UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
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OFFICE OF
ECOSYSTEMS, TRIBAL AND
PUBLIC AFFAIRS

August 12, 2015

NMFS Sustainable Fisheries Division
510 Desmond Drive SE, Suite 103
Lacy, Washington 98503

Dear Mr. Steve Leider:

The U.S. Environmental Protection Agency has reviewed the National Marine Fisheries Service July 14, 2015 Notice of Intent to prepare an Environmental Impact Statement for Five Early Winter Steelhead Hatchery Programs in Puget Sound (EPA Region 10 Project Number: 15-0045-NOA). Our review of the NOI was conducted in accordance with our responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act.

Project summary
The EIS will evaluate 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, 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 4(d) Rule for threatened salmon and steelhead.

All of the hatchery programs to be considered in this EIS would release early winter steelhead that are not included as part of the ESA-listed Puget Sound Steelhead Distinct Populations Segment, and that are not native to the watersheds in which they would be released. Initial alternatives include the proposed action (implementation of the co-managers' HGMPs) and a no action alternative. Additional alternatives could include a decrease in artificial production of 50 percent, and a change in program type from isolated to integrated programs, which would use native steelhead for broodstock.

Previous EPA comments which this forthcoming Draft EIS should address
NMFS' forthcoming Draft EIS for five early winter Steelhead hatchery programs should be responsive to EPA's August, 2011 scoping comments for the now withdrawn Puget Sound Hatcheries Draft EIS. Relevant 2011 EPA comments, which the forthcoming EIS should address, include the following:

- how the HGMPs support NMFS' ESA goals;
- the relationship between the HGMPs and relevant salmon recovery plans;
- how co-managers' objectives relate to an overall strategy to promote viable salmonid populations;
- NMFS strategy for providing harvest fish for Tribes while promoting ESA salmon recovery;
- Clean Water Act requirements including National Pollutant Discharge Elimination System (NPDES) permit requirements;
- consideration of temporary hatcheries; and

- the role of habitat protection/restoration for both species recovery and to support Tribal, commercial and recreational fisheries.

NMFS' forthcoming Draft EIS for five early winter Steelhead hatchery programs should also be responsive to EPA's January, 2015 comments on the now-withdrawn Puget Sound Hatcheries Draft EIS.[1] Relevant 2015 EPA comments, which the forthcoming EIS should address, include the following:

- a rigorous comparison of the alternatives' hatchery-related detrimental effects on natural salmonid populations;
- explanation of the consequences of failing to approve the HGMPs under Limit 6 of the ESA 4(d) rule, including litigation risk and the possibility of enforcement actions;
- a range of alternatives which sharply defines the issue of hatchery impacts on natural salmonid populations by generating clear differences for overall hatchery-related risk to Puget Sound listed salmonids;
- 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;
- a comparison of how the alternatives address several types of hatchery management improvements, such as:
    - changes in juvenile fish production;
    - changes in release locations;
    - increased use of locally adapted stocks and integrated production strategies;
    - changes in marking and tagging recovery processes;
    - facility improvements (water intake screen and weir improvements, pollution abatement systems, repair of rearing containers);
    - reductions of hatchery-origin fish in natural spawning areas;
    - construction of ponds to improve homing of hatchery-origin adults;
    - revised co-manager fish health policies; and,
    - increases in the proportion of natural-origin fish in hatchery broodstock.
- information on how site-specific improvements will be implemented, particularly the site specific improvements listed throughout the withdrawn Puget Sound Hatcheries Draft EIS Appendices C, G and H;

The Draft EIS should include the NOI's possible "additional alternatives"

As noted in our project summary above, NMFS is considering including alternatives in the Draft EIS which would (1) decrease artificial production 50 percent, and (2) change in program type from isolated to integrated programs that would use native steelhead for broodstock.

Our primary interest for the range of alternatives is to ensure that they are different enough to sharply define the issue of hatchery impacts on natural salmonid populations. One measure of this could be whether the alternatives' generate clear differences for overall hatchery-related risk to Puget Sound listed salmonids. An example of a clear difference for overall hatchery-related risk would be a "low" rating for one alternative and a "medium" or "high" rating for another alternative or alternatives.

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[1] Available online at:
http://www.westcoast.fisheries.noaa.gov/publications/hatchery/ps_deis/ps_hatchery_deis_comments.pdf

Thank you for this opportunity to provide comments and if you have any questions, please contact me at (206) 553-6382 or by electronic mail at peterson.erik@epa.gov.

Sincerely,

Erik Peterson

Erik Peterson
Environmental Review and Sediment Management Unit

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

National Marine Fisheries Service
Sustainable Fisheries Division
510 Desmond Drive SE
Suite 103
Lacey, WA 98503

August 13, 2015

RE: Early Winter Steelhead Hatcheries EIS

This is a response to your agency's request for public comments to inform the scoping of the environmental impact statement (EIS) for five early winter steelhead hatchery programs in Puget Sound. This is in response to Federal Register Notice RIN 0648-XE039 (FR Notice), published July 14, 2015.

As requested in the Federal Register notice, this comment will address three aspects of the EIS scoping process: 1) the range of reasonable alternatives, 2) the methods of analysis of the impacts of the alternatives, and 3) the impacts of the alternatives. Please also see our previous comments submitted to the prior Early Winter Steelhead Hatchery DEIS.

Range of reasonable alternatives:

The FR Notice suggests four alternatives: implementation of the hatchery plans as submitted (Alternative 1), "no action," which would mean effectively no hatchery programs (Alternative 2), 50% reduction in hatchery programs (Alternative 3), change from segregated to integrated hatchery programs (Alternative 4). In order to span a reasonable range of alternatives for the analysis, we believe a fifth alternative, increasing hatchery production by 50%, should be added instead of only looking at program reductions. Of these alternatives, we support Alternative 1 or some combination of Alternative 1 and Alternative 5, but only if habitat status is included in the analysis of all of the alternatives, which we elaborate on below. The alternatives, as posed, consider production levels of hatchery programs alone, which we cannot support. It is critically important for the EIS 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.

Therefore, it is imperative to analyze each of these alternatives under two different habitat scenarios:
1) maintain current habitat protections in place, restore degraded habitat that is critical to steelhead, and increase habitat protections where they are inadequate for steelhead, and
2) maintain status quo habitat management, which is resulting in continuing degradation of critical steelhead habitat overall. Putting together all possible pairs of these options would result in 10 combinations (or at least an adequate evaluation of two habitat scenarios for each of the alternatives (perhaps in cumulative effects), of which the combination of Alternative 1/5 for hatcheries combined with habitat scenario 1 is our preferred alternative.

Methods of analysis of the impacts of the alternatives:

Each alternative can be analyzed under each of the two habitat scenarios "1 and 2". Habitat scenario 1 should be analyzed assuming properly functioning habitat conditions, as previously defined by NOAA, to estimate natural stock abundance, productivity, diversity, and spatial distribution for all species of concern. Habitat scenario 2 should be analyzed assuming current conditions and a realistic assessment for future habitat protection and restoration, assuming no change in regulations and enforcement from what we see today and continuing downward trajectory of net habitat condition as 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/).

NMFS' 2011 Implementation Status Assessment Final Report, prepared by Millie M. Judge, notes that habitat continues 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." This documented decline and continued loss in net habitat condition from destruction and modification of steelhead habitat (that is outpacing active restoration efforts), is a principal limiting factor that is widely recognized and should be reflected in analyzing the DEIS alternatives, particularly under habitat scenario 2.

Both habitat scenarios must include thorough analysis of realized and expected impacts from climate change on freshwater and marine aquatic habitat and resultant realized or projected risks posed to listed fish. Freshwater habitat factors, such as precipitation shifts, rain on snow events, flood flows/frequency, low flow/high temperatures, etc, and the risks to listed fish (redd scouring events, early rearing/juvenile displacement, adult pre-spawning mortality/stranding, etc) across the proposed alternatives as a result of potential impacts from climate change must be included. Thorough analysis of realized and expected effects from climate change on listed fish must also include marine habitat factors, such as foodweb shifts, prey availability, pinniped and other predation, competitive effects, and the impact of those factors on risks to listed fish (e.g., early marine growth, marine survival etc), in order to provide an adequate and complete NEPA analysis of the alternatives.

The EIS must provide an adequate narrative addressing the historical context for hatchery production as mitigation for lost natural production as a result of aquatic, riparian, and upland habitat degradation and development as well as ongoing degradation of estuarine and marine habitat that are inconsistent with properly functioning conditions. Any adequate description of historical conditions or historic range must provide the context of how we got to the current conditions and any future projection of effects from habitat condition must be a realistic assessment of the likelihood of making net gains in habitat quality and quantity given the current adequacy of environmental protection mechanisms, rather than habitat condition somehow magically frozen in time when examining projected future impacts of the proposed alternatives (previous NEPA analyses assumed habitat condition would "…remain the same…"). This will explain the documented result of choosing habitat scenario 2 (the current path of decline) instead of habitat scenario 1 in the past and therefore the likely outcome of sticking with it.

Besides evaluating habitat scenarios and effects on ESA-listed fish, SRKW, and other species of concern together with the evaluation of proposed hatchery production levels, it will be important to consider all potential risks and benefits of hatchery production equally. Risks that have been identified in the scientific literature include ecological impacts, disease, and genetic introgression, and benefits include provision of harvest opportunity with consequent economic benefits and mitigation responsibilities and other benefits as

described below. The analysis should not consider any one of these risks and benefits related exclusively to hatchery actions, but rather, should consider all of them concurrently and in the context of the full range of habitat scenarios as is required under the NEPA alternatives analysis process to: "*...Rigorously explore and objectively evaluate all reasonable alternatives and for alternatives which were eliminated from detailed study, discuss the reasons for their having been eliminated*" (40 CFR 1502.14 ; CEQ 2012)

Scientific evaluation tools and models all have inherent strengths and weaknesses. NMFS must provide clear indication on the limitations and assumptions of any analytical models, scientific tools, and data used in their analysis. Results and conclusions must be stated in clear context of those limitations. The previous DEIS based a number of analyses on output of the All-H-Analyzer Model and did not address its numerous shortcomings. In very limited instances, it may be useful as a heuristic tool for examining broad scenarios and combinations of hatchery, harvest, and habitat. However, we strongly believe it is inappropriate to use AHA for ESA or NEPA evaluation purposes for numerous, previously-mentioned reasons that we provided in our previous DEIS comments, or for that matter, any approach that applies a broad brush stroke evaluation approach across all of the watersheds where the viability status and habitat conditions vary greatly, as do the types of hatchery programs and the benefits and risks they pose. Rather for this EIS, we believe evaluations of these programs should more appropriately occur on a watershed-specific basis and then be rolled up and further analyzed in their entirety under cumulative effects.

Impacts of the alternatives:

Alternative 1 (HGMPs as submitted)

- Hatchery programs were developed, and continue to serve in the form submitted, as mitigation for lost habitat and resultant natural salmon and steelhead production, which is well documented, yet, the condition of habitat continues to worsen and goes unchecked due to inadequate habitat protections, climate change, and other environmental and ecological factors that have nothing to do with hatcheries or harvest; demanding greater, not less, mitigation, or at a minimum, retaining the existing programs under this alternative.
- NOAA Fisheries' NEPA and ESA risk assessments should support hatchery and harvest programs that employ best management practices. The EWS steelhead HGMPs under evaluation, and the recreational and commercial harvest programs that depend on them, are well managed - the tribes and state operate safe, responsible hatchery programs that are guided by the best available science and we will need these programs for as long as habitat continues to limit production from our watersheds.
- Moving harvest onto hatchery fish relieves harvest pressure on wild stocks, especially when hatchery harvest opportunity can be provided in times and places separate from times and places where peak wild fish abundance occurs, as with early winter steelhead programs. This benefit should not be ignored.
- Providing steelhead harvest opportunity through hatchery fish maintains the culture and knowledge of fishing among a large number of citizens. In turn, these people will advocate for environmental protections and restorations that will enhance the conservation of protected resources.

Alternative 2 (no action)

- As presented in the scoping, the DEIS suggests that the only options to benefit conservation are through reduced hatchery production. We strongly disagree. There are other actions that can actually achieve conservation benefits that don't include reduced production.
- In general, the DEIS scoping has a very negative connotation to it (i.e. issues, concerns, impacts) that already sets the tone for the scoping that the actions themselves are harmful and destructive, while ignoring the immense benefits and mitigation responsibilities they fulfill.
- As a result of the settlement between WFC and WDFW, failure of NOAA to approve the early winter steelhead HGMPs under the 4(d) rule in a timely manner next spring would likely result in cancellation of the

hatchery programs. This likely outcome should be stated and documented. It is critical that NOAA Fisheries conduct its NEPA and ESA analyses and decisions within a timeframe that will allow release of early winter steelhead to occur on a schedule that meets their biological requirements. It is plain to everyone that the Wild Fish Conservancy will do whatever it can to try to thwart release of these fish, regardless of how the hatchery programs are run, how little harm they cause to other salmon, or how great that would further harm the citizens of this state. At a minimum, this means that there should be no extensions on comment periods and no discretionary grants of additional time so that WFC can run to the courthouse and try to run out the clock. The NEPA and ESA documents need to make it clear that failure to release these fish on time will cause the termination of this stock and will irreparably harm not only early winter steelhead, but also fishers in many parts of Puget Sound who may not be able to fish for steelhead in Puget Sound for decades to come, if ever.

We are most concerned about the current tactic that abuses Federal Government processes, such as NEPA and ESA, to prevent hatchery releases and effectively kill hatchery programs before they have even been fairly evaluated. NEPA and ESA are currently being used in violation of our Treaty Rights and the intent of the Secretarial Order of 1997. That order clearly states that when Federal agency takes actions under authority of the ESA that affect tribal trust resources, those agencies must:

> *"...carry out their responsibilities under the Act in a manner that harmonizes the Federal trust responsibility to tribes, tribal sovereignty, and statutory missions of the Departments, and that strives to ensure that Indian tribes do not bear a disproportionate burden for the conservation of listed species, so as to avoid or minimize the potential for conflict and confrontation."*

Killing Tribal and/or comanager hatchery programs before they have been evaluated, places a disproportionate burden on the Tribes by reducing hatchery and harvest programs, while the continuing loss and degradation of habitat, the main cause for the declines of salmon and steelhead, is not being addressed. On that note, the Secretarial Order also states,

> *"In cases involving an activity that could raise the potential issue of an incidental take under the Act, such notice shall include an analysis and determination that all of the following conservation standards have been met: (i) the restriction is reasonable and necessary for conservation of the species at issue; (ii) the conservation purpose of the restriction cannot be achieved by reasonable regulation of non-Indian activities; (iii) the measure is the least restrictive alternative available to achieve the required conservation purpose; (iv) the restriction does not discriminate against Indian activities, either as stated or applied; and, (v) voluntary tribal measures are not adequate to achieve the necessary conservation purpose."*

No informed decisions on hatchery programs can be made until the NEPA and ESA evaluations of those programs have been fully completed. Harm was never proven, much less harm relative to other greater causes, whereas habitat loss continues to be the overwhelming reason that the exercise of our Treaty Fishing Rights currently depends on hatchery fish for upwards of 70-95+% of our harvest opportunity. The tribes have been at the forefront of advocating for greater habitat protection and habitat restoration to bring meaningful recovery to native salmon stocks. It is only by addressing habitat loss that this situation will change and until such time, these mitigation programs must remain.

Compounding our concern regarding the continued enabling of stalling tactics to diminish mitigation hatchery production and our Treaty-reserved harvest programs that depend on them, is the undermining of our comanagement authority under *US v Washington*. The most obvious example of this is the unilateral settlement agreement entered into between WFC and WDFW with no tribal comanager input whatsoever. Because NMFS was not able to provide ESA coverage for these steelhead hatchery programs for 2015, hatchery programs remain halted under the settlement agreement for another year making it more likely these

steelhead hatchery programs will be discontinued. This is causing permanent effects on treaty harvest opportunities for steelhead. It is vitally important that this not be allowed to continue to occur in violation of tribal treaty rights and our comanagement authority.

What is needed instead of an unfair process that undermines comanagement authority and treaty rights is a fair process that protects Treaty Rights by directly addressing those things that put these rights at risk. Four years ago, the tribes put forward the Treaty Rights at Risk paper, clearly stating that habitat is the main issue. We need to remind NOAA and others that this remains our position and any alternative that reduces or eliminates hatchery production, without even addressing the main environmental and ecological factors for decline, will not even begin to solve the problem of reduced steelhead viability. While NOAA must evaluate the potential effects of the proposed hatchery actions, these programs do not operate within a vacuum and their interaction with habitat, harvest and hydro has to be adequately addressed, especially under a no production or no action alternative, which NOAA's NEPA effects evaluations have failed to do to date. We also need to remind NOAA that there are relevant laws currently in place, which are not being enforced.

- Recent evidence (e.g. Nisqually River) shows little to no response of natural-origin steelhead to cessation of hatchery programs under the current habitat trajectory (habitat scenario 2). This suggests that we would find a similar outcome in other river systems. The consequences would be: 1) failure of the wild stocks to recover and 2) very rare or no opportunity for harvest due to lack of harvestable surplus.
- Loss of steelhead harvest opportunity would mean that many citizens would no longer be interacting with the natural environment through fishing in Washington State. This could result in reduced support for environmental protection and restoration and thus further environmental degradation.
- There is ample evidence that creation of salmon hatcheries in our region was closely-linked to loss of salmon habitat. In fact, the promise that hatcheries could replace natural production allowed society to be comfortable with large-scale destruction of habitat due to dam building, logging, mining, and conversion of land to agricultural, residential , municipal, and industrial uses. While hatchery production did not live up to its promise of replacing natural production, it was certainly successful in enabling a huge loss of salmonid habitat.
- If there are valid reasons to reduce hatchery production today then there are equally valid reasons to reverse the conditions that caused the need for the salmon hatcheries in the first place and to protect habitat from further destruction.
- If simply eliminating hatcheries and harvest was the solution, we would have accomplished natural stock rebuilding a long time ago. Though these programs have been crippled and greatly curtailed or eliminated in many instances, the stocks have not rebounded and are declining at a faster rate than ever because habitat quantity and quality drives steelhead and salmon health. We have lost more steelhead and salmon due to disappearing habitat than have ever been harvested or lost due to hatchery effects. The current drought has harmed more steelhead and salmon than any hatchery effects.

Alternative 3 (50% reduction)

- All of the above comments under Alternative 2 apply, as revised to reflect a 50% vs 100% reduction.
- Moving harvest onto hatchery fish relieves harvest pressure on wild stocks, especially when harvest opportunity on hatchery fish can be provided in times and places separate from times and places where peak wild fish abundance occurs, as with early winter steelhead programs. This benefit should not be ignored, although reduced hatchery production would reduce the benefit.
- Loss of one half of the proposed steelhead hatchery production would reduce the availability of harvestable steelhead below a level that would provide an incentive for many people to go fishing. Thus, the economic and other losses could be equivalent to those expected under a zero hatchery alternative.

- Loss of one half of the proposed steelhead hatchery production could result in an increased proportion of wild fish in the mix available to the fishery that could result in increased non-catch mortality to wild fish, although the separation in run timing enabled under the current program alleviates this effect.
- Funding for hatcheries continues to be cut from crippled budgets that have already resulted in significant hatchery closures and reductions – in just the past six years alone, the Washington Department of Fisheries has cut more than 50 million dollars from its budget, much of it from hatchery production. These actions have already created a "reduced production alternative" with more potential closures or reductions to come.
- These hatchery programs support the economy and way of life for all Washingtonians, and the current climate of litigation, hatchery closures, and reductions has harmed all of the citizens of Washington State. NOAA Fisheries must do a better job in this EIS to recognize the importance of harvest to all constituencies, the economy, and the northwest way of life.
- If simply eliminating hatcheries and harvest was the solution, we would have accomplished natural stock rebuilding a long time ago. Though these programs have been crippled and greatly curtailed or eliminated in many instances, the stocks have not rebounded and are declining at a faster rate than ever because habitat quantity and quality drives steelhead and salmon health. We have lost more steelhead and salmon due to disappearing habitat than have ever been harvested or lost due to hatchery effects

Alternative 4 (switch to integrated programs)

- Switching to an integrated hatchery program would necessarily involve a long transition period where fishing opportunity would be unlikely or not possible. Impacts analysis must include the transition period as well as the future time when a program has been established and fishing is again possible. This alternative absolutely must be presented as "*Transition* from an isolated to an integrated program" and cannot be presented as an immediate alternative that could be implemented now, but rather one that would be phased in over time, *while retaining the existing programs*. There is currently no realistic way these programs could access the fish needed for hatchery production, or that would be accessible for harvest and therefore this alternative would result in termination of any hatchery programs and all of the fisheries that depend on that production.
- Switching to an integrated program would remove the timing difference between hatchery and natural steelhead that is key to the success of the current winter steelhead program. Having hatchery and wild fish with the same timing curves would make it much more difficult to reduce harvest rates on wild fish while maximizing opportunity on hatchery fish. Selection for early-timed integrated stock, or otherwise manipulating different run timing to enable harvest to target on the hatchery production, would take many years and would not be desirable (especially if need for integrated recovery program becomes necessary), and would not be consistent with the guidelines for integrated populations as it would create the same divergence we see now from a stock that also originated within Puget Sound but that NOAA Fisheries now considers to not be part of the listed DPS.
- Losing the run timing difference between hatchery and natural steelhead in an integrated program could result in an increased proportion of wild fish in the mix available to the fishery that could result in increased non-catch mortality to wild fish, although the separation in run timing enabled under the current program alleviates this effect.
- Productive habitat of sufficient quantity and quality are a requisite for productive and sustainable populations. It would make no sense to go through everything required to start an integrated hatchery program without serious attention to habitat protection and restoration. The analysis of this alternative under the two habitat scenarios should make this point very clear.

We appreciate the opportunity to provide these comments to inform the EIS scoping process and look forward to participating in the next steps as this EIS moves forward. TOGETHER, the Tribes, State, sport fishers and a broad coalition of concerned citizens are working together in support of these hatchery programs that we fully

understand are also supported by a majority of the general public. We believe it is highly likely, or it should be based on the best available science, that the evaluation of these hatchery programs may result in a no jeopardy determination, yet if another injunction is unfairly allowed before the facts are in, they will be killed anyway, and that will not be acceptable and will only trigger additional litigation.

