and work in the puget sound area to have a steelhead fishery without driving super far and spending a ton of money. The alternative I would suggest is using genetics from local rivers to release MORE hatchery fish. Look at the tribal broodstock programs on the coast, salmon river in particular, there are very successful and he wild fish are doing well. Please consider this as the best option.

Response to Brady Maguire Comment

Email Dated December 16, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

puget sound hatchery stealhead

1 message

Bill <owensmachinemfg@aol.com> Sat, Dec 12, 2015 at 11:25 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 Please complete your report before May 1 ,2016.

I have purchased fishing licenses in Washington and Oregon since a young boy. I have had limited time to fish as I needed to support the family. Now that I am 70 years old I want to catch hatchery fish which are the only viable option.

Bill Owens

Response to Bill Owens Comment

Email Dated December 12, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Fwd: Comments and Questions re Early Winter Steelhead Hatchery Programs in Puget Sound

1 message

Bill Reinard <billreinard@gmail.com> Wed, Nov 25, 2015 at 12:52 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Attn: William Stele,

1 The Sauk River is in the Steelhead Management Program or whatever it is called. That should be enough. We must eventually have a wild stock based steelhead hatchery that permits a main stem Skagit River Steelhead sports fishery. The mighty Skagit is our fabulous resource to once again be given the opportunity to become a steelhead sports fishing paradise. We are going to fight to make that dream materialize!

Bill Reinard
[redacted]
Burlington, WA 98233

Begin forwarded message:

From: Shirley Nelson <billandshirleyn@gmail.com>
Date: November 21, 2015 at 10:06:35 AM PST
To: Bill Reinard <billreinard@gmail.com>
Subject: Fwd: Comments and Questions re Early Winter Steelhead Hatchery Programs in Puget Sound

[redacted]

CONFIDENTIALITY: The information in this e-mail is confidential and is intended to be disclosed only to the intended recipient as indicated above. This may contain confidential information belonging to the sender which is protected by disclosure laws and attorney-client confidentiality. If you are not the intended recipient, you are hereby notified that any disclosure, copying, distribution or the taking of any action in reliance on the contents of this information is strictly prohibited. If you have received this transmission in error, please notify the sender via return e-mail, fax or phone.

[redacted]

Response to Bill Reinard Comment

Email Dated November 25, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Save our steelhead

1 message

Brian Waugh <waugh1979@gmail.com> Sun, Nov 8, 2015 at 7:47 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 Please do not submit to the whims of the environmental extremists. Hatchery fish are good for everyone. If it were up to me, i would like to see a native broodstock program implemented on Puget sound streams. It seems this would alleviate much of the concerns of the environmentalists. But I have been catching chambers creek fish for years. I dont think many anglers care what kind of steelhead they catch. I dont even care if i get to eat it or not. I just want to be out there, chasing these beautiful fish. Please do whats right for Washington sportsman, and the tribes, and the ecomies in many small towns that benefit from steelhead.

Response to Brian Waugh Comment

Email Dated November 8, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget Sound steelhead hatcheries environmental impact statement

1 message

Ccolman737 <ccolman737@gmail.com> Mon, Nov 16, 2015 at 12:16 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

To whom it may concern,
William Stelle,

1 I would like to comment in favor of continuing efforts to bolster the steelhead and salmon hatchery program in Washington state. I believe the plans are sound and properly mitigate much of the impacts of the hatchery fish upon the native runs.

The approval of five hatchery and genetic management plans for early-returning early winter steelhead hatchery programs in Puget Sound in Washington State is very important and I urge those tasked with this work to make sure every effort is being done to complete it on time.

Thank you for your time and effort.

Chris Colman
[redacted]
Lake Tapps Wa 98391

Response to Chris Colman Comment

Email Dated November 16, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Support Alternative #2 for early hatchery winter steelhead

1 message

The Coopers <cooperck@frontier.com> Sat, Nov 7, 2015 at 3:38 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Hello
1 Writing to voice my support for hatchery winter steelhead production in puget sound area under the guidelines proposed under alternative proposal #2. Would like to see harvestable numbers of hatchery steelhead returning again to my home rivers including the Sky and the Stilly. Thanks

Cory Cooper
Lake Stevens, WA
98258

Response to Cory Cooper Comment

Email Dated November 7, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget Sound Hatchery practices

1 message

Charles Gauthier <gauthierc@wavecable.com> Wed, Nov 4, 2015 at 9:14 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I would prefer alternative #2 as without hatchery fish, we are done. Thank you for the opportunity to get in my two cents.....

Chuck Gauthier

Life Member CCA

Pres Kitsap Chap CCA

Member Kitsap Poggie Club

Response to Charles Gauthier Comment

Email Dated November 4, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Steelhead

1 message

Mannick, Chris H <chris.h.mannick@xo.com> Thu, Dec 10, 2015 at 2:00 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 Please do not close the early winter hatchery steelhead programs for the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie rivers. My Dad fished these rivers & so do I.

Thank you

Chris Mannick

Response to Chris Mannick Comment

Email Dated December 10, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Support for Hatchery Enhancement

1 message

Craig Reisen <craigreisen@gmail.com> Tue, Nov 10, 2015 at 1:44 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I strongly support Alternative #2 as the best plan that would provide a recreational fishery without negatively affecting the Wild population of Steelhead in the rivers Listed in Alternative #2.

Craig Reisen
craigreisen@gmail.com

Response to Craig Reisen Comment

Email Dated November 10, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS Hatcheries DEIS

1 message

thebobbers@thebobbers.com <thebobbers@thebobbers.com> Sat, Dec 5, 2015 at 2:18 PM
To: EWShatcheriesEIS.wcr@noaa.gov

Hell and Thank you for accepting my comment.

I would like to see the end of all netting in our rivers both tribal and non-tribal.

There is no doubt about netting's ability to indiscriminately kill fish every fish that becomes ensnared both hatchery and wild.

Also, I have heard from native fishermen that they believe all the fish are for them only. No fish is meant to be harvested by a non-native. This sentiment needs to change. We are all in this together, and any one group's greed will absolutely insure the destruction of this valuable resource.

After reviewing your Summary:

Draft Environmental Impact Statement to Analyze Impacts of NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Five Early Winter Steelhead Hatchery Programs in Puget Sound;

1 I believe Alternative 4 (Native Broodstock) Would provide the wisest choice of all the other proposed actions.

Closing any hatchery should not be a proposed action.

2 I do understand that, more than any other single factor, loss of habitat is the number one reason for declining fish populations.

Thank you again, and.....
Fish On!!

Carl Yost
www.thebobbers.com

Response to Carl Yost Comments

Email Dated December 5, 2015

1. See Global Comment 1a.

2. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead Hatchery Support,

1 message

toutleman@yahoo.com <toutleman@yahoo.com> Mon, Dec 14, 2015 at 8:51 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 I support More fish hatchery production in our state. Recreational angling and Sportsmen support Steelhead Hatchery projects.Wildfish will rebound improve habitat and water quality
The fish will return even with hatchery production.

Thanks,
Don Bykonen
50 year Wa. State Resident .

Sent from Yahoo Mail on Android

Response to Don Bykonen Comments

Email Dated December 14, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Steelhead programs in Washington state.

1 message

Dan Cahill <dcahill822@yahoo.com> Wed, Dec 9, 2015 at 8:08 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 This email is in support of the ongoing hatchery steelhead program in Washington state. This program is critical to providing sport opportunities. Communities in our state depend in dollars spent on lodging, gas, meals and tackle spent by fisherman. The steelhead fishery in Washington is a way of life for many. Without these hatcheries, the steelhead that have returned to many of the rivers in our state will cease to exist. With the tribal netting and commercial harvest of many of these hatchery fish have directly effected the native endangered stock. Kill netting is the main cause. Sport fishing has little impact on these native stocks.

Please consider the negative impacts of eliminating the hatchery programs. There are already many regulations in place to help protect these endangers stocks. Reducing the hatchery program is not the answer.

Thank you for your time and consideration.