Instead, we strongly advocate that each watershed should have its own balance of natural and hatchery production, based on the needs of treaty and non-tribal fisheries; tailored to its own needs based on the unique habitat conditions, the specific hatchery practices, and the status of the hatchery and natural populations and the robustness of each watershed's natural production potential. The only approach that will lead to long-term sustainable salmon and steelhead resource, and the only way this NEPA evaluation can begin to adequately encompass the scope of possible and realistic alternatives, is to integrate all of the "H's" into the effects analysis of the proposed alternatives. The programs do not occur in isolation, and their evaluation must recognize the cumulative effects of all of the actions on steelhead viability, which is NOAA Fisheries' responsibility under the ESA anyway.

Sincerely,

acting

Ray Fryberg Sr.
Executive Director of Natural and Cultural Resources
Tulalip Tribes

Cc: Melvin Sheldon Jr., Chairman; Tulalip Tribes, Tulalip Tribes' Board of Directors
Terry R. Williams, Commissioner of Fisheries and Natural Resources
Mason Morriset, Attorney; Tim Brewer, Attorney; Daryl Williams, Environmental Liason, Jason Gobin, Director of Fisheries and Wildlife, Mike Crewson, Salmon Enhancement Sci; Tulalip Tribes
Jim Unsworth, Director, Washington Dept. of Fish and Wildlife
Jim Scott, Asst. Director, Washington Dept. of Fish and Wildlife
Mike Grayum, Executive Director, Northwest Indian Fisheries Commission
Rick Cook, Bureau of Indian Affairs
Rob Jones, Tim Tynan, NOAA Fisheries
Ron Warren, Annette Hoffmann, Brodie Antipa, Brian Missildine; WDFW

EIS SCOPING COMMENTS
EARLY WINTER PUGET SOUND STEELHEAD HATCHERY HGMP

August 12, 2015

National Marine Fisheries Service
Sustainable Fisheries Division
510 Desmond Drive SE
Suite 103
Lacey, WA 98503

Subject: Early Winter Puget Sound Hatchery Steelhead HGMP EIS Scoping, Federal Register Notice RIN 0648-XE039, July 14,2015

I am writing you today on behalf of our 8,000 members of the Puget Sound Anglers Organization. As president of the state board of the largest recreational fishing club in Washington State with 16 Chapters represented, and the general fishing public, we would like to comment on the EIS/NEPA EWS issue at hand.

Many of our members are, or were in the past, steelhead fishers. We truly understand that we have problems with steelhead from California to Alaska. These problems are not unique to our watersheds but are coast wide. I hope you can think of this on another level. These outdoor recreational opportunities are a quality of life and outlook for the general public. It relieves stress in our everyday lives making makes our lives whole. This is an overlooked factor and a very important one.

Below are comments in response to above Federal Register Notice (FRN):
We cannot allow any further diminishment of steelhead sport fishing opportunities in the Puget Sound basin. Closing down existing hatcheries, mostly paid for by recreational fishers, or decreasing production of early winter steelhead, will not restore wild steelhead to fishable levels as has been demonstrated with the Cedar River where the once robust wild steelhead run is functionably extinct. Hatchery management practices are being significantly improved. The State of Washington and Puget Sound tribes have adopted the recommendations of the federal Hatchery Scientific Reform Group. Improvements are being made as resources allow.

Alternatives
We would like to have an **alternate #5** added in addition to the four alternatives contained in the FRN: Alternative 5 – *Increasing annual early winter hatchery production to one million or more smolts*. This is to ensure fair consideration of a full range of possible alternatives and to recognize that marine and freshwater habitats are continuing to decline such that increased hatchery production will be necessary to compensate. Alternative 5 is preferred with #2 as a second choice.

Methods of Analysis of the impacts of the Alternatives
Hatcheries of course have by and large been constructed to mitigate for lost natural production caused by Puget Sound area developments, including constantly expanding cities and lesser communities, water supply, flood control and hydropower projects, ports, etc, that have adversely changed fish habitat in Puget Sound river basins and harmed Puget Sound itself. There is a legal obligation that is not being met

with both the tribes and the citizens of this state to continue and improve mitigation. Boldt II is about habitat. It is possible that the affected tribes may be motivated to seek remedy again via the courts for the reneging on mitigation that had been partially provided by the hatcheries. Because habitat is an essential element of both wild and hatchery production it must be assessed during the discussion and evaluation of each of the five alternatives. There is a growing awareness of high juvenile steelhead mortality during migration through Puget Sound to the ocean. This marine habitat limiting factor must be included in the analysis.

When evaluating possible hatchery effects on listed stocks, it will be important to consider all potential risks and benefits of hatchery production. Social and economic benefits from tribal harvest and sport fishing opportunities must be given equal consideration to risks such as adverse ecological impacts, disease and genetic introgression. Each is important.

Impact of the Alternatives

Each of the alternatives must be carefully and fairly assessed as to whether or not it would indeed significantly harm or restore wild steelhead runs under reasonably expected future habitat conditions, especially Puget Sound. Realistic assessments are required as well for the impacts on sport and tribal harvest of steelhead. Because climate change and water conditions now being experienced under drought condition are likely to be the future, the scenarios used to evaluate the alternatives need to address this state too.

Process

As there is much to do to provide sound basis for a NOAA-F decision that will allow release of all early winter steelhead smolts into respective rivers from the five covered hatchery programs this next spring. I do not want hatchery smolts wasted again as they were in 2014 and will again be dumped in lakes to die in 2015. Accordingly, I ask that you expedite your NEPA and ESA processes so that a decision is made by early March 2016 so that the smolts can be released into the rivers. Otherwise there would be no broodstock to return and you will have effectively terminated the Puget Sound early winter hatchery steelhead programs. Presumably, the affected Puget Sound tribes and State of Washington Department of Fish and Wildlife will be helpful.

Please understand we want only good government science managing our fisheries and not lawsuits.

We know these EWS were chosen as to not impact the native runs.

The Puget Sound Anglers is an organization that rolls up its sleeves and gets involved. We have helped tackle many problems as we believe the resource belongs to the people of this state. They are ours to protect for future generations.

Thank you for this opportunity to share my thoughts. Please include me on your mailing list or email list for this project. Please feel free to contact me anytime.

Sincerely,

Ron Garner
President
Puget Sound Anglers
State Board

Steve Leider - NOAA Federal <steve.leider@noaa.gov>

EIS for Puget Sound HGMP's

1 message

Pete Soverel <soverel@wildsalmonrivers.org> Fri, Jul 24, 2015 at 5:21 PM
To: Steve Leider <steve.leider@noaa.gov>

Steve
The Conservation Angler has submitted voluminous documentation/comments re Puget Sound eis processes:

- original EIS for all of Puget Sound plus attachments
- request for extension of EA'
- comments on EA.

We reiterate those earlier comments to the current HGMP's for five Puget Sound systems -- see the attached.
Pete Soverel
President, The Conservation Angler

5 attachments

ps_hatchery_deis_comments.pdf
14833K

request for 60 day extension of EA proposal.docx
96K

comment on EA.docx
15K

DEIS comments tca.doc
113K

DEIS COMMENTS WFC – ATTACHMENT A.doc
185K

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

Re: Early Winter Steelhead Hatcheries EIS.

2 messages

kurt beardslee <kurt@wildfishconservancy.org> Thu, Aug 13, 2015 at 10:18 AM
To: EWShatcheriesEIS.wcr@noaa.gov
Cc: Steve Leider - NOAA Federal <Steve.Leider@noaa.gov>, Rob.Jones@noaa.gov

Please accept these comments on the Early Winter Steelhead Hatcheries EIS submitted on behalf of the Wild Fish Conservancy.

WFC Comments on Scoping EWShatcheries EIS_Final.pdf
96K

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kurt beardslee <kurt@wildfishconservancy.org> Thu, Aug 13, 2015 at 4:51 PM
To: EWShatcheriesEIS.wcr@noaa.gov
Cc: Steve Leider - NOAA Federal <Steve.Leider@noaa.gov>, Rob Jones - NOAA Federal <Rob.Jones@noaa.gov>

Please accept both of these comments on the Early Winter Steelhead Hatcheries EIS submitted on behalf of the Wild Fish Conservancy.

2 attachments

WFC Comments on Scoping EWShatcheries EIS_Final.pdf
96K

Scoping Comments Puget Sound sthd hatchery EIS_B.McMillan_8-13-2015.docx
796K

Wild Fish Conservancy
NORTHWEST

August 13, 2015

Via Email
National Marine Fisheries Services
Sustainable Fisheries Division
510 Desmond Dr., Suite 103
Lacey, WA 98503
Email:EWShatcheriesEIS.wcr@noaa.gov

Re: Early Winter Steelhead Hatcheries EIS.

Dear Honorable Civil Servants:

Please accept these comments submitted on behalf of the Wild Fish Conservancy (WFC) (collectively, "Commenters") on the Scoping for an Environmental Impact Statement for Five Hatchery and Genetic Management Plans (HGMPs) for early winter steelhead hatchery programs in the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie River watersheds in Washington State, jointly submitted by the Washington Department of Fish and Wildlife (WDFW) and the Jamestown S'Klallam Tribe, the Lummi Nation, the Nooksack Tribe, the Stillaguamish Tribes, and the Tulalip Tribes (collectively, "Comanagers") for NMFS evaluation and determination under Limit 6 of the Endangered Species Act (ESA) 4(d) Rule for threatened salmon and steelhead.

I. **Introduction.**

We provide these comments to supplement those that Wild Fish Conservancy submitted on the 2015 draft EA for three early winter steelhead hatchery programs (80 FR 15985, March 26, 2015), and on the 2014 draft EIS for Puget Sound salmon and steelhead hatcheries (80 FR 15986, March 26, 2015). The Federal Register Notice of July 14, 2015 (80 FR 41011) requesting comments for the scoping of the EIS notes that these earlier comments "will also be considered in developing the EIS". We hereby incorporate by reference all comments relevant to scoping issues that Commenters submitted for the 2015 draft EA and the 2014 draft EIS. We also incorporate by reference all supporting documents referenced or included with each of those comments. Each of those comments described the state of the wild steelhead and salmon populations of Puget Sound, their need of recovery/rebuilding, and the importance of fully evaluating the ways that wild steelhead and salmon may be adversely affected by hatchery programs, including those that are the subject of the EIS. Those comments further described and discussed the several key legal, ecological, and economic issues that must be addressed in order to properly evaluate the impacts that any or all of the individual hatchery programs may have on wild steelhead and salmon populations in Puget Sound, including those listed under the ESA. Our comments herein concerning the scoping for the EIS will, therefore, be general, highlighting the key topics that need to be considered and the details that need to be included.

We first note a general concern with the proposal to develop an EIS for the five HGMPs submitted by the Comanagers. We are not convinced that the decision to develop an EIS

for the five steelhead hatchery programs provides sufficient scope to avoid the concerns regarding piecemeal approvals of numerous salmon and steelhead hatchery programs and other actions requiring environmental review that we raised in regard to the March 2015 EA for three early winter steelhead hatchery programs. As we noted in our comments to that EA:

"The decision to treat the three HGMPs as a single RMP and the attendant decision to approve them by issuing a hastily drafted EA, instead of completing the comprehensive EIS on all Puget Sound hatcheries, in order to fast-track approval in hope that hatchery smolts can be released in early May 2015 sets a dangerous precedent of weakening the substantive public and environmental benefits of NEPA. Among other concerns, approval of this action by NMFS threatens to open the door to the approval of numerous individual HGMPs that can be bundled in small packages labeled as resource management plans. This would lead to widespread approval of numerous hatchery programs that impose significant risks to ESA-listed wild salmon and steelhead populations throughout the Pacific Northwest without having to subject them to a comprehensive NEPA evaluation and would deprive the public of its ability to evaluate the full cumulative impacts of such approvals. This would also extend beyond salmon listed under the ESA and would encourage other environmental evaluations to avoid proper public review and proper comprehensive evaluation of adverse effects by considering one or several small actions in a piecemeal fashion. This would further undermine the purposes of NEPA." (WFC Comments on Environmental Assessment to Analyze Impacts of a NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Three Early Winter Steelhead Programs in the Dungeness, Nooksack, and Stillaguamish River Basins, May 4, 2015, pp.12-13).

We see little substantive difference between an EA for three of the five programs that are the subject of this scoping notice and an EIS on the five programs with regard to the scope of potential cumulative impacts at issue and the scale of analyses required in order to provide the needed comprehensive analysis of appropriate alternatives and their associated costs and benefits. We believe that only a full EIS of all Puget Sound salmon and steelhead hatchery programs treated as components of one or more joint state-tribal resource management plans (RMPs) can provide the appropriate level of analysis.

The absence of a Recovery Plan for Puget Sound steelhead makes the evaluation of any early winter run steelhead hatchery program problematic, in that NMFS cannot know whether or not any particular river or demographically independent population (DIP) may be required to be free of influence from production (non-conservation) hatcheries or, if not, how much production from an early winter run program may be compatible with recovery. In view of the recent recommendations from the Puget Sound Technical Recovery Team (PSSTRT, Hard et al 2015) regarding the minimum numbers of winter- and summer-run DIPS throughout the DPS that must attain viability (13 winter-run, 2 summer-run), it is likely that any determination to approve releases of early winter-run steelhead in any Puget Sound river can be at best provisional (temporary), and for this reason alone should be precautionary.

2. Purpose and Need.

The purpose and need (P&N) statement is crucial because only a sufficiently broad statement will allow full development of an adequate range of alternatives. It is essential, therefore, that NMFS provide a broad statement of the purpose and need for the drafting of an EIS for the five hatchery programs. A broad statement will be required in order to provide for a detailed evaluation of an appropriately broad range of Alternatives. The range of alternatives provided in the EIS must be broad enough to encompass reasonable ways in which some or all of the objectives of the Comanagers can be met consistent with the requirements of the Endangered Species Act (ESA). The P&N statement must not be

so narrowly described as to pre-determine approval of a preferred alternative favoring approval of the five HGMPs.

NMFS' obligation to meet treaty trust responsibility requirements for winter-run steelhead harvest must be explicitly quantified on a tribe-by-tribe, watershed-by-watershed basis. In both the withdrawn 2014 DEIS on all Puget Sound salmon and steelhead hatcheries and the 2015 EA, and elsewhere, NMFS has stated it will accept "impacts that may result in increased risk to the listed species to provide limited tribal fishing opportunity". It is incumbent on NMFS to provide explicit, measureable quantitative criteria by which NMFS determines a) that impacts to ESA-listed species in a specific case are required in order for NMFS to fulfill its trust responsibility, and b) the amount of the impacts (typically harvest impacts) that are tolerable in order to meet the trust responsibility in the specific case. Absent such objective, quantitative standards and related reasoning, it is impossible for either NMFS or the public to know whether or not the additional impact is reasonable, justifiable, and hence, legal.

In the P&N statement and elsewhere, where impacts to listed resources or impacts to stakeholder interests are at issue, and more generally where benefits and costs of actions or inactions are involved, the language of 'minimization' should be avoided. The language of minimization provides no objective criteria by which either NMFS or an interested observer can determine what is required or whether the actions chosen in order to 'minimize' an impact are appropriate. Wherever possible specific measureable, quantitative metrics and/or guidelines must be provided and applied to determine the

specific action required and the extent of the impact that is expected to result from the action.

3. Alternatives.

As we noted in our comments on the 2014 DEIS,

"'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" (WFC Comments on the DEIS, January 2015, page 4).

The No Action alternative is particularly critical to an EIS. As we noted in the same comments (page 5),

"Agencies must include a no action alternative in their NEPA analyses and give the no action alternative "meaningful consideration" in order to avoid violating NEPA's mandates. *See Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1230 (9th Cir. 1988). "The no action alternative is meant to provide a baseline against which the action alternative . . . is evaluated." *Ctr. for Biological Diversity v. U.S. Dep't. of Interior*, 623 F.3d 633, 642 (9th Cir. 2010). A no action alternative is supposed to "facilitate comparison of the environmental impacts of the proposal and the alternatives." *Valley County v. United States Dep't of Agric.*, 2012 U.S. Dist. LEXIS 106667 (D. Idaho July 27, 2012) (citing 40 CFR § 1502.14) (internal quotation omitted). NEPA's required no action alternative "is meaningless if it assumes the existence of the very plan being proposed." *Friends of Yosemite Valley v. Scarlett*, 439 F. Supp. 2d 1074, 1105 (E.D. Cal. 2006) (finding that a no-action alternative could not properly include elements of an illegal plan)".

The No Action alternative should not assume that hatchery programs will continue; instead, it should describe the existing legal operational status for each Puget Sound early winter steelhead hatchery program being considered. Currently, under the 2014 Settlement

Agreement between WDFW and WFC regarding WDFW's Puget Sound early winter steelhead hatchery programs, no releases of early winter run hatchery steelhead have occurred in 2014 and 2015, except for releases of 180,000 smolts into the Skykomish River. At a minimum, the No Action alternative should describe this situation. Preferably, however, in order to appropriately characterize the situation in which comanager Puget Sound early winter run steelhead hatchery programs do not have 4(d) take coverage under the ESA, the No Action alternative should describe the situation in which no releases of early winter run hatchery steelhead from any Puget Sound hatchery occur. This would include termination of all early winter run hatchery programs that do not and cannot obtain the appropriate 4(d) take coverage.

Among other Alternatives that should be described and evaluated, we recommend the following:

- An Alternative to maximize recovery potential for ESA-listed species;
- An Alternative to eliminate hatchery programs using non-native broodstock;
- An Alternative to only permit for-harvest hatchery programs that demonstrate census pHOS (*sensu* HSRG 2015) less than 2% (or 5% max, regardless of effective pHOS, *sensu* HSRG 2015), 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.

- An Alternative to require any hatchery program that otherwise meets requirements to develop plans to transition to water re-use or re-circulation systems that will attain specific minimum water conservation objectives within the next five to ten years.

- An Alternative to require any hatchery program that otherwise meets requirements to develop plans for low-flow and high water temperature operating procedures that adequately protect wild salmon and steelhead.

The EIS should provide explicit evaluations of whether and how each Alternative meets the requirements of the 4(d) rule, including an analysis of whether (and if so, how) the alternatives will appreciably reduce the likelihood of survival and recovery of listed ESUs and the DPS. In doing this, the EIS should make extensive, appropriate use of NMFS's viable salmon population (VSP) concepts (McElhaney et al., 2000).

4. Quantitative Risk Assessment.

In our comments on the 2014 DEIS and the 2015 EA, we described in some detail the reasons why a quantitative probabilistic risk assessment framework is required in order to adequately describe, compare, and evaluate alternatives and specific actions that may be required under any particular alternative. We re-iterate the importance of that herein and refer reviewers to the relevant parts of our previous comments.

5. Economic Analysis.

The economic analysis should include an analysis of the benefits of the recovery of ESA-listed salmon and steelhead, and the contribution to recovery of applying funds devoted to hatchery production to recovery measures instead. As we noted in our comments on the 2014 DEIS (page 18),

"The DEIS' economic analysis is too narrow and fails to evaluate the economic benefits of recovery of listed ESA-listed salmon and steelhead. The DEIS should describe how the "harvestable surplus" is defined and quantitatively identified, and how this is related quantitatively to ESA issues such as take, recovery, and jeopardy. Chapter 3.3 does not provide commercial harvest data for individual tribes. The DEIS (chapter 3) 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.
"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 the hatchery programs and into habitat restoration and other efforts to support recovery of self-sustaining wild fish populations."

A specific ecological/economic analysis of early winter-run hatchery programs should be conducted given the low smolt-to-adult survival (SARs) of all such programs. All of these (and several other salmon hatchery programs) appear to violate a basic ecological characteristic of sustainable salmonid populations, viz. the ability to increase cohort biomass as the cohort incurs mortality over the course of its lifetime. Simply put, individual growth up to the time of adult return to natal rivers should result in an increase in the total biomass (weight) of the surviving adult members relative to the initial biomass of the juvenile (smolt) cohort. For example, each of the five HGMPs proposes to release early winter hatchery steelhead smolts at a weight of 5 per pound. If 100,000 smolts are released the total weight of this smolt cohort is 20,000 pounds. If the average weight of a returning adult from this cohort is (conservatively) 8 pounds, 2500 adults

would have to return in order for the total weight of returning adults to equal the total weight of the cohort of smolts (20,000/8 = 2500), which would require a smolt-to-adult survival rate of 2.5%. The majority of early winter steelhead hatchery programs in Puget Sound have SARs much lower than 1%. An SAR of 1% would return 1000 adults from a cohort of 100,000 smolts. In order for this number of adults to return a total weight equal to the weight of the smolt cohort, the average adult would have to weigh 20 pounds, which is clearly out of the question. Consequently, these hatchery programs return considerably less adult biomass than the biomass of smolts that is required to produce them, a situation that would be unsustainable for a wild salmon or steelhead population. The economics of this situation needs to be analyzed in the EIS.

6. Cumulative Effects.

A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions." 40 C.F.R. § 1508.7. Under NEPA, cumulative impacts include direct as well as indirect effects, "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(a).

We note several issues that should be addressed in the EIS in order to properly describe and analyze the direct and indirect effects that may be caused by actions under the alternatives.

Cumulative impacts from harvest directed at hatchery populations and from straying of returning hatchery adults to the spawning grounds of wild populations needs to be included in the analysis. This is consistent with recent concerns noted by the HSRG (2015): "Efforts to harvest abundant hatchery fish form one population can impact natural fish in another population; hatchery strays can and do interact with natural populations from different locations within a region. The contribution of each hatchery program to the cumulative impact of all hatchery programs also needs to be considered."

The biomass deficit that results from poor SARs of hatchery steelhead also points to the need, in the EIS, to evaluate the impact of hatchery feed required to support hatchery production on marine bait/forage fish populations that make up the fish meal that goes into many hatchery feeds. A full accounting of this is required in the cumulative effects analysis. Of course, it requires analysis of more than just the five steelhead hatchery programs that are the subject of the EIS in order to adequately evaluate the impact of hatchery feed on marine baitfish and forage fish populations. This again highlights the need for the EIS to include more than just the five steelhead programs in order to adequately evaluate the cumulative effects of these programs.