Dan Cahill

Sent from my iPhone

Sent from my iPhone

Response to Dan Cahill Comments

Email Dated December 9, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead

1 message

Donny DeHart <ewhsdehartd@gmail.com> Wed, Dec 9, 2015 at 8:17 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 My name is Donny DeHart and love to steelhead fish. Out of all the fish in Washington state steelhead is my favorite to fish for in the winter as well as the summer. As we all have seen the steelhead fishing has decreased in the past years. I just just don't see why all these hatcheries are closing runs when they should be flourishing. I know the hatcheries are capable of producing more fish, because they used to. Not only that our rivers especially on the north end have gone down hill because of hatchery closers and less plants. I just don't see why it's almost unfair that we pay all this money for fishing licence and all we get is less and less fisheries and fish. This needs to be changed before it's to late! If it's the cost of running hatcheries that is the issue I know multiple people that would help as long it helped along with our steelhead fisheries. Also I know it it was posted that help was needed you would have more then enough people to help out at the hatcheries. With that being said we can't get rid of our steelhead fisheries. Instead we need to get them back to what they used to be. Closers aren't the answer providing more fishing opportunities is. I'm sure I'm just one of many emailing you about this, but us as anglers need to be herd. Thank you though for taking time to read this email.

-Donny DeHart

Response to Donny DeHart Comments

Email Dated December 9, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Support for Hatchery programs in Puget sound.

1 message

Dennis Harman <drharman5@gmail.com> Sat, Nov 7, 2015 at 7:10 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 IT IS PART OF THE ESSENCE OF WASHINGTON STATE THAT WE HAVE THE ABILITY TO FISH FOR AND BRING HOME TO OUR FAMILIES, SALMON AND STEELHEAD FROM OWE CANNOT BOW TO THE WISHES OF A FEW SELF INTEREST GROUPS. WE EED TO SET ASIDE SPECIFIC RIVERS FOR WILD FISH ENHANCEMENT AND SPECIFIC RIVERS FOR HATCHERY FISHERIES.

WE CANNOT CLOSE IT ALL DOWN BECAUSE OF A FEW WILD FISH ZELOTS WHO'S ONLY REASON IS TO GROW THEIR NON PROFIT??? HABITAT RESTORATION COMPANY WITH PROGRAMS FUNDED WITH GOVERMENT AND STATE MONIES.

STOP DESTROYING OUR OPPORTUNITY TO FISH FOR HATCHERY FISH IN WASHINGTON STATE.....

SINCERELY
DENNIS HARMAN
LIFETIME RESIDENT, VOTER AND LIFETIME RIVER ANGLER IN WASHINGTON STATE

Response to Dennis Harman Comment

Email Dated November 7, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead Hatcheries

1 message

Dave Hess <crackerjack.dream@gmail.com> Wed, Nov 18, 2015 at 9:56 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I want to send you a note to give you my thoughts on the attempt to close the steelhead hatcheries here in the Puget Sound. I strongly oppose closing these hatcheries! The hatcheries are crucial for a number of reason, most importantly being maintaining numbers of steelhead in our local rivers and providing recreational opportunities for fisherman. I believe this small, well-funded group of fly fisherman have ulterior motives to this proposal, rather than the health and well-being of the steelhead population. Yes, the steelhead population needs assistance and that is what is occurring witht he hatcheries. Should the hatcheries close, the next step this group would undertake would be to eliminate fishing all together on these rivers. Please do not assist them in this endeavor.

Thanks,
Dave Hess

Response to Dave Hess Comment

Email Dated November 18, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Support for hatchery salmon/steelhead programs for Washington State.

1 message

Ivankovich, Dominic <dominic.ivankovich@fluke.com> Tue, Dec 8, 2015 at 2:56 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>, "Robyn_Thorson@fws.gov" <Robyn_Thorson@fws.gov>

1 I wanted to affirm my support to keep Washington State steelhead and salmon programs operating and ideally expanded. Over the last 100 years, habitat destruction has made it impractical that existing ecosystems would support a large and healthy population of steelhead and salmon in our Washington rivers if hatchery programs were eliminated. As a result of this, I strongly support continuing these programs and reversing hatchery closures or reductions employed over the last 18 months as a result of anti-hatchery lobbying efforts. While I can appreciate the intent on some level of advancing wild populations, I think there are many examples where the elimination of hatchery programs without fundamental habitat recovery efforts results in limited to no progress. Therefore, we must preserve the fish populations for both commercial and recreational purposes by continuing the programs and building new generations of fisherman that enjoy salmon/steelhead fishing and are committed to preserving the environment in the face of an ever increasing population.

Best regards,

Dominic Ivankovich

President, Fluke Portfolio Brands

[redacted]

Everett, WA 98203

[redacted]

Response to Dominic Ivankovich Comment

Email Dated December 8, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Early Winter Steelhead DEIS

1 message

DEAN KNUTSON <deanpknutson@yahoo.com> Sun, Dec 6, 2015 at 7:40 PM
Reply-To: DEAN KNUTSON <deanpknutson@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

To Whom It May Concern:

1 Given the limits of the alternatives presented, I support the proposed action (Alt 2) as the best solution moving forward. If managed properly this should support most harvest/recreational and conservation attempt objectives.

No action or using native broodstock are not viable alternatives.

No action is unacceptable...the early steelhead recreational fishery in this state must continue to enough of a degree for satisfactory recreational enjoyment. If the early hatchery program was terminated, the state would lose license revenues that will not be won back. The economic hit would be massive as well as a lost generation of future anglers, this price is too high for uncertain conservation gains.

Using native broodstock seems idealistic and unrealistic, and I would guess that achieving enough native escapement to allow a recreational fishery would be unlikely.

Reducing production probably would not benefit any group to a satisfactory degree, and the tradeoff for slightly greater conservation would not be worth the lost economic and harvest opportunities.

Thank you,
Dean Knutson
Sammamish, WA

Response to Dean Knutson Comment

Email Dated December 6, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Support of HGMP

1 message

Dave Kuno <dmkuno@gmail.com> Fri, Nov 20, 2015 at 9:43 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I support the HGMP submitted by the WDFW and state treaty tribes to promote hatchery steelhead and stop the release of early winter hatchery steelhead.

Thank you,

Dave Kuno

Response to Dave Kuno Comment

Email Dated November 20, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatcheries

1 message

ELI LISKE <eliliske@gmail.com> Wed, Dec 9, 2015 at 6:36 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 What are we even doing thinking of closing down any Puguet Sound Hatchery programs. These are vital to our ecosystem & recreational fisherman.

I strongly oppose any hatcheries being shut down.

Eli Liske

Response to Eli Liske Comment

Email Dated December 9, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery steelhead

1 message

eugeneFirst Name Pate <eugenefirstnamepate@yahoo.com> Wed, Dec 9, 2015 at 9:15 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 Hello I would love to see something done for these rivers especially dungeness I fish it almost every day when open for the 3 1/2 months we get . I myself can't drive long distance to fish for steelhead so I used to rely on the dungy I had to work real hard to catch them when they would stock a few but it is worth it to me. when there are no more hatchery fish to go for that means natives will get more pressure . I really hope something can be figured out to help on this situation. We as anglers pay enough for licenses passes to park ect I don't mind but I would like some fish to catch. I look at other states fisheries and they work just fine Oregon to me has got it together .if I could help in any way I would be willing to help thanks and have a good day

Eugene pate

Sent from Yahoo Mail on Android

Response to Eugene Pate Comment

Email Dated December 9, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Comments on role of hatcheries

1 message

Grant Barrie <grtbarr@gmail.com> Sat, Nov 21, 2015 at 8:09 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 If you eliminate hatchery fish from the feeding system, the birds (Terns, kingfishers comorants, herons, etc) and fish (cutthroats, bass,walleyes, etc) along with seals and whales will have less to feed on with only wild fish left in the system. The wild fish will be eaten to extinction by all the predators that are now being feed by hatchery fish and who will this benefit from this?