Competition and predation in the migratory corridors and nearshore rearing environment of juvenile steelhead and salmon from releases from early winter steelhead hatcheries must be evaluated. Straying of returning adults from each of the five programs to other nearby rivers and streams and the impacts this is likely to have on wild populations needs to be evaluated. In this regard, we also recommend that census pHOS standards should be more stringent for rivers and streams that do not have NMFS-approved early winter steelhead programs. If there

are defensible reasons for approving early winter steelhead programs in any of the five river basins that are the subject of the EIS, census pHOS of hatchery steelhead within these basins as recommended above must apply. But rivers that are free of such hatchery releases should not be subjected to straying that results in census pHOS comparable to that permitted in the rivers into which the hatchery steelhead are released and to which they are to return to subsidize fisheries; rather, they should be held to more stringent census pHOS standards in order to protect their defacto status as wild-only populations.

Climate change threats need to be addressed in substantial detail in order to adequately account for the cumulative impacts of early winter steelhead (and other) hatchery programs, in light of known anticipated increases in stream temperatures and changes in the timing and magnitude of seasonal flows, including increased frequency of reduced summer/fall low flows and attendant temperature increases (Wade et al. 2013). The threats posed by climate change to stream flows and water temperatures make evaluation of water consumption by hatchery facilities critical, and support our recommendation to evaluate and require water re-use/recirculation of hatchery facilities. In any case, a comprehensive evaluation of current water use by each hatchery facility and the impact of that use on ground and surface waters is required.

The EIS needs to acknowledge and quantitatively account for the continued loss of habitat that is continuing to threaten ESA-listed salmonids in Puget Sound (Judge 2011) and evaluate the relation of each of the Alternatives to this loss and to the risk posed to listed species. The EIS should explicitly discuss Roni et al (2010) and Roni & Lierman (2008) in the context of the lack of funding of monitoring of Salmon Recovery Funding

Board (SRFB) projects by the SRFB and the significance of this for evaluation of the Alternatives. The opportunity cost of funding the early winter steelhead hatchery programs instead of funding preservation, restoration, and monitoring actions in support of recovery should be analyzed.

7. References.

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. 2015. On the Science of Hatcheries: A report on the application of up-to-date science in the management of salmon and steelhead hatcheries 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.

Judge. 2011. 2011 Implementation Status Assessment Final Report. A Qualitative Assessment of Implementation of the Puget Sound Chinook Salmon Recovery Plan. A Report for NMFS. http://treatyrightsatrisk.org/wp-content/uploads/2012/11/implement-rpt.pdf

Liermann, Martin and Roni, Phil (2008) 'More Sites or More Years? Optimal Study Design for Monitoring Fish Response to Watershed Restoration', North American Journal of Fisheries Management, 28: 3, 935 – 943.

Roni, P., G. Pess, T. Beechie, and S. Morley. 2010. "Estimating Changes in Coho Salmon and Steelhead Abundance from Watershed Restoration: How Much Restoration Is Needed to Measurably Increase Smolt Production? North American Journal of Fisheries Management, 30: 1469-1484.

Wade, A.A., T. J. Beechie, E. Fleishman, N. J. Mantua, H. Wu,
J. S. Kimball, D. M. Stoms and J. A. Stanford. 2013. Steelhead vulnerability to climate change in the Pacific Northwest. Journal of Applied Ecology 50: 1093 – 1104.

Thank you for your consideration of these comments.

Very truly yours,

Kurt Beardslee
Executive Director,
Wild Fish Conservancy

August 13, 2015

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RE: Scoping Comments for Notice of Intent to Prepare an EIS – 5 Puget Sound Early Winter Steelhead Hatchery Programs

Dear Mr. Leider:

Please find my comments to Early Winter Steelhead Hatchery Programs – Proposed Evaluation & Draft Environmental Assessment as follows.

Sincerely,
Bill McMillan

Scoping Comments

It is encouraging to see that NOAA has adapted the plan to initiate an EIS process to fully evaluate five Puget Sound winter steelhead hatchery programs and their HGMPs (Dungeness, Kendall Creek of Nooksack, Whitehorse of NF Stillaguamish, Tokul of Snoqualmie, and Wallace and/or Reiter of the Skykomish rivers) regarding what part their operations have historically played in Puget Sound wild steelhead declines leading to their ESA listing in 2007, and what further risks these programs present to wild steelhead if continued. Presumably this will entail fully evaluating the effects that hatcheries have been found to have on wild salmonid populations, and particularly that related to the past and present operation of Puget Sound hatcheries and what part Chambers Creek origin hatchery steelhead (the stock being evaluated for use in these five hatchery programs) have played in the decline of Puget Sound steelhead and other areas of Washington. An ever growing body of science continues to grow about this that began in Washington 43 years ago with Loyd Royal's hatchery steelhead program evaluation in 1972. This large body of literature provides a guide to a more successful management future that can lead to wild Puget Sound steelhead recovery as the primary priority of NOAA Fisheries. Or then again it can be ignored with the continued present steelhead consequences. An important secondary priority is to evaluate how well Chambers Creek origin hatchery steelhead have fulfilled their intent of providing increased harvest

opportunity, and how that will likely play out into a future of climate change and challenging ocean and freshwater environmental conditions.

Need for the Proposed Action

NMFS listed three proposed needs to drive the prior EA process. The first two of those appeared to be in considerable conflict with each other:

- Ensure the proposed hatchery programs comply with requirements of the ESA
- Meet NMFS's tribal treaty rights trust and fiduciary responsibilities

Presumably the driving criteria of the ESA are to halt an animal's progression toward extinction and to provide recovery toward a less threatened level (in the case of a "threatened" listing). Yet, hatchery fish have been universally included in the four Hs that negatively affect wild salmon and steelhead populations. During the Boldt Decision process from 1974 onward a conservation driver was included that limited the 50/50 harvest allocation between tribal and non-tribal fishers to that of a salmon/steelhead return that is above spawning escapement needs. At that time it was not yet well established that hatchery fish may actually result in harm to the perpetuation of the anadromous fish returns, but in the Definitions section of the 1974 Boldt Decision Document it does describe the need to use the most recent facts and data available to guide anadromous fish production, including the potential for interspecific competition, and the need to sustain fish numbers at least at their **then current level based on the quality of the production environments and most recent facts and data** (Appendix A provides some of the basic 1974 Boldt Decision rulings and considerations – one quotation below):

"To preserve and maintain the resource: Upon a full consideration of (a) the history of State anadromous fish management, (b) the level of catch within the Western District of Washington in recent years, (c) the quality of freshwater and artificial production environments, (d) the most recent facts and data concerning anadromous fish production potential, (e) the potential for interspecific competition, and (f) the prospects for improvement of anadromous fish production, **to perpetuate the runs of anadromous fish at least at their current level**." (bold emphasis mine)

Presumably this number of fish to be maintained for both escapement needs and harvest was that of the 1960s to early 1970s when the Boldt case circumstances were being particularly considered based on current habitat capacity and broader environmental conditions. Although spawning escapements were not known at that time, harvest was. How well harvest has been provided by hatchery programs since then is particularly pertinent, and how hatcheries may lead to a diminishing capacity of habitat to produce steelhead. More importantly, from the standpoint of the ESA, Puget Sound steelhead have been listed as Threatened due to their great decline since the Boldt Case and science has increasingly identified the part that hatchery steelhead have played in loss of steelhead productivity (Chilcote et al. 2011; Christie et al. 2012; Seamons et al. 2012).

It should be explicitly stated in the forthcoming EIS that the driving criteria are the conservation needs to recover Puget Sound steelhead to a level that is above that of ESA listing. The Boldt Decision actually defines what this level of recovery should be: that level that existed at the time of the late 1960s to early 1970s. The obvious intent was to provide conservation guidelines that could sustain safe and equitable harvest opportunity that would not deplete steelhead and salmon from those levels in the period just prior to 1974. Creating an historical baseline back to that period of time is, therefore, part of the management necessity, and the most vital purpose to guide the evaluations of the Puget Sound steelhead hatchery programs; whether they have significantly contributed to the steelhead depletion since the Boldt Decision or not; and whether they are preventing their necessary recovery from which to provide some sustainable level of harvest opportunity.

Development of Alternatives

In development of this EIS, a primary need is a sufficient range of alternatives from which a choice can be made that will best assure that Puget Sound steelhead recovery can occur with eventual provision for some level of sustainable harvest. This has to include a **No Hatchery** option for each of the five hatchery programs being evaluated in Puget Sound. To ignore this important option is to disregard a great body of accumulated science findings the past 38 years regarding the negative consequences of hatchery steelhead on wild steelhead productivity, from Reisenbichler and McIntyre (1977) to Miller et al. (2014), and in other Pacific salmons (Neff et al. 2015); the court process that has already occurred in a settlement that largely denied Chambers Creek origin winter steelhead smolt releases into Puget Sound the past two years (except Skykomish River); and much public comment already received about this. Beyond this **No Hatchery** alternative, the other alternatives should provide a range of early return hatchery steelhead smolt numbers to be annually released at each of the five hatchery programs, none of which would be greater than those in more recent years for each program. This would appropriately reflect the part that hatchery operations have had in the ESA listing and resulting diminishment of Puget Sound steelhead and steelhead harvest.

Evidence from the First 10-Years of the Puget Sound Modern Hatchery Program

The detrimental part that hatchery steelhead have played in the diminishment of wild steelhead in Washington dates to when Washington Department of Game (WDG) commissioned Loyd Royal (1972) to evaluate the first ten years of the modern hatchery program. Regarding background, from 1949 to 1971 Royal was director of the International Pacific Salmon Fisheries Commission during the period when it achieved recovery of Fraser River salmon. He was Chief Biologist and Assistant Director of Washington Dept. of Fisheries prior to that from 1932 to 1948. He was highly qualified to make an independent analysis of the WDG steelhead hatchery program.

Royal's detailed report found that the increasing hatchery plants of Chambers Creek origin (early return) steelhead smolts from 1960 to 1970 had apparently resulted in a wild steelhead decline based on the limited data of the era, sport harvest. The increasing

hatchery smolt plants resulted in diminishing smolt-to-adult returns in the Green, Skagit, NF Stillaguamish, and Skykomish rivers (Table 1).

Table 1. Harvest/smolt data from Royal (1972) for four Puget Sound steelhead streams

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
River	**Year planted**	**Smolts planted**	**Catch 2-yr later**	**Smolt to adult**	**River**	**Year planted**	**Smolts planted**	**Catch 2-yr later**	**Smolt to adult**
Samish	1960	43 000	3 493	12.31	Elwha	1960	0	1 384	0
	1961	49 000	3 723	13.16		1961	0	700	0
	1962	42 000	3 538	11.87		1962	25 500	3 025	8.43
	1963	53 000	2 630	20.15		1963	0	1 298	0
	1964	56 000	4 121	13.58		1964	0	1 652	0
	1965	57 000	5 684	10.02		1965	24 000	1 405	17.10
	1966	53 000	4 492	11.80		1966	15 000	1 551	9.67
	1967	39 000	4 358	8.94		1967	15 000	2 590	5.80
	1968	43 151	2 479	17.41		1968	12 306	1 339	9.19
	1969	55 000	4 735	11.61		1969	20 000	3 269	6.10
	1970	63 000	5 409	11.65		1970	15 000	3 485	4.41

Figures 1-6 depict Royal's finding that steelhead sport harvest had little benefitted from increasing hatchery steelhead smolt plants compared to that provided predominantly by wild steelhead earlier as evident at the NF Stillaguamish, Skykomish, Skagit, and Green rivers. In the case of the other two Puget Sound rivers evaluated, he concluded that the Elwha did not show the same pattern due to the relatively small hatchery plants made and that in the case of both the Elwha and Samish that the proximity of the hatcheries to Puget Sound at these two rivers resulted in a somewhat better outcome. Nevertheless, harvest benefits were relatively small. These early assessments are entirely comparable to the subsequent history of diminished steelhead harvest that has resulted in Puget Sound streams. What Royal found in 1972 has resulted in the same continuing trends in the 43 years since as will be depicted in Figures 7-12.

Figure 1.

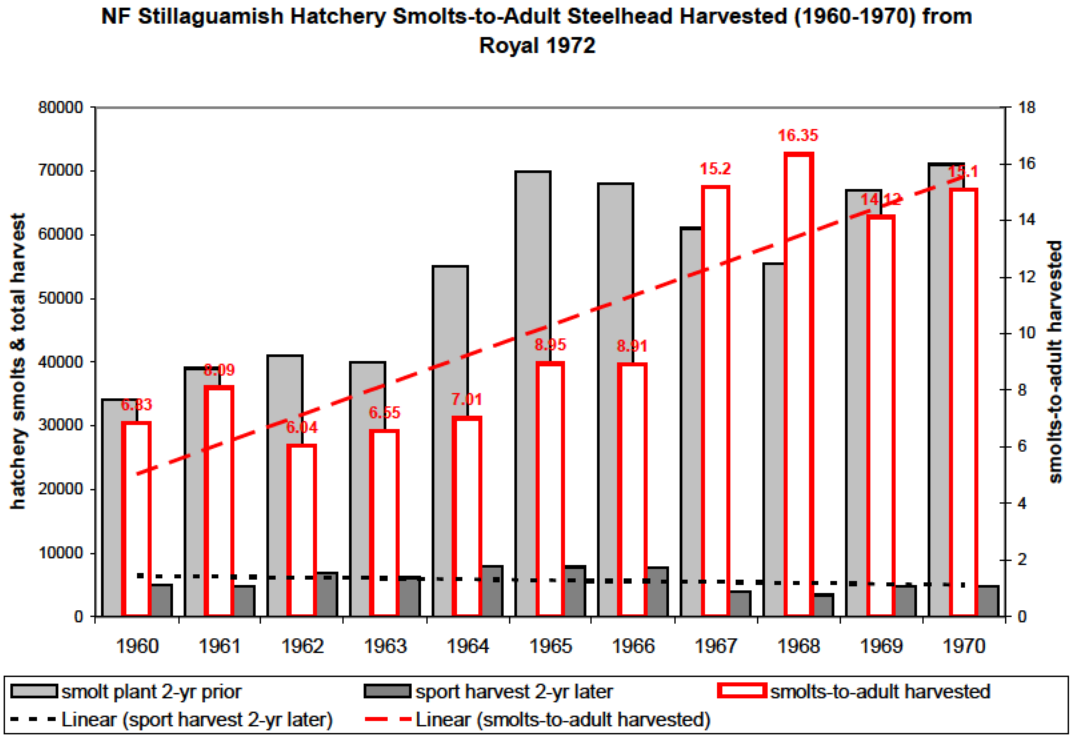


Figure 2.

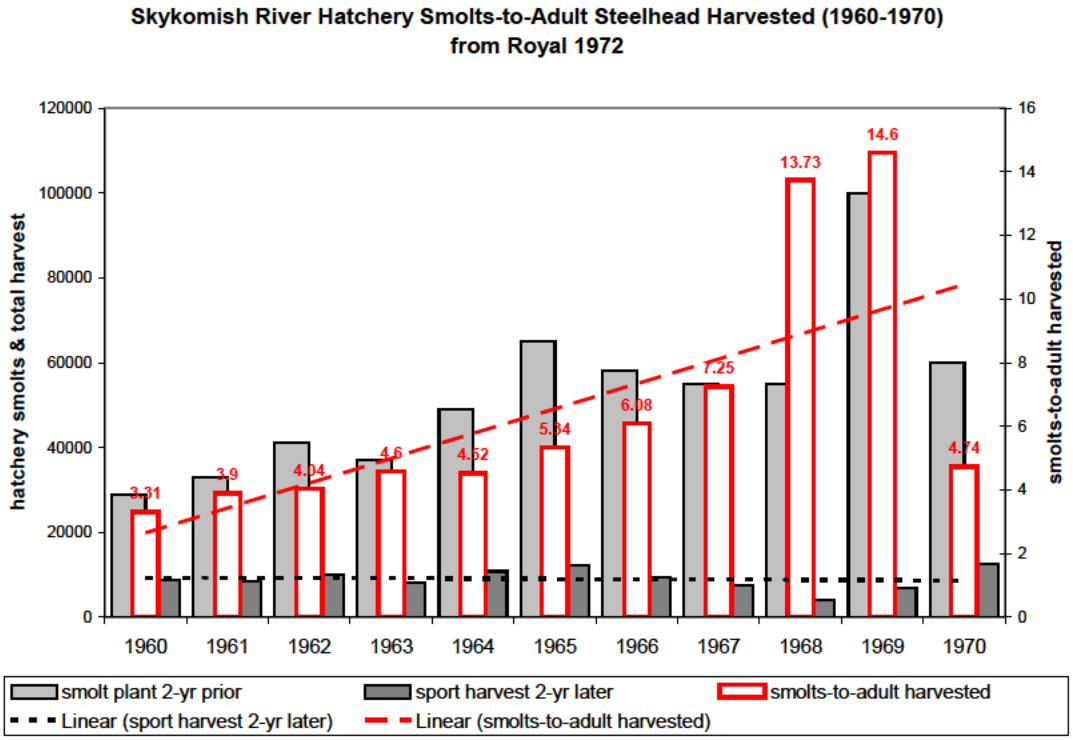


Figure 3.

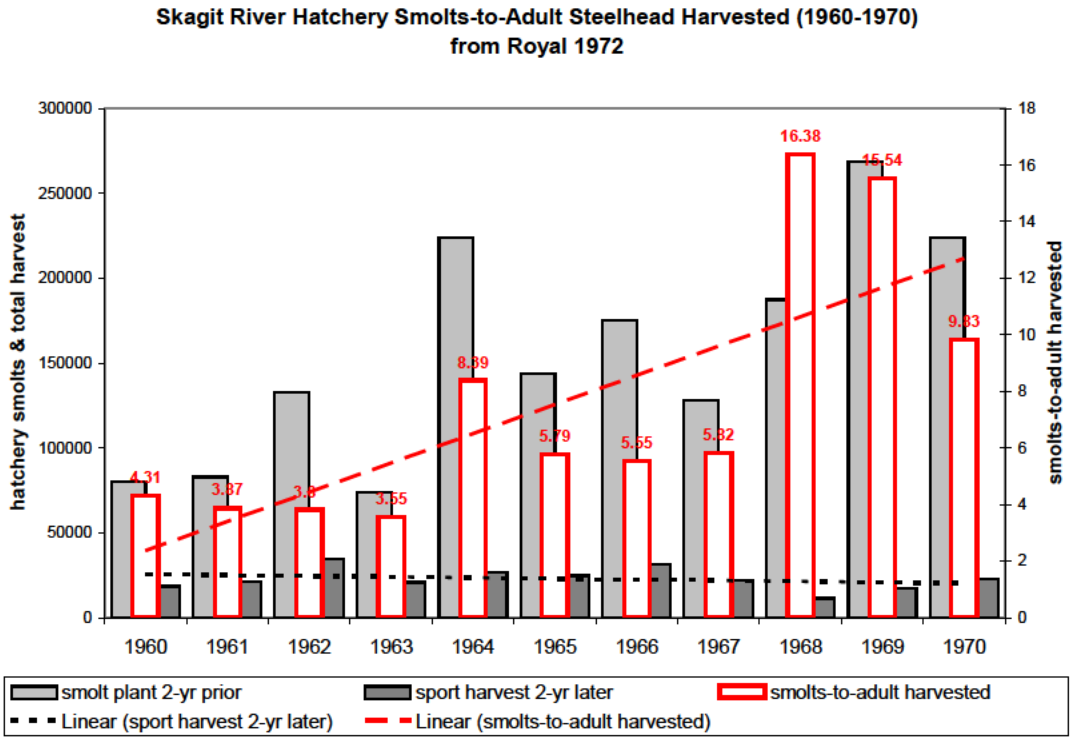


Figure 4.

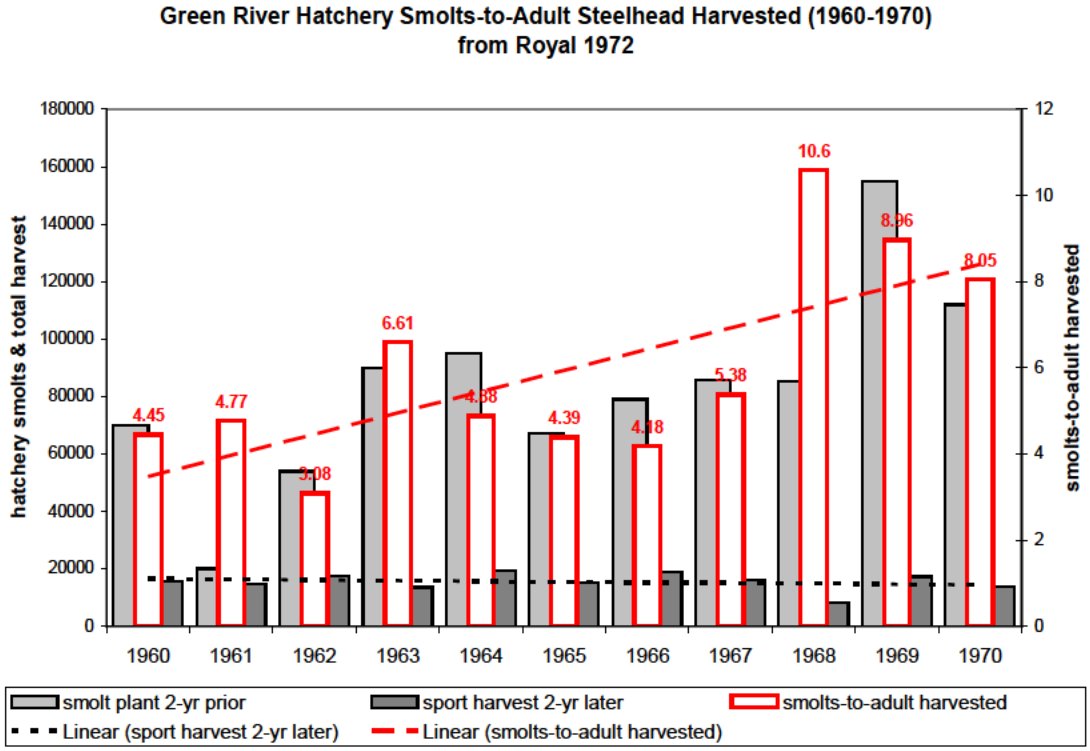


Figure 5.