Thank you

Grant Barrie

Response to Grant Barrie Comment

Email Dated November 21, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Washington state Hatchery Genetic Management Plans

1 message

Hank Lounsbery <hank.lounsbery@frontier.com> Fri, Nov 20, 2015 at 3:29 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I fully support review and implementation of the Hatchery Genetic Management Plans (HGMP) submitted by WDFW and Puget Sound treaty tribes to NOAA.

Please act upon it.

Henry K. Lounsbery PhD

Oak Harbor, WA 98277

Response to Henry Lounsbery Comment

Email Dated November 20, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead

1 message

Jared Cady <jared@getmdry.com> Wed, Dec 9, 2015 at 6:10 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 We need steelhead hatchery steelheading in the puget sound take control of the Indian netting and abuse they have on the rivers like netting during the wild return! Create a gene bank but only where there are truly native fish not where there's wild/ hatchery born genetic fish.

Jared Cady
Owner/guide
GETM DRY FISHING CO
Sent from my iPhone

Response to Jared Cady Comment

Email Dated December 9, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

early winter steelhead DEIS

1 message

Jamie Gjesdahl <gjesdahl78@gmail.com> Sat, Nov 7, 2015 at 12:35 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I support Alternative #2 for the hatchery winter steelhead program. It will provide a fishery while keeping a temporal separation between wild and hatchery fish.

Jamie Gjesdahl
[redacted]
Arlington, WA 98223

Response to Jamie Gjesdahl Comment

Email Dated November 7, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Steelhead Release

1 message

Josh Hopp <rockchipsolutionswa@gmail.com> Wed, Dec 9, 2015 at 7:40 PM
To: EWShatcheriesEIS.wcr@noaa.gov

Hello and to whom it may concern.

For the sake of my children Brady 6, Savannah 4, and Karaline 2 and their future opportunities to catch hatchery reared steelhead on their local rivers systems in Snohomish and Skagit county, please complete the review and approval to release Steelhead in their Rivers.

I am 35 years old and have always had opportunities to fish and provide for my family with organically grown hatchery steelhead. I followed suit from what was passed down to me from my Grandparents and Parents to provide for my family. Now this opportunity to provide heritage and food for my family is once again on the line. If this program is delayed any further you will be changing not only my children's heritage but also their right to harvest hatchery steelhead. You need to do what ever it takes to complete this study in time to ensure future fishing opportunities for my children.

1 The river systems can support hatchery steelhead plants with out interfering with ESA listed Wild Steelhead. This is absurd to see what once great fisheries we have had in this state to see what they have become. Your efforts to protect Wild Steelhead need to be looked at and monitored by a much different angle than the current one, trying to stop hatchery steelhead and salmon production. Hatchery Steelhead provide many wonderful opertunities for my children so please make it top priority to complete this review and approval on releasing our hatchery smolts on time for 2016.

I am not going to go to over the other angles that need correction in this state in regards to fishing so please do the right thing here and get this study done. Release these Steelhead now. Too many fishing opportunities have been lost and continue to be lost. It is so ridiculous on how these great resources have been mis-managed. This issue is not with us supporting the WDFW rather the loss of trust that we have experienced watching them mis-manage the resources. My children have zero say on what their future leads so I am their voice here.

This is of major concern to many people I know so please do what ever takes to ensure and secure future Winter Steelhead Hatchery opportunity.

Thank-you

Josh Hopp
[redacted]
Granite Falls WA 98252
Rockchipsolutionswa@gmail.com
INSPECTING AND REPAIRING WINDSHIELDS FOR YOUR SAFETY

Response to Josh Hopp Comment

Email Dated December 9, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget sound early steelhead

1 message

Jon <washhunter@gmail.com> Thu, Dec 10, 2015 at 8:13 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 This is a very important run of fish for me and many other sportsman please don't let it die, of that happens it will be much harder to start up later. Thanks for all you guys and girls down there at noaa do. I understand the main reason a the scrutiny is to protect the wild steelhead, which I hold in high regards, but if the hatchery programs die, I feel the wild fish will be targeted more by nets since there are no hatchery fish to meet tribal fishing requirements. Please keep the program's strong!

Sent from my iPhone

Response to Jon Comment

Email Dated December 10, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

1 | **Do not close any hatcheries**

1 message

Rubert, James M <james.m.rubert@boeing.com> Mon, Dec 14, 2015 at 7:00 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

This make no sense. You have to fight this…

Best regards,

Jim Rubert

Associate Technical Fellow
Future State Technical Architecture

Enterprise Architecture

[redacted]

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Response to James Rubert Comment

Email Dated December 14, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget Sound Steelhead

1 message

Joe Short <fishhunter01@gmail.com> Mon, Nov 30, 2015 at 1:39 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I would like to write in in favor of plan 2 , due to the socio-economic value of a puget sound recreational steelhead season, I believe this option would also give the best oppertunity for the wild steelhead to recover on their own and with the aid of habitat restoration projects. This would also prevent tribal and recreational fisheries on wild stock fish that could mingle with the fish from option 4 (broodstock) thus preventing recovery , as there has already been a dramatic drop in the numbers of plants I feel that option 3 will not provide a very good oppertunity to catch steelhead, therefor will result in less angler participation. Again I am in favor of option 2 resuming plants of early timed chambers stock to provide a recreational/tribal oppertunity to harvest steelhead while protecting the wild stock of fish in these watersheds.

Response to Joe Short Comment

Email Dated November 30, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Steelhead Fishing!!!

1 message

Kevin Berg Jr. <iceberg247@hotmail.com> Thu, Dec 10, 2015 at 4:58 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

To whom this may concern,

1 Please keep the hatchery program going strong for the Pudget Sound rivers! You don't understand how important these fisheries are to people! It is not just a hobby, it's a way of life and a reason to keep going on.

Thank you for your time,

Kevin Berg Jr.

PS: Ban all Gillnets!

Sent on a Sprint Samsung Galaxy S® 5

Response to Kevin Berg Comment

Email Dated December 10, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

DEIS comments adopt alternative 2

1 message

kenny boman <chukar14@yahoo.com> Thu, Nov 5, 2015 at 1:18 PM
Reply-To: kenny boman <chukar14@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 Please adopt alternative 2, or create an additional alternative 5 that would increase the smolt plant to 1 million, especially increasing them on the snoqualmie. Without hatchery fish, there is no fishing period. Removing hatchery fish has not recovered wild fish on any Puget Sound stream, only improving the habitat of puget sound will increase fish survival. If removing hatchery fish restored wild fish runs, the Nisqually would have a large run of steelhead, but they do not. The cedar river would as well.

Ken

Response to Kenny Bowman Comment

Email Dated November 5, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

RE: Puget Sound Steelhead

1 message

kris hollingshead <krishollingshead08@hotmail.com> Thu, Dec 10, 2015 at 8:29 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 I am generally for innovative solutions to help restore and rebuild our native steelhead runs. Brood stock programs seem to be a worthwhile supplement. With that said, the removal of all hatchery runs seems like a counterproductive approach that puts all our eggs in one basket. We don't know to what extent predation, estuary habitat, water quality, etc. play in smolt survival rates. We need operational hatcheries and smolt production to provide both recreational fishing opportunities as well as a Plan B in case native runs continue to see declines (unrelated to genetic commingling).

A common sense approach that includes hatcheries, broodstock programs, as well as overall habitat/conservation efforts seems like our best hope for fisheries that are sustainable. If overall steelhead returns dramatically improve, then there is always an opportunity to reallocate resources and efforts to help get native runs to a level where they are growing and sustainable--everyone's ultimate goal.

2 Lastly, I will be going to the Bogachiel River, Wilson River (Oregon), and Clearwater River (Idaho) for my steelhead fishing this winter. This is unfortunate, but also illustrates the mobility of our steelhead support (interest in local fisheries), local and state revenue (licenses), economic benefits (guides, hotel, restaurants), and ultimately our dedication to finding sustainable runs that provide fishing opportunities.

Kind regards,
Kris Hollingshead
Seattle Resident
[redacted]

Sent from my iPhone

Response to Kris Hollingshead Comment

Email Dated December 10, 2015

1. See Global Comment 1a.

2. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead hatchery Pugeot sound

1 message

kevin reichert <magg1@comcast.net> Thu, Dec 17, 2015 at 6:37 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 My vote is to keep the hatchery programs robust and producing fish, any reduction in numbers is a detriment to the fisheries, wild fish have there place but noaa s fish program is not working.

Response to Kevin Reichert Comment

Email Dated December 17, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steal head

1 message

karl van <prestonfinewoodworking@hotmail.com> Wed, Nov 4, 2015 at 6:28 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 Please save our fishery by letting the fish hatcheries do there job
Thank you
Karl v

Sent from my Verizon Wireless 4G LTE smartphone

Response to Karl Van Comment

Email Dated November 4, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

hatchery Steelhead and Salmon

1 message

Les Gilbert <wintercreek75@gmail.com> Mon, Dec 14, 2015 at 7:24 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 We need you to review and approve the Steelhead hatchery program before May 1,2016 before we lose Steelhead fishing in Washington forever.Hatchery salmon is next on WFC's list.It must also be saved.Thank you for your consideration.

Response to Les Gilbert Comment

Email Dated December 14, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead fishing

1 message

Larry Olson <lmo6466@aol.com> Thu, Nov 5, 2015 at 8:29 PM
To: EWShatcheriesEIS.wcr@noaa.gov
Cc: Bob McMains <steelhead0@aol.com>

1 I have fished the puget sound rivers for over 60 years and seen the excellent job our hatchery's do in providing a catchable steelhead fishery, which will all but vanish with out them!!
I'm careful to release any unclipped fish knowing that they are probably not a true wild fish because they probably don't exist anymore do to all of the cross breeding etc over the last 60 years!
"Please do not take away our steelhead"!
I want my grandchildren to have the enjoyment of landing a beautiful bright steelhead and their grandchildren!!
I have caught steelhead on flies and bobbers and bait!
I believe there is a small group of wealthy fly fisherman who want the fishery all to them selfs if any would exist without the hatchery's?!

We need to enhance hatchery's
Not close them!
A tax paying license buying fisherman!

Larry Olson
Email LMO6466@aolcom
Sent from my iPhone

Response to Larry Olson Comment

Email Dated November 5, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS hatcheries DEIS

1 message

Linda Shortridge <Lindashortridge@aol.com> Fri, Nov 20, 2015 at 5:47 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 Please continue to manage and release all hatchery fish. If not, you are not only cutting the throats of the fish, you are damaging Washington's tourist industry and income. We think commercial fishing should release all wild salmon. Linda Shortridge and Donald Jess
Sent from my iPad

Response to Linda Shortridge Comment

Email Dated November 20, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Save our Hatcheries!!

1 message

mike ainsworth <flgs@live.com> Wed, Dec 9, 2015 at 11:21 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 I am writing today to plead for our hatcheries and hatchery fish to be spared! It is easy to dismiss something if you are not fully aware of what it means. Many, like myself and other full-time fishing guides, rely on our hatcheries, not to mention the great people that are employed by the hatcheries, the small town's that rely on sport fishing and tourism. I'm frustrated by the messaging that hatchery fish are to blame for the decline of wild fish. It is GILLNETS, POLLUTION and LOSS OF HABITAT that are resulting in the decline of wild fish. Removing hatcheries will not help and instead hurt critical economies in small, rural areas that don't have alternative ways to recover these losses.

Thanks, Mike Ainsworth

Email: FLGS@LIVE.COM

[redacted]

Sent from Outlook Mail for Windows 10 phone

Response to Mike Ainsworth Comment

Email Dated November 20, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead Hatcheries

1 message

Mike Hayes <myassisdraggin@gmail.com> Sat, Dec 5, 2015 at 3:59 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 Please expedite the Steelhead HGMPS for the five Puget Sound rivers. What a shame it would be to lose the chance to fish for Steelhead in these local rivers. Thank you.

Response to Mike Hayes Comment

Email Dated December 5, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Draft EIS for Five Early Winter Steelhead Hatchery Programs in Puget Sound

1 message

Mike McGivern <mariners.fan2@comcast.net> Sun, Nov 8, 2015 at 3:02 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I'd like to respectfully endorse option #4 for the early winter steelhead hatchery programs in PS.

Thank you for allowing my input,
Mike McGivern

Response to Mike McGivern Comment

Email Dated November 8, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget sound hatchery steelhead comment.

1 message

Micheal Oneil <quinaultkenai@gmail.com> Thu, Nov 5, 2015 at 8:51 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I support and beg you to please continue planting early return hatchery steelhead. The reasons I support are endless. I would really like to see a broodstocking program on all of our rivers, much like the Quinault Indian nation has been doing. They are very successful both in numbers and quality of fish. If the hatchery systems are dissolved it will be for truly sinister reasons, please do the right thing. Continue our hatchery steelhead programs.

Response to Michael Oneil Comment

Email Dated November 5, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS Hatcheries DEIS

1 message

Mike Saskor <mikesaskor@hotmail.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>

Fri, Nov 6, 2015 at 2:34 PM

I would like to put a vote in for Alternative # 2 as outlined below. Thank You!

1

Mike Saskor
[redacted]

Alternative 2 (Proposed Action)

This alternative consists of hatchery operations as proposed under the co-managers' HGMPs. NMFS

would make a determination that the HGMPs submitted by the co-managers meet requirements of the

4(d) Rule. The early winter steelhead hatchery programs in the Dungeness, Nooksack, Stillaguamish,

Skykomish, and Snoqualmie River basins would be implemented as described in the five submitted

HGMPs (Table S-2), and up to 620,000 steelhead yearlings would be released. The hatchery programs

would utilize existing hatchery capacity for operations, and would be adaptively managed over time to

1 | incorporate best management practices as new information is available.

Response to Mike Saskor Comment

Email Dated November 6, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Early winter hatchery steelhead.

1 message

marc scott <mscottx3@q.com> Wed, Nov 4, 2015 at 6:28 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 | We need every single one that are produced for a good, sustainable fishery.

Shut up and fish!

Response to Marc Scott Comment

Email Dated November 4, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Comment on proposed WA State Steelhead Hatchery Policy

1 message

Philip Falls <crank3.pef@gmail.com> Tue, Nov 10, 2015 at 9:02 AM
To: EWShatcheriesEIS.wcr@noaa.gov
Cc: crank3.pef@gmail.com

Sirs,

1 As a resident and supporter of Steelhead Hatchery production to be part of Steelhead Recovery and sustainability program I cannot stress enough the importance of the supplementation to existing stocks of Steelhead in the Puget Sound Region and entire State of Washington for the continuing existence of these fish. Should the afore mentioned supplementation programs become nonexistent or severely restricted due to external pressure of unscientific method brought for this purpose the Steelhead will most certainly enter a rapid process of extinction. Without the Bloodstock provided by Hatchery production there is no foreseeable future for Steelhead in the Puget Sound Region.

Best Regards,

Philip Falls

Response to Philip Falls Comment

Email Dated November 10, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Aproval of hatchery steelhead plants on sellected Puget Sound Rivers

1 message

Philip Tucker <tuckerps@comcast.net> Wed, Dec 23, 2015 at 1:33 PM
To: NOAA Fisheries <EWShatcheriesEIS.wcr@noaa.gov>

William W. Stelle, Regional Administrator
NMFS, West Coast Region

Dear Sir,

Please assure that the Washington State Dept. of Fish and Wildlife recommendations for planting of Steelhead in Puget Sound Rivers are endorsed in whole and that the time tables recommended are followed.

1 I have recently retired from steelhead fishing after over 50 Years, and I believe NOAA actions in recent years have seriously imperiled the future of these great fish. It appears that governmentally accepted scientists have adopted politically motivated one sided views as the basis for all regulations.