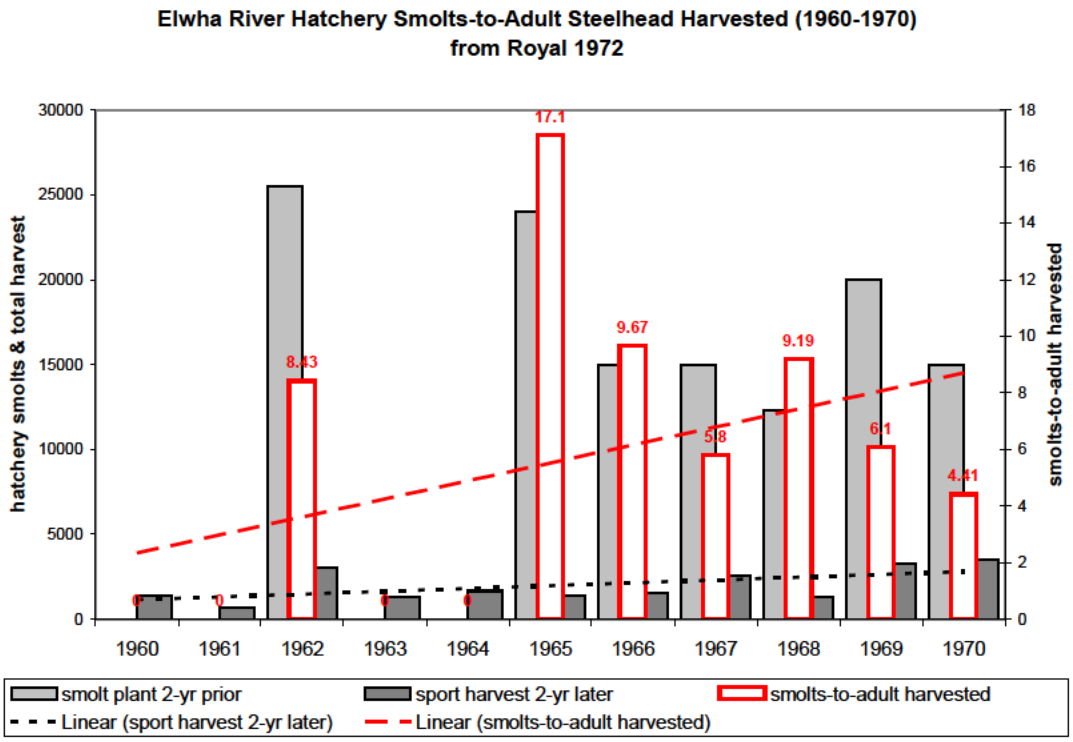
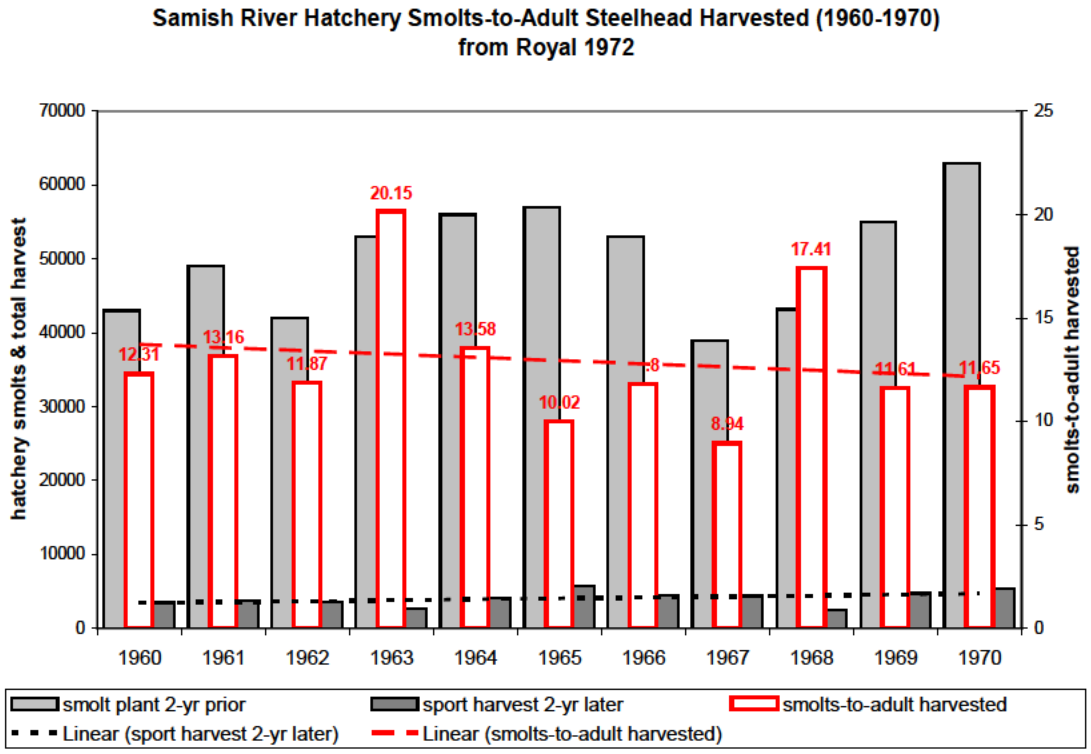


Figure 6.



The Harvest Record History of Chambers Creek Early Return Steelhead Plants

Whether hatchery steelhead have added to historical harvest formerly dominated by wild fish production prior to the modern hatchery steelhead program (dating to adult returns in 1962 as indicated by Royal 1972), or whether harvest has diminished with the advent of the modern hatchery program in Puget Sound streams over time, can be determined from records compiled by Washington Department of Game (WDG) in the aftermath of the Boldt Decision when combined with historic and more recent WDFW data since then (Taylor 1979; WDG 1948-1972; WDG 1948-1978); WDG 1956; WDG 1957; Scott and Gill 2006; WDFW 1995-2013 online sport catch reports; WDFW 2002-2013 online hatchery plants; and the 2014 Dungeness, Kendall Creek, Whitehorse, Tokul, and Wallace/Reiter Hatchery HGMP documents from WDFW). The earliest of these compiled data, provided to me by WDFW at my request in 2006, provided steelhead sport harvest, hatchery smolt plants and tribal steelhead harvest for the Boldt Case streams from the earliest record keeping available up to 1978. Sport harvest had been adjusted to reflect what it was considered to be as related to implementation of the Boldt Case rulings with a multiplier of 0.60 applied to reported sport harvest from 1962 onward, but left as originally determined to be correct for the period of 1948 to 1961. These are the data the Boldt Decision was based on.

Figures 7-12 provide the combined sport and tribal harvests of both wild and hatchery winter steelhead for the complete period of available historic records as compared to the winter steelhead hatchery smolt plants for the Dungeness, Nooksack, Stillaguamish, Snoqualmie, Skykomish, and the Snohomish basin as a whole. I had previously

Figure 7.

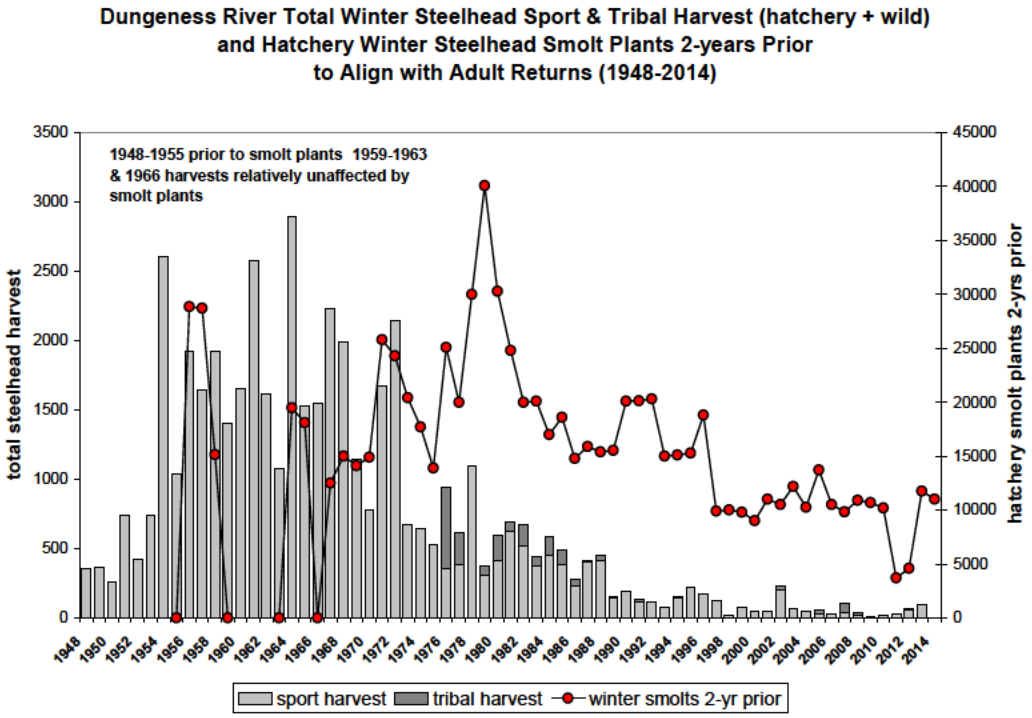


Figure 8.

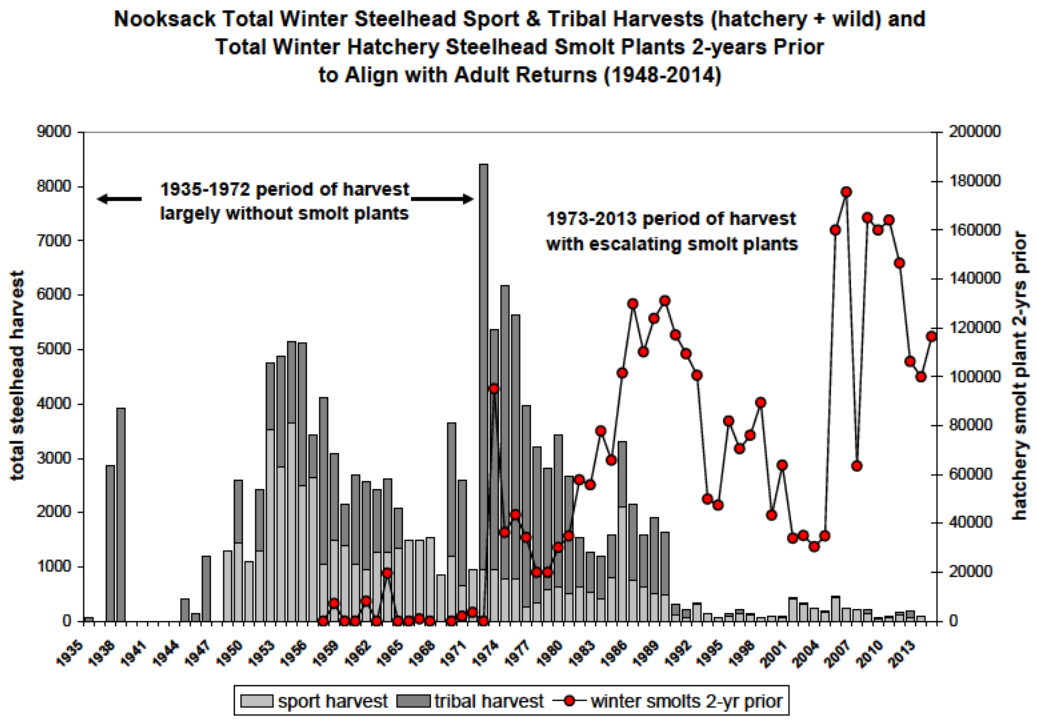


Figure 9.

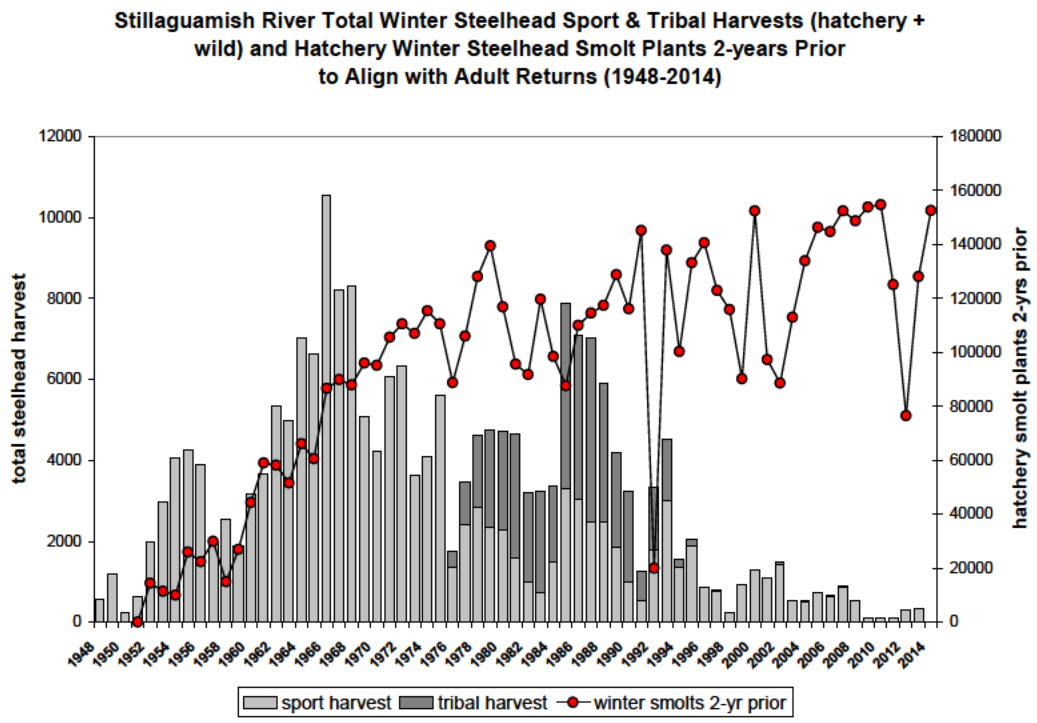


Figure 10.

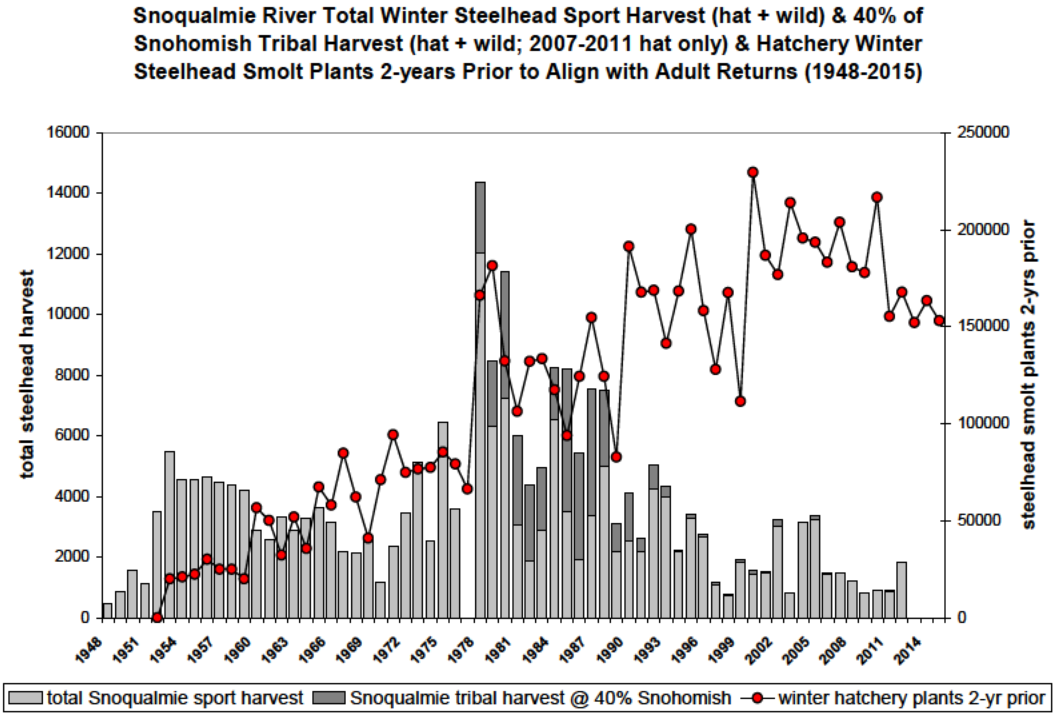


Figure 11.

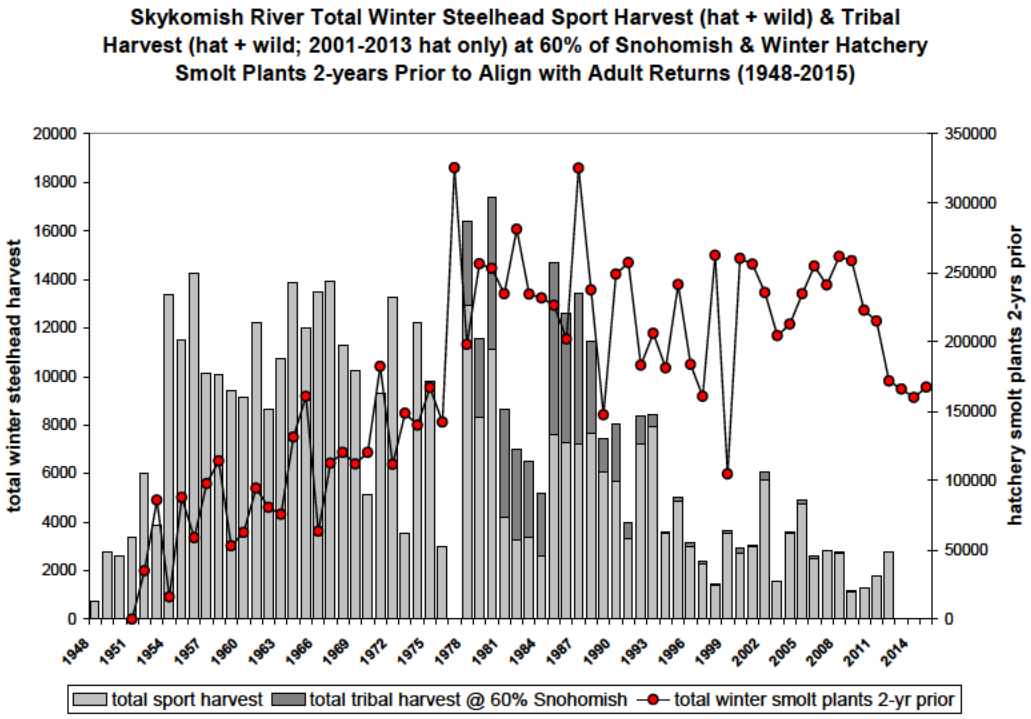
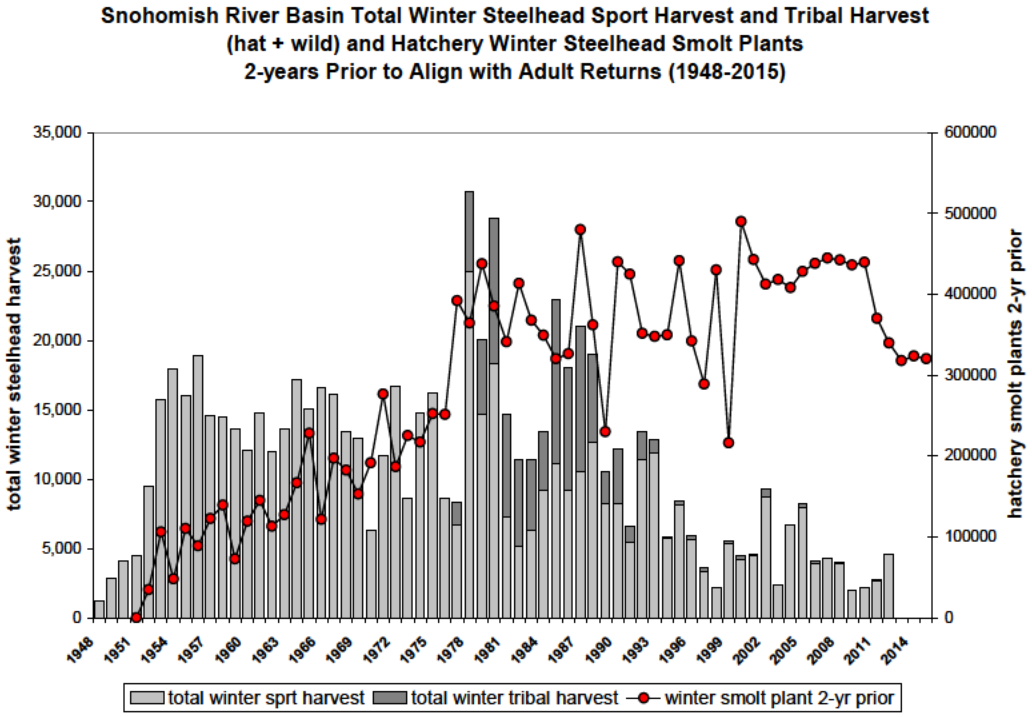


Figure 12.



evaluated and provided the first three as part of the comments to the prior Puget Sound hatchery steelhead EA. These three now differ slightly from those in the original comments. I had shifted the smolt plant alignment the wrong way to align with 2-salt adult returns. The corrections in smolt alignment have been made. In the cases of the Dungeness, Nooksack, and Stillaguamish it is clear that at the minimum, hatchery steelhead plants have not resulted in perpetuation of winter steelhead harvest as one of the basic criteria of the Boldt Decision's conservation and harvest management obligations, and in fact, steelhead harvest has collapsed coinciding with the modern winter steelhead hatchery history from 1962 returns onward largely replicating Royal's early findings. In the case of the Snohomish basin and its two main tributaries, greatly increased hatchery plants coinciding with initiation of tribal harvest data in 1977 resulted in about 10 years of elevated harvests that quickly led to sustained harvest decline thereafter. This is a somewhat different pattern than that of the other three with the hatchery results more delayed due to the timing of the era of the increased smolt plants.