THAT IS ---------- "THERE SHALL BE NO HATCHERY STEELHEAD"

The work of exceptional scientists is apparently ignored; I refer you in particular to Dr. Ernie Brannon of the Univ. of Idaho. He has made clear and logical evaluations and findings on steelhead and hatcheries. His voluminous writings should be the basis of all Gov't. regulations.

Thank you for your attention,

Phil Tucker

Response to Philip Tucker Comment

Email Dated December 23, 2015

1. Comment noted. See also Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery!

1 message

Ryan Bigley <fish_forever@hotmail.com> Tue, Dec 8, 2015 at 5:21 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I am a part time fishing guide and love to fish for steelhead on the rivers close to my home in marysville wa.
Please do everything possible to finish studies and release stealhead smolt by April 1st
Thanks
Ryan Bigley

Sent from my Verizon Wireless 4G LTE smartphone

Response to Ryan Bigley Comment

Email Dated December 8, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Wild Steelhead

1 message

drcarr@oakharbordentistry.com <drcarr@oakharbordentistry.com> Sat, Dec 12, 2015 at 11:38 AM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I hope the data supports keeping the mutants like Chambers Creek smolts out of the systems.

I hope there is a wild broodstock option.

Take your time in deciding, make the right choice.

Randy Carr

Response to Randy Carr Comment

Email Dated December 12, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWShatcheriesEIS

1 message

Robert Crosby <RCrosby@acosta.com> Mon, Dec 7, 2015 at 7:59 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 Please keep the hatchery steelhead alive.

Bob Crosby, Business Manager, Grocery

[redacted]

[redacted] Bellevue, WA 98005

rcrosby@acosta.com

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Response to Robert Crosby Comment

Email Dated December 7, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatcheries

1 message

Robert Daniels <bonnerdaniels@icloud.com> Wed, Nov 4, 2015 at 6:00 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 Please fund and keep planting winter run steelhead into our Puget sound steelhead hatcheries. Please do not fall pray to the wild steelhead coalition and discontinue our hatchery programs. I am in full favor of the current catch and release policy of all wild steelhead in the Puget sound rivers.

If it comes down to it lets start a broodstock program one fish at a time like they do on Canada's Vedder River.

Sincerely, Bonner Daniels

Response to Robert Daniels Comment

Email Dated November 4, 2015

1. Comment noted, and see also Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

salmon hatcheries

1 message

Robert Downey <rjd50@comcast.net> Mon, Dec 14, 2015 at 10:05 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I have been fishing Puget Sound for the past six years....Amy and I obey the rules....we have hooked our share of beautiful wild kings, but have always released them....we become overjoyed when we finally hook a hatchery king...we treasure it and eat every bit of it....we take our sons and daughter with us for these trips and amongst everything else teach them the difference between hatchery and wild....they love the trips as much as we do....

Please understand that hatcheries serve the citizens of this state and others in beneficial ways, too numerous to list...

we fear the planned closure of steelhead hatcheries will lead to a closure of the salmon hatcheries as well....this would be so sad for many of us....

Robert J. Downey, recreational salmon fisherman (along with Amy, Matt, Sam and Camilla)
Mukilteo, WA

Response to Robert Downey Comment

Email Dated December 14, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS Hatcheries DEIS

1 message

Ray Gombiski <ray@murphyauction.com> Tue, Dec 1, 2015 at 12:27 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

To whom it may concern in regards to the EWS Hatcheries DEIS,

1 My preference would be for Alternative #2 as a minimum. I would like there to be no cap on the amount of steelhead released in any of the systems.

I would also like the Snoqualmie to be stocked at previous levels of 160k.

Thank you

Ray Gombiski

Ray Gombiski

James G. Murphy Co.

Advertising Coordinator

murphyauction.com

ray@murphyauction.com

[redacted]

Response to Ray Gombiski Comment

Email Dated December 1, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Early Winter Steelhead hatchery program approval by NMFS

1 message

Ron Hayes <ron@redfernconsultants.com> Thu, Dec 10, 2015 at 5:27 PM
To: EWShatcheriesEIS.wcr@noaa.gov, Robyn_Thorson@fws.gov

Dear Mr. Stelle and Ms. Thorson,

1 I am writing in support of Alternative #2 in the DEIS for the early winter Puget Sound steelhead program. The early returning fish are a critical component in local economies, family fishing traditions, and they can provide a buffer fishery against the limited take of wild steelhead in Puget Sound rivers.

2 Recent court actions have placed the current program in extreme jeopardy of potentially losing access to returning adults for spawning purposes. It is critical to expedite the DEIS process so that returning adults can be collected for spawn take this winter and that any smolts, still available for release, can be released by May 1, 2016 to hopefully provide for future years egg collection.

The Washington Department of Fish and Wildlife and the tribal co-managers have worked diligently to get the HGMP plans for the 5 river basins prepared and provided to your agencies for review. The process has been on-going for years. It is time to take action on these 5 river basins to ensure on-going access state sport fishers and tribal fishers to a fishery that is very important to our state economy and to license sales by the Washington Department of Fish and Wildlife.

Thanks,

Ron Hayes

[redacted] Port Townsend, WA 98368

[redacted]

Response to Ron Hayes Comment

Email Dated December 10, 2015

1. See Global Comment 1a.

2. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery Steelhead

1 message

randy laffin <rufishen2@yahoo.com> Mon, Dec 14, 2015 at 4:46 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 This has to come to a end everything was working fine Pryor to fin clipping they need to go back to the way it was done Pryor to the 1980's we had a much better population of fish with better size and genetics it should have never been changed breed all fish that come into the hatchery together wild or hatchery

Sent from Yahoo Mail on Android

Response to Randy Laffin Comment

Email Dated December 14, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

ews hatcheries deis

1 message

Raymond Lampers <raysbait@frontier.com> Wed, Nov 4, 2015 at 4:50 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I am in favor of our hatchery programs. I am a traditional steeled and salmon fisherman from the age of 12. I don't want the phasing out of our hatchery programs as they are a source of revenue for our local towns and community. This is a very important tool for our children to keep there focus off drugs and trouble.

Raymond Lampers
raysbait@frontier.com

Response to Raymond Lampers Comment

Email Dated November 4, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

FW: Do Not Fail the Sportsmen Again

1 message

Larsen, Rob <rob.larsen@boeing.com> Wed, Dec 16, 2015 at 7:29 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

To William W Stelle,

1 Please act now to approve the 5 steelhead hatchery program in Puget Sound. You must approve by April 1st 2016 . WDFW has made sufficient changes to our hatchery program to meet the hatchery reform guidelines. I have been involved in the acoustic tagging in the Green river and seen data that shows the problems are not from hatchery fish if they were areas where hatcheries have been discontinued would be recovering but they are not. The data show out migration survival to be the problem we need to solve. Sportsmen should be allowed to have decent runs of hatchery fish to pursue our passion. We don't want to lose these wonderful fish we love to pursue and it is all up to you and your staff to get it done now. It is important to all anglers to continue at least the small hatchery programs in Puget sound proposed so that fishing for Steelhead in Puget sound will not go extinct. Your staff can and must get this done on time!

Rob Larsen

[redacted]

Response to Rob Larsen Comment

Email Dated December 16, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Keep our hatcheries

1 message

Richard S <richardsouthern111@gmail.com> Wed, Dec 9, 2015 at 8:57 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 We need to keep our hatcheries. It is important to many people and there economy of small towns. We love the opportunity to catch fish and with our hatcheries we have that opportunity. Also it is important to the small towns and communities that depend on our money to survive. Our hatcheries are vidal and that's why I believe we absolutely need to keep our hatcheries.

Response to Richard S Comment

Email Dated December 9, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS hatcheries DEIS

1 message

susan crampton <scrampton@methownet.com> Thu, Dec 10, 2015 at 2:53 PM
To: EWShatcheriesEIS.wcr@noaa.gov

to NOAA/

1 I have seen that 5 fish conservation and science organizations have filed notice of intent to sue NOAA for failure to complete and implement recovery plan for Puget Sound steelhead. Looks like the current DEIS proposal doesn't pass muster. Better make a tune-up.