The resulting pattern of hatchery steelhead bringing back increasingly less harvest reflects the history of Chambers Creek origin hatchery steelhead at their original Chambers Creek location at Chambers Creek and South Tacoma Hatcheries where this population went entirely extinct in 1997 (Appendix B). This continuous decline in productivity in what had been the oldest hatchery steelhead population in Washington, that dates to hatchery use since the 1920s (but data limited to 1953 onward), is evident in the graphs in Appendix B (Cooper and Johnson 1992) and eventual population extinction (Eltrich 2007). It is apparent that this highly domesticated stock of steelhead had lost

eventual ability to survive seaward migration and back again, let alone the ability to provide harvest (Chambers Creek closed to steelhead harvest). Given Figures 1-12, and the Chambers Creek example in Appendix B, it can only be concluded that steelhead management that continues to advocate use of Chambers Creek steelhead plants as a means to fulfill its long ago outdated promise of perpetuating steelhead harvest is irrational.

(Regarding the conveyance of this eventually lethal trait of Chambers Creek steelhead to that of the wild populations with which it cohabits in streams, it will be discussed later in these comments, along with the necessary high harvest rates required to try and minimize their escapement into the spawning grounds of wild steelhead and subsequent loss of the early-return life history of wild steelhead.)

Escapement data do not go back beyond 1985 for the Stillaguamish, only spottily available to 1987 for the Dungeness, and not beyond the very recent history of 2004 for the little-monitored Nooksack escapement limited to 5 years total of escapement data (Scott and Gill 2006; and the 2014 Dungeness, Kendall, and Whitehorse Hatchery HGMPs). Escapement data for the Snohomish basin are better, back to 1981, but still well after the Boldt Decision should have more quickly triggered this management essential.

In the case of the Nooksack, it is particularly clear that sport and tribal harvest have been in violation of the driving management criteria of the Boldt Decision from which harvest allocation was to be based on the conservation necessity of determining escapement. There is no evidence of what the escapement has been compared to the harvest, with no way to evaluate what has happened to the returns except via the harvest records. It is but little better for the Dungeness, and even at the Stillaguamish escapement data did not begin until over 10 years after the Boldt Decision (Scott and Gill 2006).

In the case of the Skagit River, where comparative data have been analyzed recently (Pflug et al. 2013; and McMillan 2012), the wild steelhead escapement trend has largely reflected the total harvest trend (McMillan 2012), as would have to be the case unless gross mismanagement had occurred prior to the Boldt Decision through great overharvest. From this it can be largely deduced that escapement trends, if available back to the late 1950s when most returning steelhead were wild, would largely track the historic harvest trends.

Smolt Plants Outweigh Adult Chambers Creek Steelhead Contribution to Harvest

In the examination of the five HGMPs for each of the hatchery programs to be assessed through an EIS, it became evident that the weight of the smolts being planted is greater than the contribution of their adult return to harvest (Table 2). To test this, the given weight of the smolts per pound was divided into the number of smolts planted at each hatchery to determine the total weight of smolts planted. Attempts were made through contacts by Jamie Glasgow of Wild Fish Conservancy to WDFW personnel to determine the average weight of adult Chambers Creek origin steelhead on return, but no response

was provided. Alternatively, from 1999 through 2014 I personally caught and measured 24 Chambers Creek origin hatchery fish (from Marblemount Hatchery) in the Skagit River. Meigs and Pautzke (1941) provide a curve for the lengths (in inches) to weights (in pounds) of steelhead from several hundred winter-run steelhead sampled at the Green River of Puget Sound at that time. I used this curve to convert the known lengths of the 24 Chambers Creek steelhead caught to pounds with resulting averages of 26.265 inches in length and 6.9 pounds in weight (see Appendix C). This assumes that the wild winter steelhead of a nearby Puget Sound stream in 1941 represent similar length and weight patterns as Chambers Creek origin hatchery steelhead. A subsequent average weight of 7 pounds was used to represent the weight of each Chambers Creek origin winter steelhead harvested. The average weight of the total number of hatchery steelhead smolts released from 2001 to 2011 has been from 2-12 times greater than the adult hatchery steelhead on their return for these five Puget Sound hatchery programs. Harvest, as a factor of weight, would more greatly benefit by killing and processing the smolts rather than await the substantial loss of their cumulative weight on the adult return.

Table 2. Average annual poundage of smolts released compared to average hatchery adult steelhead poundage harvested on their return at five 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 (5.5/lb)	226	1,582 lbs	4.2 x greater
Whitehorse (Stillaguamish R.)	134,750	22,458 lbs (6/lb)	584	4,088 lbs	12 x greater
Dungeness (Dungeness R.)	9,893	1,832 lbs (5.4/lb)	49	441 lbs	5.5 x greater
Tokul (Snoqualmie R)	178,907	33,756 lbs (5.3/lb)	1,702	11,914 lbs	2.8 x greater
Wallace & Reiter (Skykomish R)	213,851	33,414 lbs (6.4/lb)	2,870	20,090 lbs	1.7 x greater

Given the above considerations, a harvest alternative that would provide greater weight of Chambers Creek origin fish would be to harvest them in May as smolts rather than release. This would eliminate the impacts on wild steelhead that otherwise result from mixed stock fishery impacts with loss of early-return life histories, residualism, precocious parr, predator attraction, and eventual genetic consequences related to overlapping spawning times. Chambers Creek steelhead are well adapted to hatchery pond confinement but not to migration and return through the filter of the wild environment. This is far and away the best economic and biological use of Chambers Creek steelhead – that of providing enclosed aquaculture with minimal ecological impacts beyond effluent from the hatcheries with some resultant levels of pollutants and potential disease transmission.

An EIS should dig into this, along with the actual smolt-to-adult return ratios (SAR) that reflect the inability of Chambers Creek origin hatchery steelhead to effectively return, with a declining trend over time clearly indicated from the Chambers Creek steelhead

data at Chambers Creek from 1953 to 1991 (Appendix B, from Cooper and Johnson 1992).

Early Return (Chambers Creek origin) Hatchery Steelhead and Wild Steelhead: Return Time, Spawn Time, Genetic Risks, and Wild Population Size Risks

There has long been a fallacy in Washington that Chambers Creek origin steelhead with early run-timing and early-spawn-timing are isolated, or segregated from wild steelhead run-timing and spawn-timing. This has been disproven by several findings to determine this at the Kalama River of the Lower Columbia, and at Forks Creek in the Willapa Bay area. The Forks Creek work is the newest and was especially tailored to determine if early return hatchery steelhead are indeed isolated in return time and spawn time from the wild winter steelhead population there. It was found that there was substantial hatchery/wild hybridization and resulting loss of productivity in the hybrids that subsequently become part of a mixed population of naturally spawning steelhead that includes hatchery, hybrid, and wild spawners. This has been despite the use of a weir to further attempt to prevent these spawning interactions to occur as a backup to the assumed segregation of the hatchery steelhead from wild steelhead due to early-spawning selection of the hatchery component (Seamons et al. 2012; Jones 2014; Naish et al. 2013).

It is of interest to follow the findings of the Forks Creek studies over time. What came to be considered in 2003 (McLean et al. 2003) came to be the conclusion in 2012 (Seamons et al. 2012) and subsequently further by Naish et al. 2013 as can be understood from the following quotations:

From McLean et al. 2003:

In 1996, 90% of the hatchery steelhead had returned by March, but fewer than half of the wild adults had returned by this time; the majority of the wild adults returned in May. In 1997, the hatchery fish again returned early and wild fish returned late. In the next generation, the patterns changed slightly, and there were more late-returning hatchery-assigned fish (especially for the progeny of BY1997). The blending of return times between the two groups, especially for the progeny of 1997, is consistent with the possibility of interbreeding and hybridization.

Because of the number of shared alleles, overlap in allele frequencies, and low FST value between the two populations, it is not possible in this analysis to determine if the overlap in return timing of the parental generation resulted in any hybrid offspring between hatchery and wild fish. However, in addition to the altered return timing of the offspring generation relative to the timing of pure parental forms, there is indirect genetic evidence for some hybridization. There were many more offspring than parents with likelihood ratios close to zero (26 vs. 8%). The ratios are negative for the hatchery population and positive for the wild population, and so would be close to zero for hybrids. Hybridization has been documented among native and non-native or wild and hatchery populations in a number of species (McGinnity et al. 1997; Crozier 2000; Hansen 2002), and may be occurring in Forks Creek steelhead as well.

Although currently the question of hybridization remains unanswered, future analysis of specific parentage may enable us to determine the extent of interbreeding between the two groups, and the survival rates and reproductive success of their hybrids. With the poor reproductive success of the hatchery fish, hybridization between the two groups will likely have a negative effect on the wild population, and potentially decrease the reproductive success of the wild group. If the productivity of the hybrids is intermediate between that of the two groups, the wild population faces potential loss of unique locally adapted gene complexes, a severe reduction in abundance, or even extirpation unless the hatchery genotype is quickly culled from the population. The cessation of releases of hatchery fish after the first 2 years provides the wild population with the opportunity to resist introgression.

In conclusion, hatchery fish originating from a distant location and artificially selected for early return and spawn timing (and probably adapted to hatchery conditions) successfully reproduced in the wild. Although they produced offspring that survived to return to spawn themselves, the per-capita reproductive success of hatchery fish spawning in the wild was much less than that of the wild fish. The potential for hybridization between the two groups because of their overlap in timing may represent the most significant problem facing the wild steelhead population in Forks Creek. The hatchery group did not replace itself, and the survival rate and reproductive success of the hybrids are not yet known. Even with minimal differentiation at neutral loci, the difference in fitness between these two groups is significant.

Salmonid conservation depends on knowing the consequences of introductions and artificial propagation on native populations, and our project contributes to the emerging picture provided by similar studies...

The following Abstract from Seamons et al. 2012 describes the subsequent Forks Creek findings:

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.

However, some of the Results and Discussion are particularly revealing:

... Adult hatchery ancestry steelhead migrated early, with annual median migration dates between 27 December and 3 March and an overall median migration date of 12 January (Fig. 5). Migration timing of wild and unassigned ancestry adult steelhead was much later than hatchery ancestry fish ($F(2,216) = 47.56$, $P << 0.001$) with annual median migration dates between 23 March and 29 May and an overall median of 26 April. Median annual upstream migration dates for baseline hatchery adults were between 10 and 24 January. Despite the differences in medians, there was considerable overlap in migration dates among all groups. We could not calculate a median upstream migration date for baseline wild adults because they were all sampled as they exited Forks Creek after spawning.

... Despite the earlier spawn timing in the hatchery population, our data suggest that hatchery and wild steelhead interbred and produced 'hybrid' offspring. Interbreeding between hatchery and wild salmonids is not uncommon (e.g. Largiade´r and Scholl 1996; Hansen et al. 2000; Araki et al. 2007b), but in this case, intentional selection for early return and spawn timing and use of a weir were thought to segregate the hatchery fish from wild conspecifics. Using estimates of mixture and admixture proportions, we found that the wild proportion of the annual number of outmigrating smolt and returning adult steelhead declined by 10–20% between 1998 (the first year offspring of hatchery fish would be detectable) and 2009 (our last year of sampling), or within about three generations. Estimates of the true proportions of wild adult and smolt steelhead also declined over time because of a reciprocal increase in the proportion of hybrid individuals. Although it was assumed that the weir spanning Forks Creek at the hatchery prevented upstream migration of most if not all adult steelhead (Mclean et al. 2003, 2004), we discovered that marked (hatchery-produced) steelhead spawned in the wild every year (Dauer et al. 2009), likely bypassing the weir during the moderate to high stream flows that are common in winter and spring. Thus, data suggest that a continual input of hatchery-produced fish resulted in a proportional increase in hatchery/wild hybrid individuals and a related decline in proportions of wild ancestry in the naturally spawning population.

Unassigned fish tended to spawn later than expected and closer to the spawning season of wild fish. This skew toward wild migration timing of putative hybrids may have several causes. First, it may be a result of selection against early migration. The decrease in hatchery ancestry proportions with increasing stream discharge during hatchery spawning provided evidence that early spawn timing is maladaptive, and genetic adaptation can occur in few generations (Christie et al. 2011b). Second, late-returning hatchery fish, especially males, may stay for several months in fresh water until wild females arrive (Leider et al. 1984; Seamons et al. 2004) and therefore may mate with wild fish throughout the wild spawning season, thus producing offspring with relatively late return timing. Third, genotype by environment interactions may cause a skew despite additive genetic variation of a trait. Little is known about the genetic architecture of return timing in salmonids, so this question needs further research. Finally, the apparent skew may be an artifact of differences in sampling efficiency at the

weir during different stream flow regimes. With the exception of sampling artifacts, all these possible causes would lead to more substantial changes in migration timing of the naturally spawning population in the long run with concomitant negative fitness (Ford 2002). Although spawn timing may provide some reproductive isolation between fish of hatchery and wild descent (e.g. Hansen et al. 2006), a preponderance of hybrids spawning later and with larger temporal overlap with wild fish may accelerate the rate of introgression in the long term ...

Hatchery steelhead are intercepted and harvested downstream of the Forks Creek Hatchery, but harvest rates are clearly not sufficient to prevent large numbers of hatchery- produced fish from reaching spawning grounds (see also Dauer et al. 2009). Indeed, the number of hatchery produced adults returning to the Forks Creek Hatchery equaled or exceeded the total number of wild fish estimated to be spawning in the entire Willapa River during the most recent three return years. Hatchery rearing may have negative fitness consequences even when the stocks are locally derived (Araki et al. 2007b, 2009). Nonlocal populations, like the hatchery broodstock used at Forks Creek, often have lower reproductive success than native wild populations because of a lack of local adaptation (Kostow et al. 2003; reviewed in Berejikian and Ford 2004; Araki et al. 2007a, 2008; Chilcote et al. 2011; Fraser et al. 2011). Interbreeding between hatchery and wild stocks could have long-term fitness consequences. One obvious solution is to reduce or cease production and release of steelhead from the hatchery ...

The following quotation from Naish et al. 2013 further relates to the Forks Creek findings:

The major findings of this study are that despite increasing population sizes, the effective size of the hatchery population was relatively small and that the maintenance of small effective sizes had fitness consequences within a few generations. Our earlier study showed that the number of hatchery fish in the drainage is large compared with the wild population, and hybridization occurs between the two populations (Seamons et al. 2012). Therefore, it is possible that the effective size of the wild population will be reduced (Ryman & Laikre 1991), leading to inbreeding and inbreeding depression in weight, length and return date in the population as a whole.

Chambers Creek Hatchery Steelhead Straying to Wild Steelhead Spawning Areas

There is further evidence that the specified location of hatchery steelhead plants does not similarly determine their eventual destinations. This is due to the well identified mechanism of straying. It is a key factor of why a full EIS is the necessary means for examining the potential for hatchery impacts to wild ESA listed steelhead populations outside of the stream basin where the plants originated from. Although straying of hatchery steelhead was not well examined during the long-term wild steelhead studies at Snow Creek of northeastern Puget Sound, it was nevertheless partially documented in one published study as limited to the period of time of 1982-2000 (Seamons et al. 2007) and which was drawn from as part of the recent Skagit River steelhead study funded in

Figure 13.

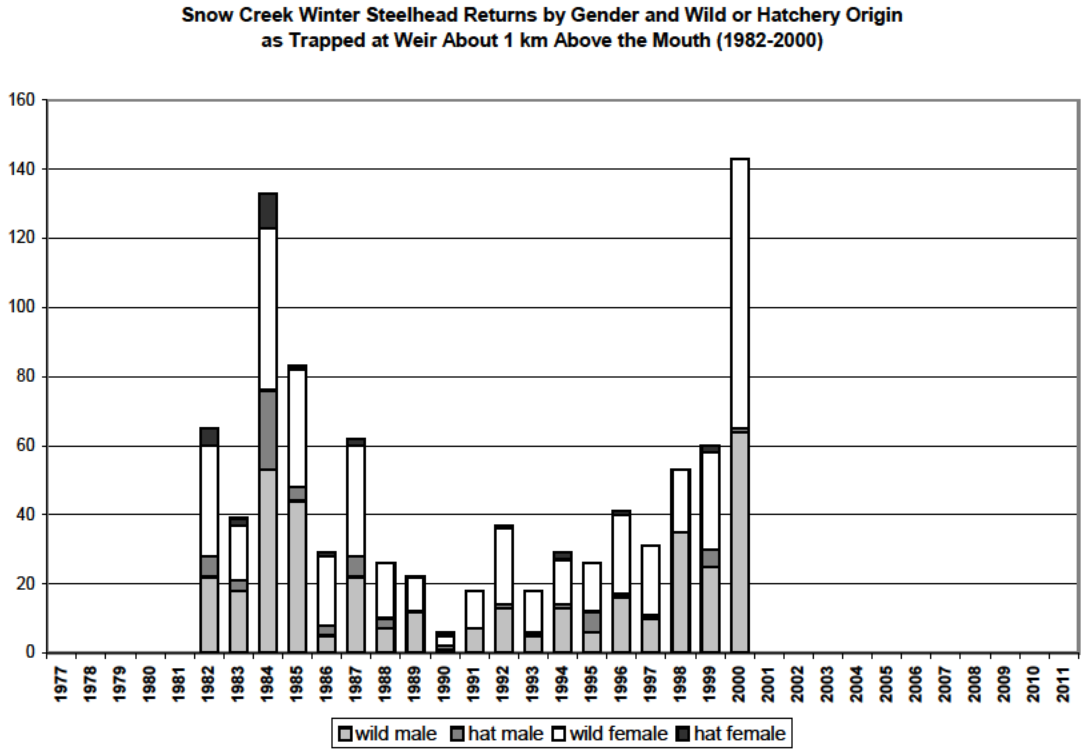
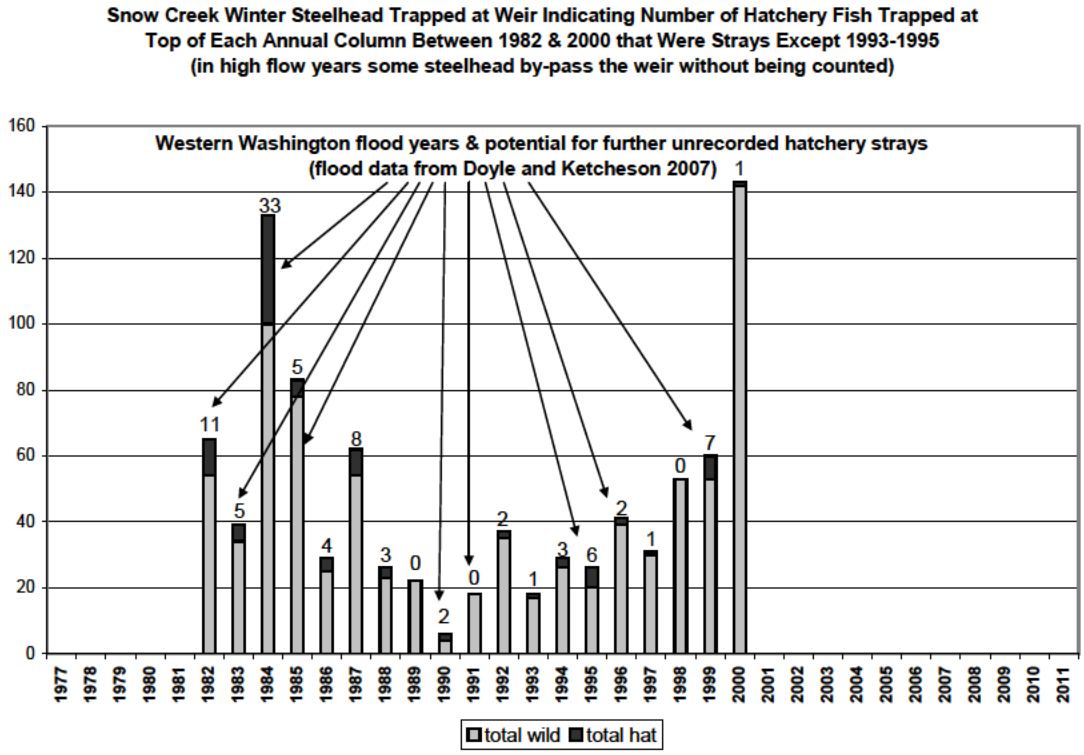


Figure 14.



part by NOAA (McMillan 2012).

From McMillan 2012, page 44 and Figures 13 and 14:

Although Snow Creek is useful as a stream that has had relatively little hatchery steelhead smolt stocking (hatchery winter-run steelhead smolts were stocked for three years as part of a hatchery steelhead smolt study in the early 1990s [Tipping et al. 1995]), it nevertheless has sometimes had significant hatchery steelhead strays return as documented at the weir (Figures 37 and 38; and Seamons et al. 2007). Other hatchery strays not documented likely pass upstream in particularly high flow periods when the weir does not operate efficiently and not all hatchery strays that were handled may have always been counted (pers. comm. Todd Seamons of WDFW February 2, 2012 and July 23, 2012). Hatchery straying beyond a weir meant to exclude hatchery steelhead passage at the Forks Creek on the southern Washington Coast often failed to do so despite efforts to eliminate hatchery steelhead straying upstream (Seamons et al. 2012). During 1990, a particularly low return year at Snow Creek, 50% of the returning males were hatchery origin (only 2 male steelhead total handled at the weir) and of the total return handled at the weir that year 33% were hatchery origin (only 6 steelhead total handled at the weir). Although hatchery fish are typically excluded when caught at the weir, some have shown evidence of having partially or fully spawned that could potentially have occurred either below or above the weir depending on flow events (pers. comm. Todd Seamons, July 23, 2012). Snow Creek is at the south end of Discovery Bay and relatively isolated from other steelhead streams and would seemingly provide a geographic location that would minimize hatchery straying into it. It therefore likely represents a best case example for lack of hatchery steelhead straying into it, yet it occurs – more so with males than females and some years 30% or more males. Other streams typically do not have weirs to exclude hatchery steelhead passage. In the case of Snow Creek with minimal steelhead planting history as a best case example, it can be anticipated that Puget Sound streams with histories of hundreds of thousands of annual hatchery steelhead smolt plants have subsequent hatchery straying to natural spawning grounds that are greater than documented at Snow Creek and which can be highly variable year to year but persistent over the entire time of hatchery stocking history.

Evidence of Within Basin Chambers Creek Origin Hatchery Steelhead Straying, Natural Spawning, Repeat Spawning, and Overlap Times with Wild Steelhead as Found in the Skagit Basin Acoustic Tracking Study

The following is from Pflug et al. 2013 (Saltonstall-Kennedy Grant Program Ecological, Genetic and Productivity Consequences of Interactions between Hatchery and Natural-Origin Steelhead of the Skagit Watershed**)** of which I was one of the contributing authors and quite familiar with both adult and juvenile collections, the acoustic tracking, and data analysis. The conclusion from this study was that hatchery steelhead plants had significantly contributed to the wild Skagit steelhead decline with the recommended discontinuation of the hatchery program and monitoring of the wild steelhead response.

Presumably the findings reflect much of the rest of Puget Sound and its similar hatchery steelhead history and subsequent wild steelhead declines.

From Section 7.0 Evidence of Hatchery Straying and Natural Spawning Within the Skagit Watershed from Adult Capture Data Sources

A primary objective of a segregated steelhead hatchery program is to prevent reproductive and ecological interactions between natural-origin and hatchery populations. For the Marblemount hatchery a key operating goal is for all hatchery steelhead adults to either return to the hatchery or be caught in a tribal or sport fishery. An important element of this study was to collect data capable of evaluating whether this goal is being met.

Ecological and genetic impacts resulting from hatchery steelhead spawning outside of the hatchery have been shown by other researchers to compromise overall productivity of natural origin populations (Christie et al. 2012, Kostow 2009, Seamons 2011). Christie and Seamons demonstrated that the progeny resulting from a natural-origin – hatchery cross have a greatly reduced level of reproductive success. This is an example of genetic introgression that leads to compromised survival of natural-origin steelhead. Another type of interaction that does not fall into the category of genetic introgression occurs when steelhead of hatchery-origin spawn with each other (hatchery x hatchery mating) outside of the hatchery. The resulting hatchery-origin progeny will occupy habitat causing possible ecological implications. The final level of genetic interaction considered results from hatchery-natural-origin hybrids returning as an adult to spawn with a natural-origin adult resulting in reduced reproductive success (Christy 2012).

While direct observations of Marblemount hatchery steelhead adults spawning outside of the hatchery is difficult and limited, other more indirect data were used to document whether some level of hatchery steelhead fail to return to the hatchery and attempt to reproduce within the Skagit basin. Between 2008 and 2012, angling and tribal fishery data were used to provide evidence of natural spawning by Marblemount hatchery adults. In addition, available data from angled steelhead were used to identify the spatial range, timing and general abundance of hatchery stray spawners. Angling data used for this evaluation included information on capture location, date, gender and whether each fish was unspawned or a kelt. Tribal fishery data provided information on hatchery kelt numbers and timing. Collectively these data were used to establish the presence, relative abundance and timing of natural spawning hatchery steelhead within the Skagit watershed.

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

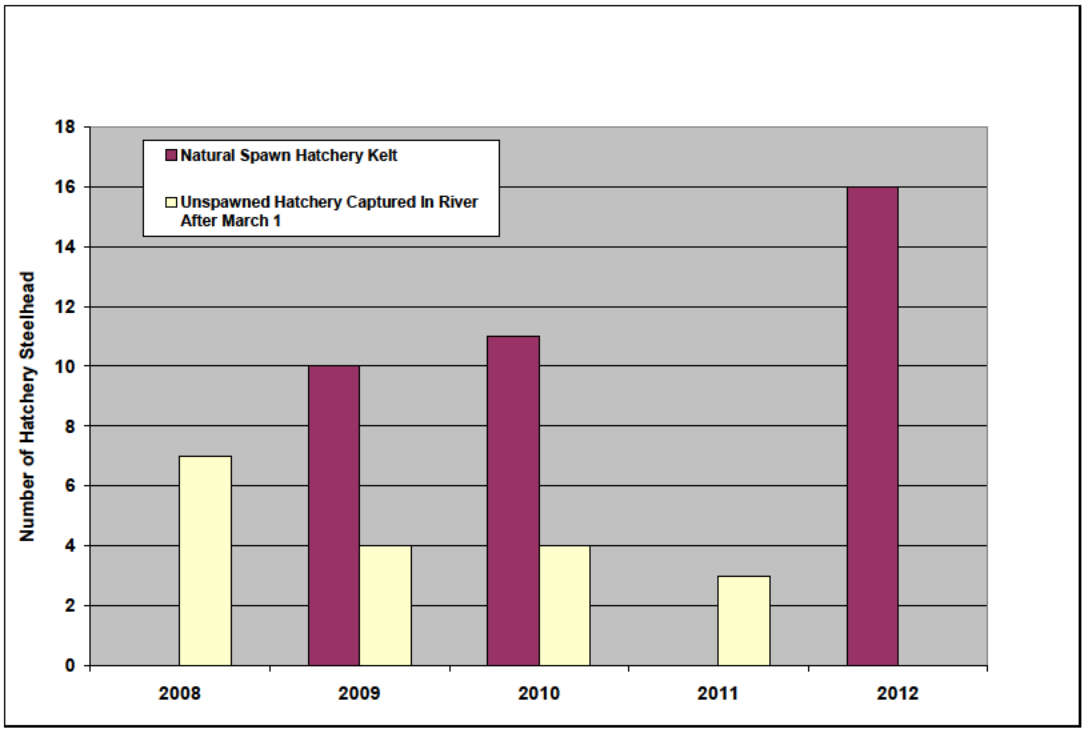


Figure 18. Hatchery steelhead kelts spawning outside the Marblemount hatchery and unspawned hatchery steelhead captured in-river after March 1 by year from 2008-2012.

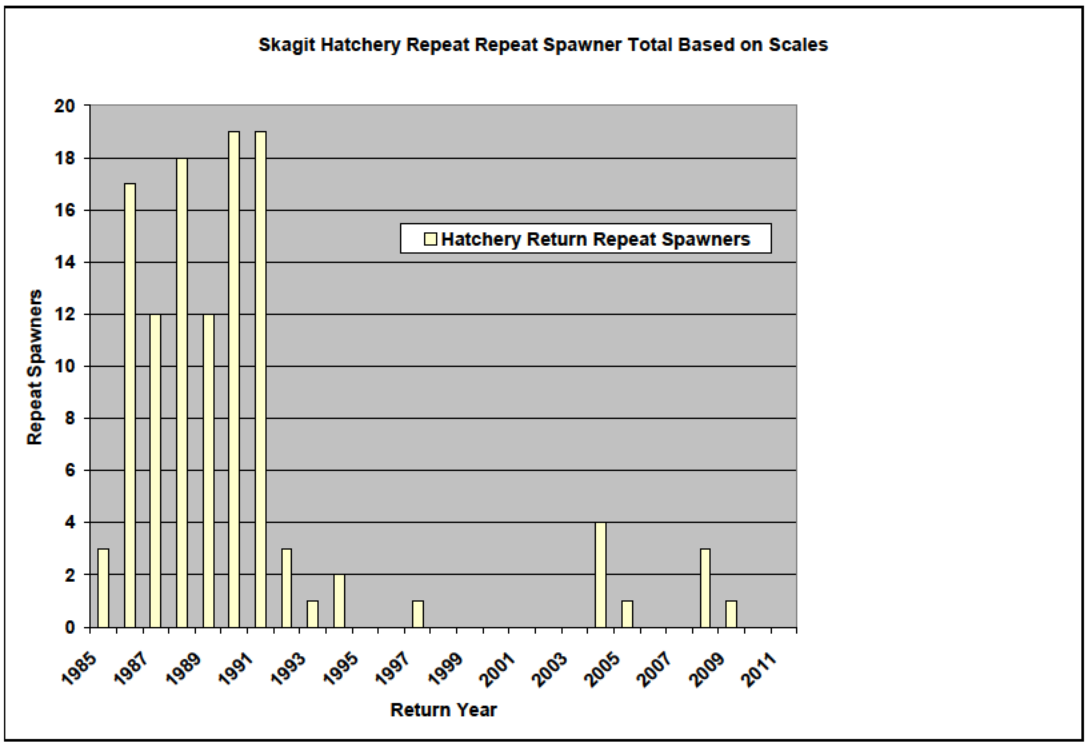


Figure 19. Hatchery Steelhead identified as repeat natural spawners based on scale patterns (Scale interpretation by WDFW).

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.

Genetic and ecological interactions between natural and hatchery-origin steelhead can only occur if hatchery adults become strays instead of returning to the hatchery or hatchery smolts choose the stream-type life history. For reproductive interactions to take place hatchery stray fish need to be present in natural spawning areas when natural are also present. Without this spawn-time overlap hybridization is not possible.

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.

Our results as well as findings from other researchers found that late returning hatchery origin 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.

Spawning Surveys and Evidence of Within-Basin Hatchery Straying

Lower Snohomish Basin Evidence

Wild Fish Conservancy (then Washington Trout) did extensive spawning surveys in the smaller tributaries of the Snoqualmie and Skykomish rivers to determine what level of

coho prespawning mortality may occur as funded by from the Environmental Protection Agency (EPA, Agreement ID: MM97061201-0). These surveys occurred from October through January of 2003-2004. At People's Creek of the Lower Snoqualmie five steelhead spawning acts were recorded in late December and January (Table 3). This included not only hatchery steelhead spawning with wild steelhead, as well as wild steelhead spawning together, but the more unusual sighting of a wild female steelhead accompanied by two wild male coho. Given the relative rarity of active steelhead spawning sightings in small stream environments as compared to coho these finding were noteworthy in their detail. Photographs were also taken at one of these active steelhead spawning redds. One of these photographs was provided to the NOAA TRT on field tour with them in the fall of 2008 as printed out for each member in a condensed version of a presentation provided by me at the 2008 West Coast Steelhead Management Conference held at Boise Idaho (McMillan 2008).

Table 3. Active steelhead spawning observed during 2003-2004 coho spawning surveys

Lower Snoqualmie R	Dec. 31, 2003	Jan. 20, 2004
Peoples Ck	1 wild female sthd/1 wild male sthd	1 wild female sthd/1 hatchery male sthd
Peoples Ck	1 wild female sthd/1 hatchery male sthd	1 wild female sthd/1 wild male sthd + 1 hatchery male sthd
Peoples Ck		1 wild female sthd/2 wild coho males

Mid Skagit Basin Evidence

Evidence of the more prevalent straying of Chambers Creek origin hatchery steelhead to wild steelhead spawning grounds is that of within-basin straying where the hatchery plants have occurred. WDFW long ago perpetuated a policy myth that Chambers Creek origin hatchery steelhead programs are isolated, or segregated from wild steelhead in both return time and spawning time. Myths can only be perpetuated by lack of harvest evaluation in the case of steelhead run-timing, and in the case of spawn timing it depends on limiting spawning surveys to the time period that begins with the selected mythology.

A basic Skagit River steelhead management assumption by Washington Department of Fish and Wildlife (WDFW) has been (WDFW 2004):

Page 118: "*Wild origin winter steelhead have been defined as those fish that spawn after March 15...* (and) *steelhead of hatchery origin that spawn in the wild are defined as those fish spawning before March 15, for management purposes on the Skagit (Woodin et al. 1984).*"

As a result, WDFW steelhead spawning surveys in the Skagit basin have commonly been initiated about March 15th in the assumption that wild steelhead do not spawn prior to that date. In the Skagit basin it was indicated in the same WDFW document:

Page 141: *"... introgression between hatchery and wild fish ... is believed to be low as there is currently substantial temporal separation of hatchery and wild spawn timings, and spawning overlap is believed to be less than 1% (C. Kraemer, WDFW, pers. comm., 12/12/03)."*

Page 142: *"The section of the Skagit River that has been the most heavily spawned by hatchery-origin adults is the area upstream of Grandy Creek between the Cascade and the Sauk rivers..."*

However, the above management assumptions have been largely made with an absence of spawning surveys that could actually document how much hatchery and wild spawning occurs in the Skagit basin prior to March 15th, and where it occurs. Oregon has developed a more thorough ground-truthed approach for monitoring steelhead of its Coastal streams (from Susac and Jacobs 1999):

Page 2: *"The percentage of hatchery origin steelhead spawning naturally in the wild poses a great deal of concern to fisheries managers. The Oregon Wild Fish Management Policy (OAR 635-07-525) sets guidelines as to the percentage of stray hatchery fish permitted to spawn naturally in individual basins and subbasins. It is important for fisheries managers to know the percentage of hatchery strays spawning naturally in the wild. Currently, all of the hatchery origin steelhead released in Oregon and destined to return as adults in 1998 are marked with an adipose fin-clip. We have started to evaluate the feasibility of using visual detection of marked and unmarked adults on the spawning beds to determine hatchery:wild ratios."*

Page 2: *" ... 1) steelhead spend only a short time on spawning beds, 2) fish not actively spawning are elusive, and 3) hard to count and steelhead do not necessarily die after spawning. In addition to difficulties associated with their behavior in spawning streams, the extensive temporal and spatial spawning patterns exhibited by coastal winter steelhead stocks create challenging survey conditions. The spawning season is generally quite protracted, lasting up to 6 months..."*

As a result there are no assumptions about hatchery and wild steelhead spawning that exclude any part of the potential spawning season as monitored in spawning surveys in Oregon:

Page 10: *"Surveys were conducted from mid January to mid May.*

WDFW's isolated/segregated hatchery steelhead mythology ignores the small stream origin of Chambers Creek hatchery steelhead, and that it may, in fact, still represent significant overlapping characteristics such as return and spawning times that belie the figure by Scott and Gill 2008 as shown in the EA in section 3.3.1 (page 28) in its admittedly "schematic" portrayal of minimal opportunity for Chambers Creek origin steelhead to overlap with wild steelhead spawning. It is indeed schematic in that it is not based on any actual spawning surveys in Western Washington streams that have occurred in the period prior to about mid-March that could document what actual hatchery/wild spawning interactions do occur. It further does not represent the outcome at Forks Creek in the steelhead studies there.

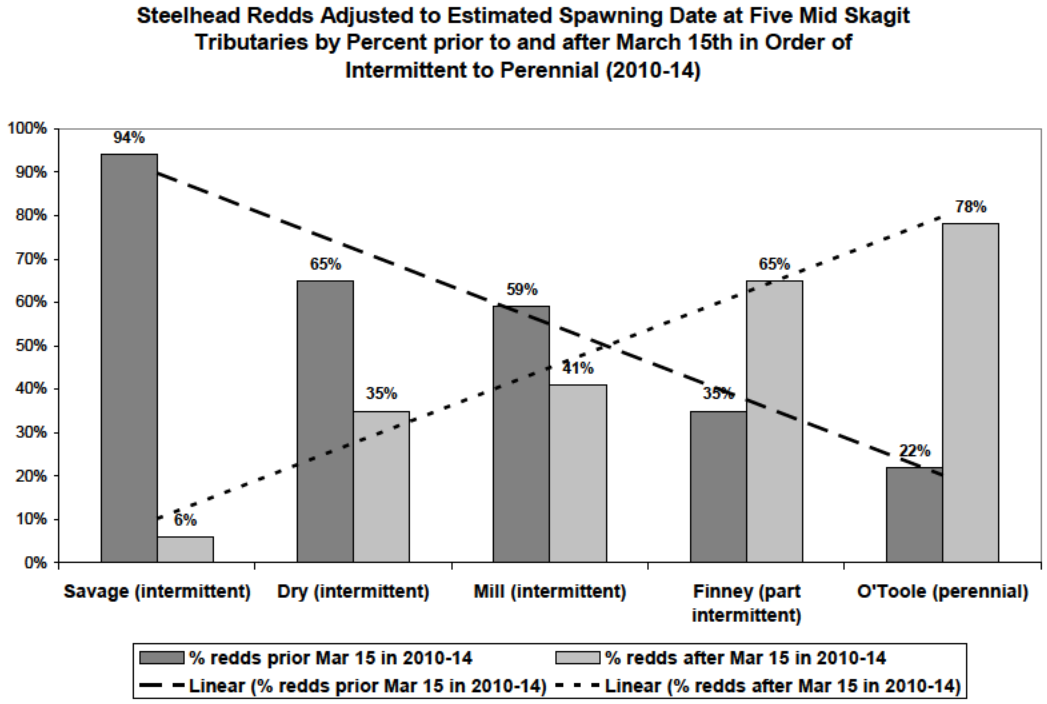
On becoming a resident of the Mid Skagit basin in 1998, it became of increasing interest what salmonid spawning was occurring at a number of local tributary streams. With a history of doing volunteer spawning surveys as a hobby biologist from 1979 to 1996 on Lower Columbia River streams, and professionally from 1997 to 1998 in the Snohomish basin and from 2000 to 2006 in the urban creeks of King County (the results of which first documented the actual level of coho prespawning mortality in Seattle/Bellevue urban creeks after WDFW surveys failed to do so and subsequently led to collaborative and confirming studies by NOAA), the Mid Skagit tributary streams provided nearby interest due to differences in their hydrologic regimes, stream channel characteristics, and directional aspects to the sun. On retirement at the end of 2006 as a professional field biologist for a non-profit fish conservation organization, I had time to consider surveying streams again in the freedom of volunteerism as a hobby biologist – or what some consider today as citizen science.

A recent report on the five years of my independent spawning surveys at five tributary creeks of the Mid Skagit River basin was done for the specific purpose of filling in this gap in actual field work that has occurred to determine what the level of hatchery and wild steelhead spawning is prior to mid-March (McMillan 2015a; and 2015b). This report was reviewed by George Pess of NOAA's Northwest Fishery Science Center with his suggestions included as far as the review went in the time frame he had to do so, but included the Introduction, Methods, and Results sections as the heart of the matter in the full draft report, and a review of the entire Summary that included some of the Discussion considerations. The findings in brief were as follows:

- 104 steelhead redds were found in the 5 year surveys
- Earliest redd was January 16th; latest redd June 6th
- 49% of the redds as found were prior to March 15th
- 53% of the redds were prior to March 15th if adjusted to spawn date
- 7 active redds with 18 spawning participants were observed
- 40% of the steelhead spawning mix observed was hatchery
- 60% of the steelhead spawning mix observed was wild
- 33% of spawning mix was hatchery if wild resident *O.mykiss* included
- 67% of the steelhead spawning mix was hatchery prior to March 15th
- 50% of spawning mix was hatchery prior to March 15th if wild resident *O.mykiss* included
- Although no hatchery steelhead were observed after March 15th, 20% of the steelhead could not be identified after that date
- Hatchery steelhead were found to the maximum upstream anadromous extent of even the smallest tributaries.

Importantly, the spawning time of steelhead in the tributaries surveyed varied by specific tributary characteristics (Figure 15). This was particularly related to whether a tributary was intermittent (mostly early spawning), perennial (mostly late spawning), or mostly perennial except some important side channels (mostly late spawning but more early spawning than a totally perennial stream).

Figure 15.



The primary reason for early spawning in intermittent streams became abundantly clear as a result of photographs sequencing the rapid progress of intermittent streams sections going dry between late June and early July: late spawning would result in high to complete mortality of eggs and alevins that did not have time to reach free swimming fry stage by late June with outmigration to perennial flows of larger perennial waters downstream. Despite this seeming limitation, the one Skagit tributary with the highest steelhead redds per kilometer was that of the smallest stream that went dry the earliest, an otherwise unnamed tributary named for purposes of identification in the surveys as Dry Creek. This seeming contradiction was long ago described by Fred Everest (1973) in which he found that the Rogue River was entirely dependent on small, intermittent tributary creeks for its high steelhead productivity, but that it required early spawning and early emergence as the steelhead adaptation necessary for this to occur. The fact is that intermittent tributaries occur in virtually every Washington stream basin and is not a phenomenon limited to Oregon or California, and which can be anticipated to become more common as a result of climate change and habitat uses that include agriculture and industrialized forestry practices in Puget Sound river basins, including the five evaluated for this EIS. The Mid Skagit tributaries surveyed have characteristics that equally occur in the Stillaguamish, Nooksack, Dungeness, and Snohomish/Skykomish/Snoqualmie river basins.

An evaluation since then, as done in the continuing surveys of these tributaries in 2015, has included more detailed water temperature data taken. It has revealed that the streams with warmest mean temperature also correlate with earlier spawning and colder temperature with later spawning. The combination of intermittent/perennial flows and mean water temperatures are likely the two best determinants of steelhead spawning time

in tributary creeks. To ignore this is to ignore the spawning ecology of steelhead in the wild and how hatchery interactions and hatchery harvest management fit together to make tributary streams more or less productive for wild steelhead.

Some conclusions drawn from this (and which would apply to every river basin in Puget Sound) have been:

- Early steelhead spawning is especially necessary in creeks that go intermittent in June and can cumulatively dominate the steelhead productivity of large river basins as found at Rogue River
- Every river basin has tributary creeks that are intermittent and intermittency can be anticipated to more frequently occur with northward expansion if climate trends continue as predicted
- Of the 5 Mid Skagit tributaries regularly surveyed, 3 are intermittent and 1 partly so.