Good wishes for science/accuracy/honesty/and commitment to the resources upon which we all depend.

Sincerely/
Susan Crampton
Twisp/WA

Response to Susan Crampton Comment

Email Dated December 10, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Draft EIS for Five Early Winter Steelhead Hatchery Programs in Puget Sound

1 message

Steve Del Fante <sdelfante@hotmail.com> Thu, Nov 5, 2015 at 2:42 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Hello,

As a sports fisherman, I would like to voice my support for Alternative 2 (Proposed Action) of the Draft EIS for Five Early Winter Steelhead Hatchery Programs in Puget Sound:

1

Alternative 2 (Proposed Action) This alternative consists of hatchery operations as proposed under the co-managers' HGMPs. NMFS would make a determination that the HGMPs submitted by the co-managers meet requirements of the 4(d) Rule. The early winter steelhead hatchery programs in the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie River basins would be implemented as described in the five submitted HGMPs (Table S-2), and up to 620,000 steelhead yearlings would be released. The hatchery programs would utilize existing hatchery capacity for operations, and would be adaptively managed over time to incorporate best management practices as new information is available.

Table S-2. Annual hatchery releases of juvenile steelhead under the alternatives by river basin.

River Basin	Alternative 1 (No Action)	Alternative 2 (Proposed Action)	Alternative 3 (Reduced Production)	Alternative 4 (Native Broodstock)
Dungeness	0	10,000	5,000	10,000
Nooksack	0	150,000	75,000	150,000
Stillaguamish	0	130,000	65,000	130,000
Skykomish	0	256,000	128,000	256,000
Snoqualmie	0	74,000	37,000	74,000
Total	0	**620,000**	**310,000**	**620,000**

Source: HGMPs.

Thanks,

Steve Del Fante

Lake Stevens, Wa

425-231-9916

Response to Steve Del Fante Comment

Email Dated November 5, 2015

1. See Global Comment 1a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery steelhead

1 message

shawn mcarthur <shawnfishing1@hotmail.com> Wed, Dec 9, 2015 at 8:45 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Hi,
My name is Shawn McArthur. I am a steelhead fisherman. I frequent several rivers in Washington but the snoqualmie river and the skykomish river are 2 of the rivers I frequent more than other simply because they are the last rivers In The puget sound that have steelhead runs. This is a way that I provide for my family and I
1 would love nothing more then to see my kids be able to enjoy the same fisheries that I get to enjoy today. This will not happen if the smolt do not get released. I speak for several fisherman that refuse to purchase GMO salmon that has just been approved to be sold in supermarkets because no long term studies have been preformed and it cannot be proven safe at this time. So many GMO foods have been linked to cancer and if I have the ability to harvest naturally I will do so. Please consider releasing the smolt before it is too late.

Sent from my iPhone

Response to Shawn Mcarthur Comment

Email Dated December 9, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS Hatcheries DEIS

1 message

labrdrs <labrdrs@earthlink.net> Thu, Nov 5, 2015 at 6:03 PM
Reply-To: labrdrs <labrdrs@earthlink.net>
To: EWShatcheriesEIS.wcr@noaa.gov

Comments,

1 I support the continuation of, and fully support hatchery reared steelhead and their planting in these rivers. Me and my family support Alternative - 2. (Proposed Action)

2 Further, if added comments are taken, I support the complete stoppage of fish and kill fishing for any Rainbow Trout in and/all Puget Sound Basin Streams. These wild Rainbow Trout are critical to the overall health of these streams, and may actually contribute to the survival of Wild Winter Run Steelhead. Save a wild Steelhead, and quit this needless trout fishing in the off seasons.

Thank You
Scott Seagren

Response to Sean Seagren Comment

Email Dated November 5, 2015

1. See Global Comment 1a.

2. NEPA – fisheries management is not within the scope of the EIS.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

(no subject)

1 message

Todd Girtz <todd@qualstamp.com> Wed, Dec 9, 2015 at 12:15 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 I love catching hatchery steelhead please continue to stock as many hatchery steelhead as posable in the Puget sound , coastal, and east side rivers.

Thanks

Todd GIRTZ

Todd@qualstamp.com

Response to Todd Girtz Comment

Email Dated December 9, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Steelhead

1 message

Tyler Milligan <jmill52792@aol.com> Thu, Dec 10, 2015 at 8:36 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 Please fast track the procedures in order to allow the release of our Steelhead smolts in a timely manner.
Thank you
PS. I was in the observer program 25 years ago

Sent from my iPhone

Response to Tyler Milligan Comment

Email Dated December 10, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

fish hatchery

1 message

Tom someone <ntom@mail.com> Thu, Dec 10, 2015 at 2:39 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 Please keep fishing alive in Washington please keep the hatchery's open
please finish your study and decided that since it worked with the salmon it should
work with the steelhead. In the late 60's early 70's the fishermen got together
and hatched fish .. it worked more salmon .. large salmon..
the fishermen got cut off from hatching and less salmon smaller salmon...
I believe there is plenty of food considering the amount of steelhead has not grown
that much... if the steelhead and salmon were running out of food.. there would be more
problems with them than there are. in the old days i saw pictures of the rivers overflowing with fish
they survived and thrived till overfished and polution.. please keep hatching fish
the guys with nets get enough of them gotta have a few for the sportsman.

thanks for your time
Tom

Response to Tom Comment

Email Dated December 10, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatchery closures

1 message

Tim Pillo <tim@wcflooring.com> Mon, Dec 14, 2015 at 3:03 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Hello,

1 I have been fishing for the last 30 years. Fishing has continued to get better. It has gotten better due to the fact that there are more hatchery fish out there then wild. Shutting down hatcheries could devastate the fishing. Not only for sportsmen but for native Americans and Commercial fisherman. Please don't allow the hatcheries to close! For all of us and our children.

Thank you,

Tim Pillo

West Coast Flooring Inc.

[redacted] *Seattle, WA 98134*

[redacted]

Email: Tim@wcflooring.com

Response to Tim Pillo Comment

Email Dated December 14, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Hatcheries

1 message

Taylor Roscoe <troscoe98@gmail.com> Tue, Dec 8, 2015 at 5:27 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1 I enjoy fishing with my family on the skyhomish rivers, I'm a 17 year old girl and would love to have the rivers stalked with fish my April 1st

Response to Taylor Roscoe Comment

Email Dated December 8, 2015

1. See Global Comment 2a.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Draft EIS for Five Early Winter Steelhead Hatchery Programs in Puget Sound

1 message

Troy Saharicx <tksaharit12@yahoo.com> Sat, Nov 14, 2015 at 4:57 PM
Reply-To: Troy Saharicx <tksaharit12@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

November 14, 2015

William W. Stelle, Jr.
Regional Administrator
NMFS West Coast Region
7600 Sand Point Way NE
Seattle, WA 98115

Dear Mr. Stelle,

As a recreational fisherman, I can state unequivocally we care passionately about the long-term sustainability of salmon and steelhead and view ourselves conservationists, especially given practices of the commercial and tribal constituents.

I am a board member for a not-for-profit that takes wounded veterans fishing on Puget Sound and its tributaries and, as a fully time profession, a senior partner with a global investment management firm. I see firsthand, the positive impact this fishery has on people and have a better perspective than many on the huge economic benefit it provides to the Pacific Northwest region.

We fear that any action which eliminates or even reduces hatchery steelhead production, would carryover and set a dangerous and irrevocable precedent for our salmon management, as it would empower minority, special interest groups to further their campaign to eliminate hatcheries. Eliminating hatcheries would be disastrous on many fronts, so we need to keep them and manage them better to reduce impact on native species. There is ample evidence hatchery-
1 born fish and native stocks can co-exist for the long-term and I fully support Alternative 2 and Alternative 4 as outlined in the Draft EIS for Five Early Winter Steelhead Hatchery Programs in Puget Sound.

Thank you for taking the time to hear another perspective. If you have any questions, please feel contact me.