Ultimate Importance of Tributary Creek Spawning

For historic comparison, three of the five Mid Skagit tributaries regularly surveyed in 2014 were also surveyed in 1978-1981. The steelhead redds/km found in 2014 were 35%-78% of that in the earlier time period (Table 4). Mid Skagit tributaries are now apparently much less productive for wild steelhead than was the case about 35 years ago. This may not necessarily be explained by habitat loss and/or ocean conditions alone. It may be at least as significantly related to loss of steelhead life histories (such as early run-timing and/or early spawning) that can no longer fill formerly

Table 4. Steelhead redds/km in three Mid Skagit tributaries in 1978-1981 compared to 2014

Stream	redds/km 1978-1981	redds/km 2014	present % of former spawning
Finney Ck	11.9	5.7	48%
Mill Ck	5.0-6.8	2.4	35-48%
O'Toole Ck	10.3-22.2	8.0	36-78%

Table 5. Skagit basin wild steelhead spawning escapements 1978-1981 and 2014

Year	Wild steelhead escapement	Reference
1978	7294	Phillips et al. 1981b
1979	3943	Phillips et al. 1981b
1980	6009	Phillips et al. 1981b
1981	5435	Phillips et al. 1981b
2014	over 9000, as preliminary estimate still to be finalized	per. comm. Brett Barkdull, WDFW, Nov. 6, 2014

productive and widespread habitat that is increasingly left depleted or vacated. At that earlier time, the smaller tributaries were found to support 65-80% of all steelhead

spawning in the Skagit basin despite an average escapement estimate of 5,700 wild steelhead, over 63% less than the preliminary escapement estimate of over 9,000 in 2014 (Table 5). If tributaries were at former productivity levels, presumably the 2014 wild steelhead return would have been greater than it was. Identifying and resolving the present limitations for tributary steelhead productivity in the Skagit basin may lead to considerable wild steelhead recovery progress.

The 67% of hatchery steelhead found spawning in Mid Skagit tributaries prior to March 15th was of particular concern that would be anticipated to be most problematic for wild *O. mykiss* populations (that include both anadromous and resident life histories) at tributaries typified by warmer winter flows and/or intermittent hydrology. Four of the five tributaries regularly surveyed had these characteristics. Regarding future genetic studies that may occur, it will be important to recognize the early period of time when steelhead spawning can occur in Skagit basin tributary streams with subsequent early fry emergence. To indicatively represent the hatchery signal, sampling should occur that includes the earliest fry stage prior to significant depletion through natural selection from early May to mid June. After that time increasingly high depletion of hatchery and hybrid fry whose life histories may well exclude effective movements from intermittent streams or stream sections would be anticipated. In general, hatchery heritage would be anticipated to result in increased fry/parr loss over time due to greater vulnerability to predation, or due to other factors that commonly limit hatchery related characteristics to survive as well as wild. The least effective time to find a hatchery genetic signal would be anticipated in juvenile sampling occurring from July onward, and least of all from returning adult steelhead.

Unfortunately, steelhead collections on which genetic analysis has typically been done in Puget Sound streams has been in July to September, if done at the fry level at all, and at smolt or adult life history stages. The older fry, parr, smolt, and adult life histories typically sampled have occurred long after natural selection has culled out many steelhead with some level of hatchery origin due to their reduced survival levels compared to wild steelhead. As a result, purely wild origin steelhead would increasingly dominate with increasing age after emergence and hatchery origin steelhead increasingly diminish. These are all discussions that need to occur regarding the continual references in the EA to the Ken Warheit (WDFW geneticist) genetics report. There have been numerous Warheit drafts over the past two years with resulting alterations each time, and in the case of the Skagit River his later reports increasingly eliminated the juvenile steelhead collections that were made in their earlier life histories. Even using the fry samples taken, the fry collections made in the Skagit basin were in August rather than including samples in the period of May to mid-June when the hatchery genetic signal would presumably be strongest. This is likely the similar case in all of the Puget Sound basins included in the Warheit genetics report (no matter which draft). This is remembering that his earlier report in Pflug et al. 2013, that included juvenile samplings, had found significantly greater hatchery introgression than his later drafts, but none of which has been peer reviewed. The Todd Kassler (also WDFW geneticist) genetic determinations in the same Pflug et al. 2013 report also found considerable hatchery introgression using both juvenile and adult samples taken.

Of obvious concern, given the actual field evidence from spawning surveys in the Skagit basin tributaries that include the time period of January to mid-March, hatchery/wild spawning interactions were clearly observed and documented. The evidence also indicates this has not been a token occurrence, with large overlaps in hatchery and wild steelhead spawning times as found in these tributaries that once supported 65-80% of all spawning in the basin but no longer do. Why has the Warheit (2014) report that is continually referred to in the Puget Sound hatchery steelhead HGMPs been unable to detect hatchery/wild spawning interactions that are occurring? This is the obvious question. One reason could be that the lack of Chambers Creek origin survival in the wild is so complete that even at the hybridized level it is lethal. If so, that is not encouraging as it has been passing on this lethal trait with each year's return of hatchery steelhead to the wild population it has bred with and resulting diminishment of the genetic material of the wild steelhead that have been bred with. Another reason could be that the Chambers Creek genetic limitations last somewhat longer but disappear prior to typical August collection periods of fry, and even less evident by time of smolt and adult life histories. The Warheit (2014) report is limited to DNA analysis of adult steelhead in the case of the Skagit and some of the other basins. (This is despite the fact that juvenile steelhead were sampled in the Skagit basin and which should have been included in the analysis.) The third reason is due to either lack of sufficient genetic analytical skills to distinguish the hatchery signal (seems unlikely), or due to choice of a methodology that is inadequate to the job at hand (more likely).

For whatever reason there is a great disconnect between field evidence and that of a laboratory genetics technician who has little or no field experience to draw from other than what is provided to him in the way of samples. Just this winter of 2015, WDFW did do at least some steelhead spawning surveys at one of the tributary creeks where early spawning had been documented in the Mid Skagit O.mykiss Reproductive Ecology reports somewhat earlier in 2015. This included the field observation by the WDFW survey crew of hatchery/wild interactions in the Mid Skagit basin on January 28 and 29 after I found their ribbons marking the redds (pers. comm. Andrew Fowler of WDFW).

Furthermore, apparently the Upper Skagit tribe also initiated early steelhead spawning surveys at Nookachamps Creek of the Lower Skagit basin in February of 2015 (pers. comm. Dave Pflug of Seattle City Light) with subsequent GPS recordings of redd locations by WDFW (pers. comm. Brett Barkdull of WDFW). Over 100 presumed steelhead redds were apparently found in the month of February and by end of March over 200 total steelhead redds were counted in what is otherwise considered a highly degraded stream system that had received little or no steelhead spawning survey attention in recent history. There was no attempt to determine hatchery from wild, but there was an obvious significant overlap in overall steelhead spawning time at Nookachamps Creek with Chambers Creek steelhead.

As field work increasingly monitors what the actual breadth of wild steelhead spawning time is in Puget Sound mainstem tributary creeks, or otherwise small independent streams, the long perpetrated isolation/segregation myth that Chambers Creek hatchery

steelhead spawn times and return times have insignificant overlap will be refuted, but which still continues to be used in the Puget Sound steelhead hatchery HGMPs. This is the sort of evidence and discussion that need to occur in development of the EIS. The NOAA TRT has recently acknowledged the 2010-2014 Mid Skagit tributary findings of early steelhead spawning that included both hatchery and wild (Meyers et al. 2015).

Historic Evidence of Skagit River Tributary Within-Basin Genetic Differences

In 1981 a Steelhead Progress Report came out as a mutual project between WDFW and the U.S. Fish and Wildlife Service (USFWS) that included a one year sampling in 1979 of 57 areas of the Skagit basin for age 0+ steelhead for electrophoretic analysis that was done at the time (Phillips et al. 1981a). It was found:

Gene frequency differences between individual tributary samples contributed the greatest variability of all sample comparisons ... The greatest significant difference ($P < .0001$) in frequencies occurred in comparisons between tributaries.

This report has proven difficult to find anywhere, but was available at the Washington State Library. Unfortunately, key portions of the original paper were left out in the few copies of the report that were eventually distributed. Nevertheless, it was clear that at that time there was significant within-basin genetic differences found in the tributary creeks. Although the study design had been for three years, it was terminated after only one year, but it remains that even today juvenile steelhead collections from which genetic determinations are being made are commonly limited to one year. The 1979 collection sites in the Skagit basin are clearly indicated in the 1981 report and there remains the opportunity to replicate collections there today from which valuable comparisons can be made to the 1979 findings.

From the more recent tributary surveys of 2010-2014 in the Mid Skagit basin, there are differences in hydrologies at each stream that could well result in necessary genetic adaptations to each in spawning, emergence, and juvenile migration strategies. However, it is also clear that Chambers Creek origin steelhead have been spawning in these tributaries in overlapping time periods with wild steelhead as found and photographed in the recent reports. These are all discussions necessary to making hatchery decisions that the prior Puget Sound hatchery EA entirely side-stepped, but which the EIS should fully examine and discuss. The NOAA TRT has recently acknowledged the 1981 Skagit evidence of the diverse steelhead genetic findings in its tributaries (Meyers et al. 2015).

Hatchery Smolt Residualism and Precocious Male Parr

The recent Puget Sound hatchery steelhead EA indicated the following, but nowhere did it result in any discussion about this problem. The development of the EIS has to do better than this:

"However, one concern that has been raised in connection with these segregated steelhead programs is that due to the low expected reproductive success of early winter steelhead spawning in the wild, the reproductive potential of natural-origin fish that spawn with

hatchery-origin fish is completely wasted. Loss of the reproductive output of these fish thus reduces the size of the spawning population and therefore the genetically effective size of the population. Although we do not consider this a realistic viewpoint, it is a useful analysis in highlighting how much lower than expected the actual amount of interbreeding between hatchery-origin and natural-origin may be. Figure 1 is a schematic of the expected distribution of hatchery-origin and natural-origin spawners over time. Although the difference varies from basin to basin, the early winter steelhead have an earlier spawn timing than natural winter steelhead. This means there will be a time during the spawning season when hatchery-origin steelhead can only spawn with other hatchery-origin steelhead (Region A), an overlap period when hatchery-origin and natural-origin steelhead can spawn amongst themselves or with each other (Region B), and a period when natural-origin steelhead can spawn only with natural-origin steelhead (Region C)...."

"A potential shortcoming of this "region" approach to spawning is that it assumes that all the spawners are returning adults. Resident O. mykiss (rainbow trout) and precocious residual hatchery juveniles may also be involved, both of which would not have been counted as part of the escapement. McMillan et al. (2007) noted both types of males participating in mating in the later part of the spawning season in an Olympic peninsula stream, but it is unclear what their net reproductive contribution was. Measurable reproductive success of non-anadromous males was noted in another Olympic peninsula stream that has no hatchery program (Seamons et al. 2004b). The relative abundance of anadromous and non-anadromous O. mykiss is not well known in most Puget Sound streams (Myers et al. 2014). Residualism rates for the programs in the proposed action are not known. A recent meta-analysis of steelhead programs found an average residualism rate of 5.6%, ranging from 0 to 17% (Hausch and Melnychuk 2012). Genetically, residual males are of no concern unless they are sexually mature. Although historically high rates of precocious maturation have been reported (e.g., Schmidt and House 1979) and groups can be generated with rates as high as 100% (e.g., Sharpe et al. 2010), the rate in WDFW steelhead 1 releases tends to vary from 1 to 5% (Tipping et al. 2003)."

Even if smolt residualism is at the lowest levels known of 1-2%, it can translate into a significant number of sexually mature Chambers Creek hatchery males ready to spawn in the month of May on their release if most of those residuals are precocious male parr. Wild female steelhead in some areas of Puget Sound river basins are at peak spawning activity in May. Obviously no isolation/segregation in spawning time would then separate Chambers Creek males from spawning with them. In recent personal communication with John McMillan about the Quileute basin observations where the cited study occurred (McMillan et al. 2007), he indicated that despite the volitional release of winter steelhead smolts it did not prevent the observation of large numbers of residual smolts found in the snorkel surveys that included precocious male parr sighted on the spawning grounds with wild female steelhead. Why would it prevent such? Obviously these fish are not driven by changes to the smolt life history, but rather by changes to a mature spawning life history with the need to find a mate. Why would they remain in a hatchery rearing pond without mature females? They have to leave to do so. Furthermore, the "Pied Piper effect" was long ago documented regarding hatchery smolt releases attracting rearing wild fish to be attracted to go with them at the Wenatchee River (Hillman and Mullan 1989), and its equivalent was found regarding Norwegian hatchery Atlantic salmon smolt releases (Hansen and Jonsson 1985). While it may be the

case that volitional release of smolts, as advocated in the EA, may reduce the number of hatchery smolts that residualize, that it eliminates such is highly unlikely and even more unlikely for precociously mature male parr that have the mature life history demand to leave.

Even in the case of a seemingly small plant of 10,000 hatchery steelhead smolts at the Dungeness River as the preferred alternative provided in the recent Puget Sound hatchery EA, if only 1-2% of the resulting fish are precocious male parr, it would result in 100-200 mature, ready-to-spawn Chambers Creek origin males. Shamefully, and in violation of the Boldt Decision escapement ruling requirements, there are only two years of wild steelhead escapement data for the Dungeness as indicated in the 2014 HGMP: 2010-11 at 410 natural origin spawners; and 2012-13 at 564 natural origin spawners. If half of the natural spawning population is male it results in 205 and 282 wild males in those respective years that would include 100-200 Chambers Creek hatchery precocious male parr looking for steelhead mates in the Dungeness basin – half, to fully as many wild steelhead males. This is on top of the straying anadromous Chambers Creek hatchery origin males for which spawning surveys in the basin know little or nothing as indicated by the lack of escapement data collected. This is not science, this is not good fisheries husbandry.

In the case of the Nooksack the plan is to release 150,000 Chambers Creek hatchery origin smolts. If only 1-2% of these are precocious male parr it results in 1,500-3,000 mature, ready-to-spawn, males. There are only escapement data of wild steelhead for 5 years of which all 5 occurred in the 10-year period of 2004-2013 with an average in those few years of 1,760 natural origin steelhead spawners. If half of those are male, it represents 880 anadromous wild males with nearly 2-4 times as many Chambers Creek hatchery origin precocious male parr looking for mates in the basin each year on top of what anadromous Chambers Creek hatchery males stray into the wild spawning grounds – and which they will, as well indicated in the recent Skagit River tributary spawning surveys.

In the case of the Stillaguamish it is planned to release 130,000 Chambers Creek hatchery origin smolts. If only 1-2% are precocious male parr it results in 1,300-2,600 mature, ready-to-spawn, males. The average escapement of Stillaguamish basin wild steelhead has been estimated at 1,852 from 2001 to 2012. If half are males it is 926 wild anadromous males that are outnumbered by 1.5 to almost 3 times as many Chambers Creek hatchery origin precocious males looking for mates in the basin each year on top of what anadromous Chambers Creek hatchery males stray into the wild spawning grounds – again anticipated to be particularly significant in the tributary creeks as found in the Mid Skagit basin tributary examples.

In the case of the Snoqualmie River, 74,000 total Chambers Creek hatchery smolts are planned for release according to the HGMP from Tokul Creek Hatchery. If only 1-2% are precocious male parr it results in 740-1,480 mature, ready-to-spawn, males. The average escapement has been 955 wild winter steelhead. If half are males it would be 478 wild male steelhead spawners outnumbered by 740-1,480 precocious male parr.

Above and beyond this are the anadromous Chambers Creek adult males that will stray to spawn in the wild.

In the case of the Skykomish River, 256,000 total Chambers Creek hatchery smolts are planned for release according to the HGMP (185,000 at Reiter Ponds and 71,000 at Wallace River Hatchery). If only 1-2% are precocious male parr it results in 2,560-5,120 mature, ready-to-spawn, males. The average escapement has been 1,683 wild winter steelhead in the Skykomish/Snohomish plus 679 at the Pilchuck, or 2,362 total. If half are males it would be 1,181 male steelhead spawners outnumbered by 2,560-5,120 precocious male parr. This is on top of the anadromous Chambers Creek adult males that will stray to spawn in the wild.

The hatchery precocious male parr problem is not insignificant and needs to be thoroughly considered in the EIS.

Incidental Fishing Effects

In the recent Puget Sound hatchery steelhead EA it was indicated in the Appendix, but nowhere else discussed:

"Prior to the 1990s, hatchery-origin steelhead were not mass-marked with an adipose fin clip. 10 Therefore, anglers could not easily differentiate between natural-origin and hatchery-origin 11 steelhead. Fish managers tried to minimize harvest impacts on natural-origin steelhead by 12 closing the fisheries that targeted earlier arriving hatchery-origin steelhead before the natural-13 origin winter-run populations arrived. However, fishermen may have inadvertently harvested the 14 earliest-returning natural-origin steelhead, which may have changed the overall run timing of the 15 population [i.e., evidence suggests that, historically, the natural-origin winter population had a 16 larger proportion of adult fish returning prior to February (Myers et al. 2014)]."

Diminishment of Wild Steelhead Early Run-Timing

The diminishment of wild winter steelhead run-timing in Puget Sound is evident from the available history.

Figure 16 portrays the historical steelhead tribal catch data from 10 rivers in the Boldt Case area of Washington are available in WDFW files from 1934 through 1959 (Taylor 1979), a period when most returning steelhead were wild with highly dominant catch between November and February, and much less in March-April. These data were examined, tabulated, and put into graphic form and subsequently provided in a presentation to the Pacific Coast Steelhead Managers Meeting in Boise, Idaho in 2008 (McMillan 2008). One river of the three included in EA being commented on, the Nooksack, had historical tribal harvest data from 1951 to 1959 as shown in Figure 17.

Figure 16.

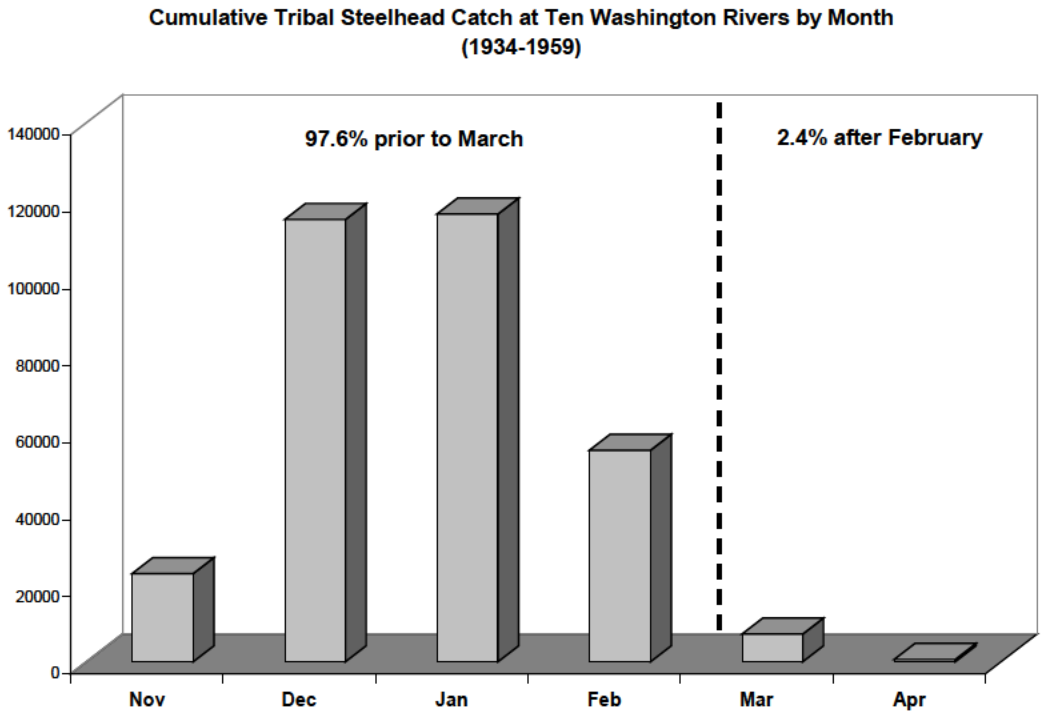


Figure 17.

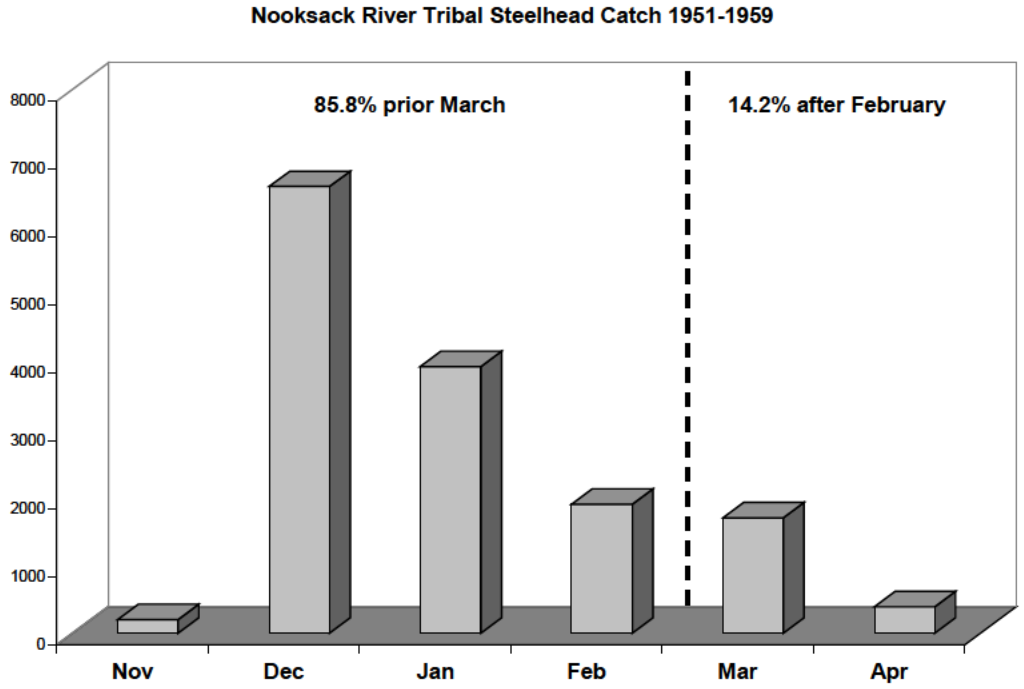


Figure 18.