Troy K Saharic
[redacted]
Seattle, WA 98199
[redacted]
Email: tksaharit12@yahoo.com

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

lets the people fish

1 message

william vickers <vickers_william27@yahoo.com> Tue, Dec 8, 2015 at 4:42 PM
Reply-To: william vickers <vickers_william27@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

1 i know there are lots of very important issues with hatchery vs. wild steelhead debate but i don't think this i a good place to start i think more habitat restoration less logging on these might river and to remove dams that do not give enough power for what they take away from the land so please let the fish swim and the people fish

Response to William Vickers Comment

Email Dated December 8, 2015

1. Comment noted.

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS HATCHERIES DEIS

1 message

Zack Knaack <fxngo@icloud.com> Wed, Nov 4, 2015 at 7:28 PM
To: EWShatcheriesEIS.wcr@noaa.gov

1

This goes for most rivers in Washington. The rivers that don't apply do get strays, so they have still been effected. Now most of us know that hatchery programs in most tributary's of Washington were adapted in late 1800's to early 1900's. We also know that there was no fin clipping in till the late 1980's to early 1900's. (Segregation) Minimum of about 88 years of hatchery fish spawning with wild fish. Our wild steelhead runs had been enhanced by the hatchery fish being able to spawn with the wild fish. We had good wild runs prior to segregating. Hatcheries were a must do all the habitat destruction from mankind.

Then for some stupid reason fin clipping was adapted, causing poor wild runs or more wild than hatchery. Do the math, these so called wild steelhead that are on the endangered list are not wild, they are integrated wild and hatchery fish, only to be considered more wild than a segregated hatchery steelhead. Wild steelhead are not endangered they are extinct in most cases. Our for- fathers knew they had ruined our spawning habitat in most cases and created hatcheries to enhance what could not be fixed.

Now lets talk about the segregated hatchery steelhead. (Clipped) The hatcheries started clipping the hatchery born fish so they could tell the deference from the ones that were born in the gravel on a spawning bed. The first few cycles of runs from this time period had more wild than hatchery. We had to catch 2-3 wild steelhead to catch a hatchery steelhead. This went on for quite some time, then the table turned to more hatchery than wild at the same time hatchery steelhead being released had also dropped in numbers. The math is not adding up. This is were the sport fisherman will cringe and disagree, but I know different. The reason the math is off is because the segregated hatchery steelhead produces way less adult steelhead back to the system from a natural spawn, compared to integrated stock. (Wild and Hatchery spawning together).

In case anyone is having trouble following this: Segregated means clipped and only clipped fish were spawned for hatchery fish. Integrated means hatchery and wild spawning together. To create the run. Integrated fish have a much higher rate of an adult to return to a system from a natural spawn. The answer is still in exactly the same place it started some 80-100 years ago. The wild steelhead need enhancement from hatchery integration. So we need to replace all segregated hatchery steelhead with integrated runs and mark them as such till we see no more return of the segregated steelhead.

Once this is accomplished we can by selective measure, take the more wild fish that has spawned naturally and spawn it with the clipped fish to continue what our for-fathers new needed done. We select the the naturally born fish with the larger adipose fin to spawn with the hatchery fish so as to have as wild a fish as possible. I hope that in my lifetime we will see this all come to be true. Who knows how long it will take for the powers in control to figure it out? I'm not a biologist and don't need to be one to know that this will some day be the end result.

Your first river to be a gene bank river in my area was the Wind River about 18 years of no hatchery steelhead, now you have an estimated 500-600 so called wild fish there to date. They are not a native or truly wild with 80-100 years of integration prior to segregation, they are just more wild than segregated. Who are you trying to fool? If you aren't trying to fool anyone, then how come it takes a stupid river guide to do the math for you? Get a grip and integrate before it is to late and you don't have the number of so called wild fish to make a good integrated run.

Sent from my iPhone

Response to Zack Knaack Comment

Email Dated November 4, 2015

1. Comment noted.

Example of email from PSA action alert

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

PSA ACTION ALERT SAVE PUGET SOUND STEELHEAD

1 message

william Cowles <bcowles@scattercreek.net> Mon, Dec 14, 2015 at 9:03 AM
To: Regional Administrator Will Stelle <EWShatcheriesEIS.wcr@noaa.gov>

Dear Regional Administrator Stelle,

Dear Administrator William Stelle and Director Robyn Thorson,
I am contacting you today about the Hatchery Genetic Management Plan\Draft Environmental impact Statement (HGMP/DEIS) approval process for the Early Winter Steelhead Program for the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie rivers.
Please stay the course to ensure that the HGMP/DEIS reviews and final approvals are completed by April 1, 2016. This allows time for anticipated litigation preventing steelhead smolt release. In the past these have not been approved and going forward I want to make sure that the new HGMP is approved in time for the 620,000 smolt to be released by May 1, 2016.
I do not agree with our fisheries being managed through lawsuits by third party litigation. Please assure me that you will do whatever is needed to make sure the final approvals are completed and on time. The WDFW has stepped forward to trade personnel with USF&W service to make sure that the HGMPs for the bull trout are written and submitted in time for the release of the steelhead smolt, as this is part of the equation.
If we are not allowed to release the steelhead smolt for the third straight year in their respective rivers it will effectively kill the early winter steelhead programs. The latest the smolt can be released is May 1st, and if this doesn't happen we will not have brood stock to continue the program. Running out the clock on this program to keep from being sued is not acceptable. I know that the HGMPs are far better than in the past, so please make sure that these are approved and processed by April 1.
By allowing the hatchery systems to be restrained or closed, it will force ESA listings and tribal treaty rights to collide. This is going to be where the real lawsuits start. I know there has been a lawsuit filed against NOAA for not having a Wild Steelhead Recovery plan in place, but please do not divert any energy away from this very important program so that these fish can be released.

1

Sincerely,

william Cowles
[redacted]
Yelm, WA 98597

Response to Action Alert Emails from Puget Sound Anglers

Various dates (1,193 emails received)

1. See Global Comment 2a.

Example of email from CCA action alert

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

EWS Hatcheries DEIS

1 message

Shain Heuer <shainh@microsoft.com> Thu, Dec 17, 2015 at 11:08 AM
To: Regional Administrator William Stelle <EWShatcheriesEIS.wcr@noaa.gov>

Dear Regional Administrator Stelle,

1 I urge you to take prompt action to review and approve Hatchery Genetic Management Plans (HGMPs) submitted by the Washington Department of Fish and Wildlife (WDFW) for early winter Steelhead hatchery production across a number of Puget Sound area rivers. These hatcheries, and others like them, are under attack from serial litigants based on process, not substance.

2 The HGMPs submitted by WDFW represent the culmination of years of hatchery reforms to ensure Puget Sound early winter Steelhead programs are managed consistent with wild steelhead recovery efforts. In fact, the National Marine Fisheries Service's draft Environmental Impact Statement recognizes that these hatcheries have been managed with minimal risk to wild steelhead populations (Sec 3.2.3.1).

3 In light of this, I support Alternative 2, which would maintain the recent level of production at these hatcheries and oppose Alternative 3, which would cut production without any basis in conservation. Since it is unclear whether wild steelhead populations are robust enough to support an integrated hatchery program, I believe it is premature to seriously consider Alternative 4, although it may deserve consideration in the future.

1 Over a hundred hatchery programs across the Northwest are at risk of litigation, due to the lack of approved HGMPs. I urge NMFS and USFWS to take swift action to approve HGMPs for Puget Sound steelhead production before April 1, to ensure the last remaining smolts are released this spring.

Without action steelhead and salmon hatchery production across the Northwest is at risk.

Sincerely,

Shain Heuer
[redacted]
Kingston, WA 98346

Response to Action Alert Emails from the Coastal Conservation Association

Various dates (632 emails received)

1. See Global Comment 2a.

2. Comment noted.

3. See also Global Comment 1a.

Example of form email3

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

WA State Steelhead

1 message

Mike B <mikabuc@gmail.com> Thu, Dec 10, 2015 at 12:15 PM
To: EWShatcheriesEIS.wcr@noaa.gov, Robyn_Thorson@fws.gov

To Whom it May Concern,

1 The primary objective of this email is to urge you to complete, approve and submit your Puget Sound Steelhead plan with options 2, 3 or 4, before April in order to keep our state's hatchery steelhead alive. Steelhead, be in wild, native or hatchery, are a very important part of our heritage here in the Pacific Northwest. Not only are these steelhead, including hatchery, rich in tradition and local lore, but they bring in hundreds of thousands of dollars to our local economies, habitat restoration projects, and many other areas. They also provide thousands of jobs in our economy and generally keep people in touch with our environment as a whole. Losing these hatchery steelhead would mean killing off a large part of the Pacific Northwest.

2 My secondary objective is to give input on the 4 proposed Puget Sound hatchery plans. Given that there is no conclusive evidence that rivers void of hatchery fish will increase the wild/native fish populations, I don't think Plan 1 has any merit for even being discussed. I know some will sway and distort reports to make it seem this way, but if you strip it down to the bare facts there are no river systems in the entire region that have seen a wild steelhead run rebound directly correlated to an eradication or even reduction in hatchery steelhead. This alone should shed some light on how important habitat restoration and management are to the rebound of our steelhead runs. Those same projects that are funded by sportsmen fishing licenses, tags, fees and permits.

3 My next comment would be, why do all 5 basins have to be grouped under the same management plan? Do all 5 basins contain the same fishing pressure, run timing, stock strength, fish carrying capacity, hatchery capabilities, habitat issues, fish genetics, etc? It seems that each basin is unique and would greatly benefit from being managed on a case by case basis. Ideally I would propose a blend of options 2 and 4 throughout the different basins after evaluating all of the above variables. This has numerous advantages including reducing individual river pressure by providing more overall opportunity, having longer seasons that provide better creel check data and feedback as well as probably increasing the total revenue by appealing to all categories of steelhead fisherman and woman.

2

That being said, as previously mentioned, my primary objective is simply to urge you to expedite the review, approval and release of option 2, 3 , or 4 of your Puget Sound Steelhead plan in order to keep our tradition alive.

Sincerely

M Buck

Responses to Example Form Email3

Various dates

1. See Global Comment 2a.

2. See Global Comment 1a.

3. The comment asks why five basins are grouped into the same management plan. The reason the five HGMPs are grouped into one EIS as described in the EIS Subsection 1.1.2, Hatchery and Genetic Management Plan Submittal, is because the HGMPs were submitted as a group by the state and tribal co-managers to NMFS for evaluation and approval. Also, the five HGMPs represent all of the early winter steelhead hatchery programs in Puget Sound area. Differences, including the watersheds and natural-origin populations that inhabit them, differences in hatchery facilities, and genetics, are considered in the EIS. See also Global Comment 1a.

Example of form email4

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget Sound Early Hatchery Steelhead

1 message

Garrett Werlinger <gwerlinger@hotmail.com> Sat, Dec 5, 2015 at 10:44 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Mr. Stelle,

Traditionally, December has been my favorite month of the year as it means winter steelhead season on my home river, the Snoqualmie. This year is the first year that we are seeing the affects of the early winter steelhead that went unreleased in 2014. The river is now pretty well void of anglers and fish, and I see emails flying around from my fellow Snoqualmie anglers asking where the fish are? Many of them do not realize that the hatchery run will not be returning this year (with the exception of 2-salts), and they remain optimistic that the fish will show any day now. I do not want to have to inform them that the hatchery fish will no longer be returning to this system; and as many of them are much older in life, that they may have harvested their last hatchery steelhead from the Snoqualmie River last winter.

1 Please ensure that the proper reviews and final approvals are completed by April 1, 2016 to ensure that the early hatchery winter steelhead on the Snoqualmie River can be released by May 1, 2016. I hope that I can look forward to spending frosty December mornings on the Snoqualmie River fishing for hatchery steelhead in the coming years.

Thanks,

Garrett Werlinger

Response to Form Emails4

1. See Global Comment 2a.

Example of form email5

EWShatcheriesEIS wcr - NOAA Service Account <ewshatcherieseis.wcr@noaa.gov>

Puget Sound Steelhead Hatchery

1 message

Tyson <tysonyeager@yahoo.com> Sat, Dec 5, 2015 at 9:06 PM
To: EWShatcheriesEIS.wcr@noaa.gov, Robyn_Thorson@fws.gov

Subject: Puget Sound Steelhead Hatchery Genetic Management Plans (HGMPs)

Mr. William W. Stelle, Regional Administrator, NMFS and
Ms. Robyn Thorson, Regional Director, USFWS, Pacific Region,

1

Please expedite and complete by April 1, 2016 your review and final approval of early winter hatchery steelhead programs for the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqaulmie rivers.

This review and approval of the programs must be completed in time to allow hatchery steelhead smolts to be released into these river systems by no later than May 1, 2016, or risk permanent loss of the early winter hatchery steelhead fisheries. Failure to release by May 1 would result in no subsequent adult broodstock to continue hatchery production.

Thank you for your consideration,

Tyson Yeager
Roof Doctor
206-940-5142 cell

Response to Form Email5

1. See Global Comment 2a.

Example form letter - (PSA)

To William W. Stelle Jr, Regional Administrator,NMFS West Coast Region

Subject:Comments on Draft EIS for 5 Early Winter Steelhead Hatchery programs in Puget Sound

Option 1 Stop all Puget sound early winter hatchery Steelhead production

Option 2 Continue Puget sound early winter hatchery production at a reduced level of 620,000 smolts

Option 3 Continue Puget sound early winter hatchery production at 310,000 smolt

Option 4 Develop a wild broodstock hatchery program in Puget sound releasing 620,000 smolts

I am an avid sports angler interested in protecting Puget Sound wild Steelhead and also expecting to have continued recreational angling for hatchery Steelhead.

1 I believe that the proposed hatchery option (#2)will provide recreational angling and also provide protection for wild Steelhead.Since the listing and recent declines in wild Puget sound Steelhead,the Washington Fish and Wildlifedepartment has made many changes to the hatchery programs to minimize the impact on wild Steelhead such as reduced smolt plants,improved collection of returning adults,and deletion of Steelhead hatchery programs in many . Genetic studies conducted to date indicate that the hatchery-to wild introgression already meets the NMFS upper limit of 2% in 4 rivers and the Snoqualmie is close with 2.,7% and further reductions are expected in future years as the above changes are reflected in future wild fish.

Option 1 and 3 are unneccary to protect wild fish and deletes angling opportunity.

Option 4 is impractical because excess wild fish are not available and also because the tribes net fishery is not selective and would harvest more wild fish in pursuit of hatchery fish.

2 It should be noted that when hatchery programs were deleted ,wild Steelhead in rivers such as the Nisqually have still declined to 10% of their former abundance after28 years(6 generations) and runs in the Cedar have declined to near extinction.Both of these examples suggest that factors other than hatcheries are much more significant in explaining our wild Steelhead declines.

.Puget sound smolt survival has dropped significantly in the last decade and is the most significant factor in our Steelhead declines ; work needs to be done to find and correct this problem to restore Steelhead .

The very future of Puget Sound Steelhead is at stake.We must find a way to continue the hatcheries in order to continue Steelhead angling in Puget sound,because the wild runs will not support angling in my lifetime.If we lose the angling ,we lose the advocates for the resource.

1 Select option 2 as the preferred option, providing sport and tribal harvest while provid ing reasonable protection for wild fish while we work on some of the other problems affecting our Steelhead

3 declines.Adhere to strict schedule to guarantee that WDF&W can release their smolts by May1,2016!

Jamie Williams
[redacted]
Puyallup WA 98374

Jamie Williams

Responses to Example Form Letters (Puget Sound Anglers)

Various dates (11 received)

1. See Global Comment 1a.

2. Comment noted.

3. Global Comment 2a.