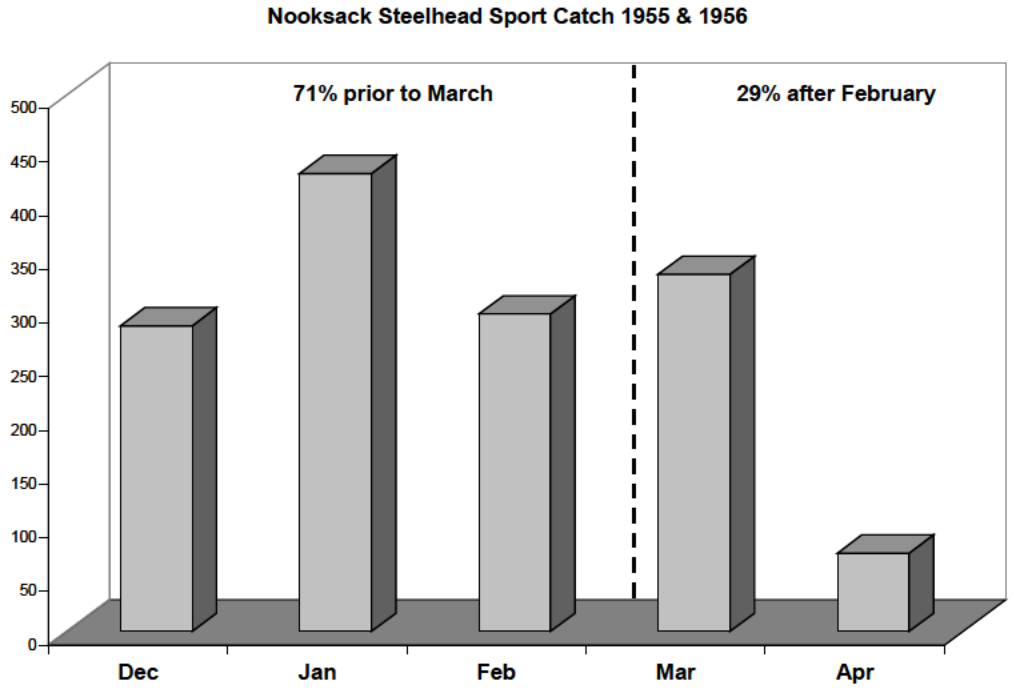


Figure 19.

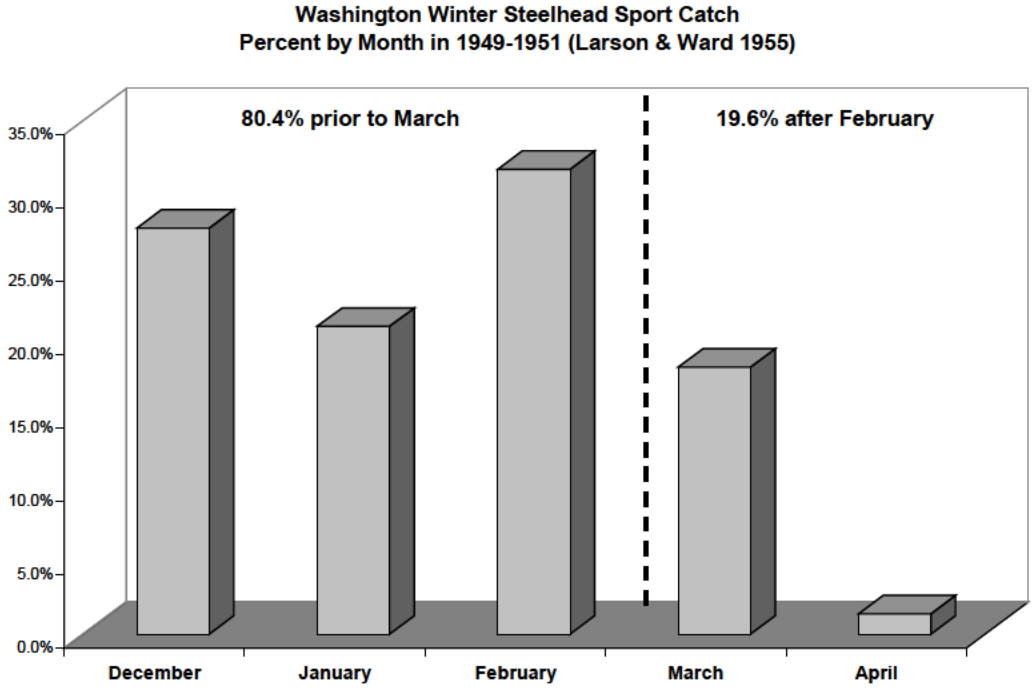
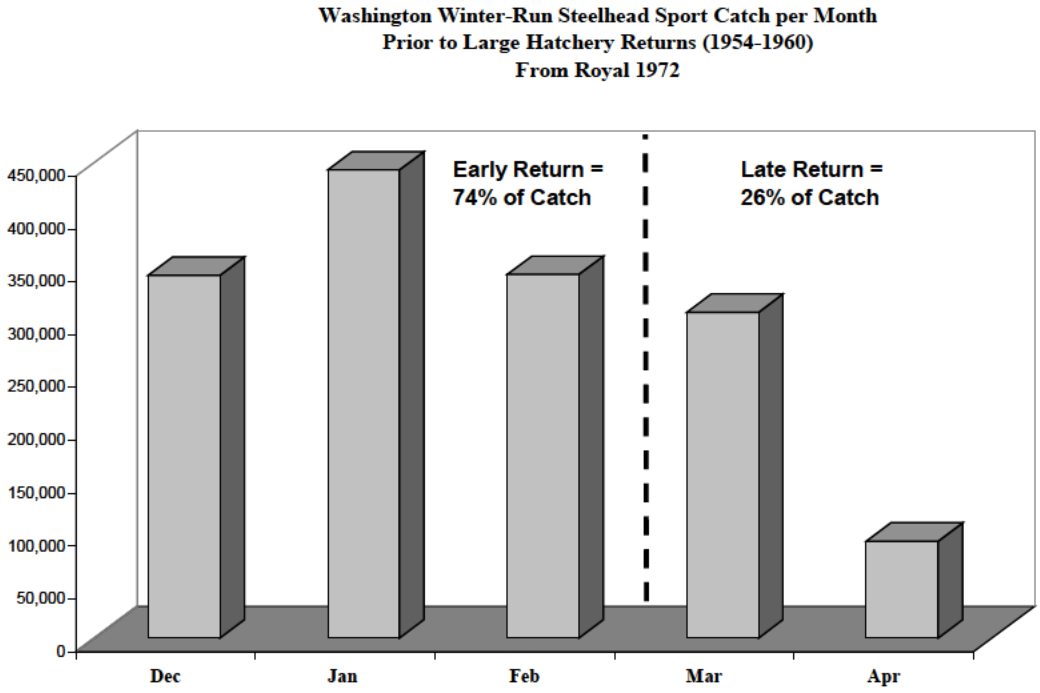


Figure 20.



Also included were comparative sport fishing harvest data detailed in steelhead punch card returns from a similar comparative era from 1948 to 1959. Prior published reports have provided the sport catch by month in that era demonstrating the predominance of early steelhead run-timing in December through February as compared to generally smaller sport catch in the March-April later return period. Figure 18 provides the steelhead sport catch for the Nooksack River in the winters of 1954-55 and 1955-56 which would be nearly all wild steelhead as can be seen from the hatchery plant history in Figure 8. Figure 19 provides the sport catch in Washington for 1949-1951 by Larson and Ward (1955) when all steelhead would have been wild. Figure 20 provides the sport catch in Washington from 1954-1960 from Royal (1972) when most steelhead would have been wild and prior to the first returns of the modern hatchery steelhead program in Washington in 1962 with 1960 escalation of plants and better smolt survival due to increased nutrition in the hatchery rearing diet (Royal 1972).

It was described by Pautzke and Meigs (1941) that the steelhead sport fishery was only open for the 1939 and 1940 seasons in January and February at the Green River, and yet sustained a healthy and attractive sport fishery to the anglers of the era – all wild fish.

It is clear from all these Washington cumulative historical winter steelhead harvest data that winter steelhead run-timing prior to the modern hatchery program was dominated by wild steelhead that returned in the December through February time period coinciding precisely with the dominant run timing of Chambers Creek hatchery steelhead.

In the data portrayed at the 2008 Pacific Coast Steelhead Managers Conference (McMillan 2008), it was shown in graphed depictions from several Washington rivers that tribal catch was dominated by early return steelhead somewhat more so than the

sport catch. It was explained that this is an understandable pattern. Tribal catch is commonly limited to the lower reaches of rivers while sport catch occurs over more extensive river reaches that often includes into the steelhead spawning grounds. Therefore tribal catch portrays initial steelhead migrations into the rivers while sport catch includes steelhead that have held in the river for considerable time in wait for spawning activity. The latter characteristic of early return steelhead to remain in a river system longer than later return steelhead was found in the Skagit River steelhead acoustic tracking studies (Pflug et al. 2013) and which makes them more vulnerable to harvest as found many years earlier by Hooton and Lirette (1986) at the Gold River of Vancouver Island during telemetry-tracking studies there. The early winter steelhead at Gold River were commonly found to hold for 3-4 months in the area most heavily fished by sport fishermen. This also makes them more vulnerable to catch-and-release angling mortality as a result of potential multiple angler encounters (Hooton 2001). A further reason for tribal catch being a better reflection of actual steelhead migrations in the early-return period is because Pacific storms in November through January result in commonly high and discolored stream flows that limit the effectiveness for sport fishing but which may not be as limiting for gill net fisheries, and in some instances may be advantageous. By contrast, the more stable flows after January and more dependable water clarity are advantageous for sport fishing. Yet another reason for sport fisheries to show somewhat later run timing for winter steelhead than the tribal fisheries is that the lower river reaches commonly targeted by tribal fisheries results in the harvest of considerable numbers of early return steelhead before they reach the more extensive sport fishing areas upstream.

How has the formerly dominant early return wild steelhead life history fared since the 1960s with the initiation of the modern steelhead hatchery program using Chambers Creek steelhead as the supposed primary driver of harvest opportunity? This is the history and discussion that need to occur from which effective Puget Sound steelhead recovery decisions can be made, but are being utterly disregarded in this EIS process. Unfortunately there are little data since the 1960s from which to determine what wild steelhead run timing is today, but we do know that it is proclaimed for management purposes to no longer exist in significant numbers according to the 2004 Draft EIS for the proposed Lower Skagit River steelhead acclimation-rearing pond (WDFW 2004), and in this EA. The WDFW and PSTT mythical assumptions have been that Chambers Creek steelhead provide differential harvest opportunity due to being isolated/segregated from wild steelhead in run time. This myth is purely policy driven and is not based on any actual evaluation of data that is required from which to effectively manage for the harvest and escapement of wild steelhead as the Boldt Decision clearly ruled as the basic conservation need for sustainable populations and fisheries.

In the case of the Dungeness, Nooksack, Stillaguamish, and Snohomish rivers there have been no available data provided in the HGMPs from which to determine what the present run timing of wild steelhead is, now primarily limited to tribal fisheries. In the case of the Nooksack, from 1980 to the present the only tribal steelhead harvest data available regarding wild as separate from hatchery is from 1980 to 1988, and that is only total numbers – not that needed by week or month (Scott and Gill 2006). There is absolutely nothing available to the public since that time from which to track how life history shifts

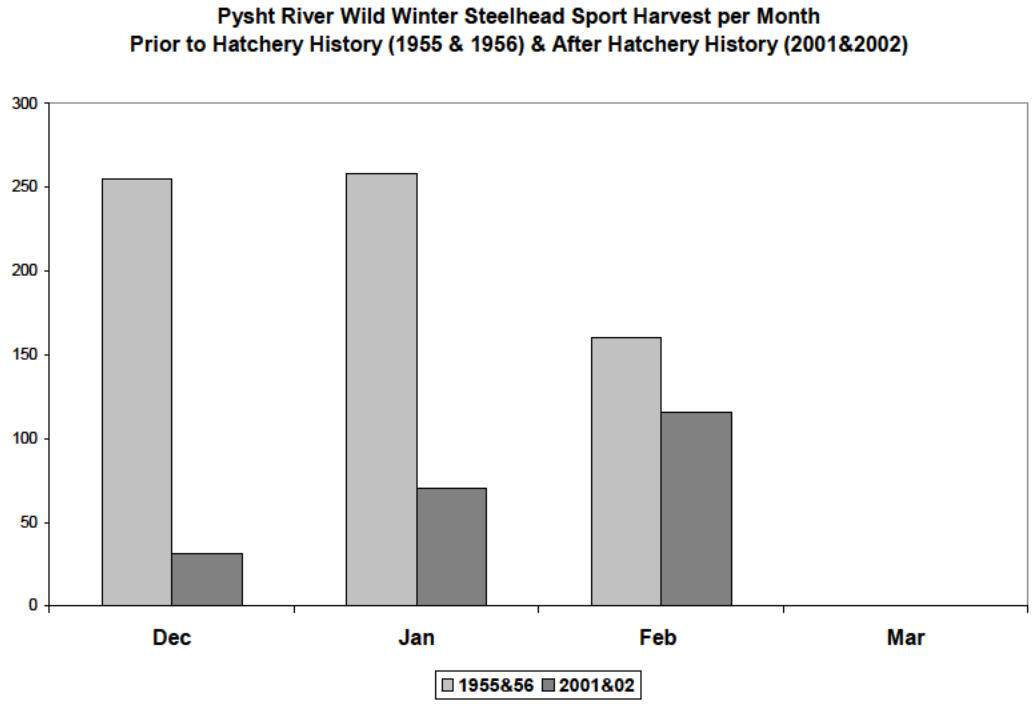
in wild steelhead run timing might have occurred over time, or what remains today. The Boldt Case ruling clearly stipulated that the treaty tribes had to provide their harvest records to the Washington fish managing agencies at that time, now limited to WDFW. Similarly, escapement data needed to be cooperatively collected from which to meet the conservation requirements for sustainable returns and their fisheries. All of this is lacking but for relatively few years in the Nooksack and would seem in complete violation of the Boldt Decision rulings if harvest fisheries are to occur. Beyond that legal mandate is the scientific basis for any effective fishery management which NOAA/NMFS, WDFW, and PSTT should be bound by as most basic requirements for sustaining fish populations, let alone those that are ESA listed that require recovery. This problem is not limited to the Nooksack.

The Dungeness and Stillaguamish are even worse than the Nooksack. There are absolutely no tribal harvest data broken out by hatchery and wild, just total numbers, and no breakdown by week or month (Scott and Gill 2006). In the case of the Snohomish, the tribal harvest was only broken out for hatchery and wild prior to 1994, not thereafter, and no data found for harvest per month.

Nevertheless, there are data available that indicate what run timing shifts have occurred for Washington wild winter steelhead. At the Pysht River on the Strait of Juan de Fuca, hatchery steelhead introductions began in 1957, first adult returns 1959 (WDG 1948-1972), and have been continuous since 1959 (WDG 1948-1978; Scott and Gill 2006). The monthly sport catch of wild steelhead at the Pysht was documented in the winters of 1954-55 and 1955-56 (WDG 1956; WDG 1957). The wild sport catch is available for the winters of 1994-95 and 1995-96 (WDFW Sport Catch Summaries) which is 36-37 years after Chambers Creek origin hatchery steelhead introductions. This is the last period of time when sport harvest for wild steelhead was recorded. Figure 21 provides the comparisons in wild steelhead sport harvest per month in this period of time showing the reversal in run timing from primarily early to that of later. Tribal steelhead harvest records began in the Pysht River in 1974-75 with catch by month through 1978-79, but by then it was a combined catch of hatchery and wild (Taylor 1979) and there is no subsequent monthly record of wild tribal catch since (Scott and Gill 2006).

The historic Skagit basin predominantly wild steelhead sport catch in the winters of 1954-55 and 1955-56 is shown by month in Figure 22 (WDG 1956; and WDG 1957). The Skagit is the next river basin to the south of the Nooksack and the next north of the Stillaguamish and Snohomish as pertinent to an EIS. Presumably there would be similarities for all four. There is no significant older history of tribal harvest in the Skagit to draw from, but there are comparative steelhead sport catch data by anglers who kept good records across two time periods. The steelhead catches of Bellingham angler Ralph Wahl are available at the Western Washington University Center for Pacific Northwest

Figure 21.



Studies. His primary steelhead fishing destination was the Skagit River, with each fish recorded by day, month, year, and weight. He kept good record of their weight as required for submissions he made to the *Field and Stream* magazine annual sport fishing contests. Prior to his death we had compared steelhead fly fishing observations, both of us using the same methods while fishing the Skagit basin. Ralph's most active fishing years were 1936-1955, of which I recorded his catch which was prior to significant contribution of hatchery steelhead. My primary fishing of the Skagit basin for steelhead has been 1999-2012 – a period of time long after Chambers Creek hatchery origin steelhead (and Skamania hatchery origin summer steelhead) had returned in considerable numbers with subsequent harvest particularly targeting the early-return winter steelhead by both tribal and sport fisheries. The comparative differences in our catches demonstrate shifts in wild winter steelhead return time and a near elimination of wild summer steelhead between the two time periods as shown in Figures 23 and 24.

What led to this shift in winter steelhead run timing on the Skagit River and elsewhere in Washington?

Figures 25-27 provide much of the answer. As a result of being an author included in the write-ups of the Skagit steelhead research from 2009-2012 I was provided all of the available harvest and escapement data for tribal and sport fisheries developed by the co-managers in several large spreadsheets to draw from. The harvest data for hatchery and wild steelhead are provided by weekly intervals from 1985 to 2011 for the tribal fisheries, and by monthly intervals from 1993 to 2002 for the sport fishery (excluded 2003-2011 data due to being wild steelhead catch and release throughout the basin).

Figure 22.

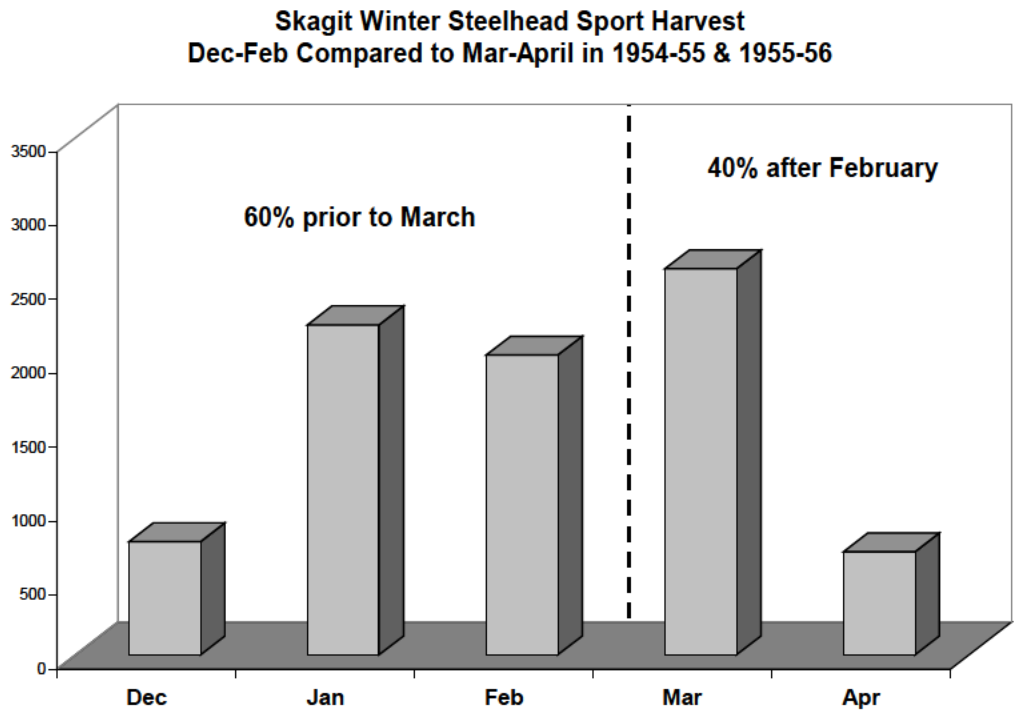


Figure 23.

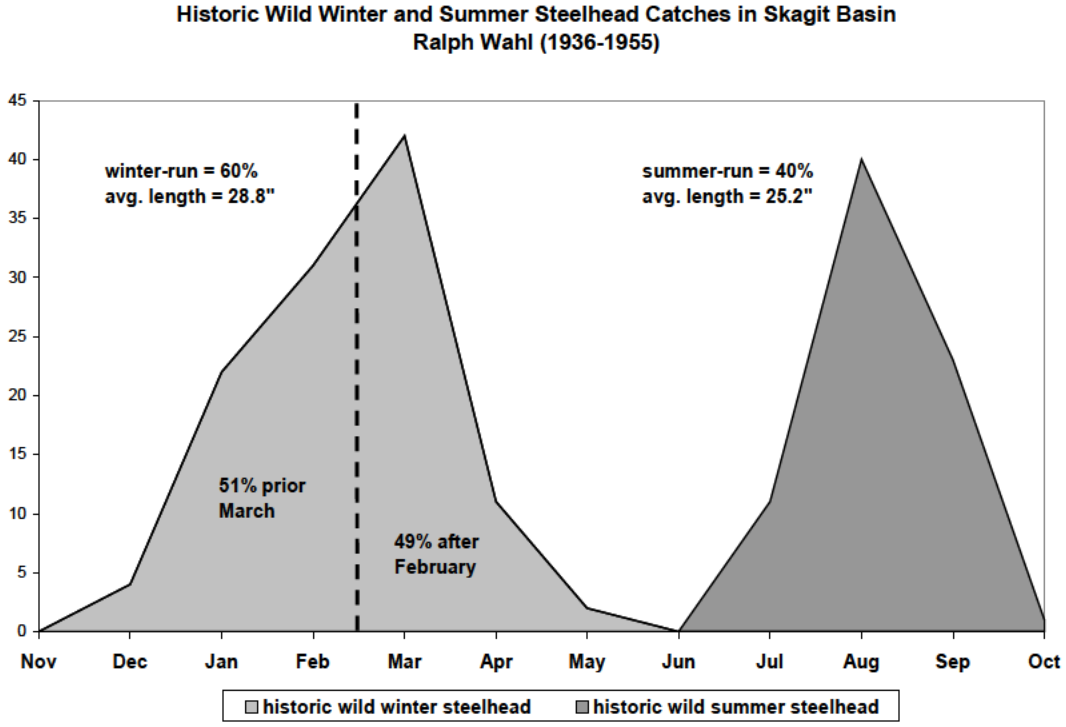
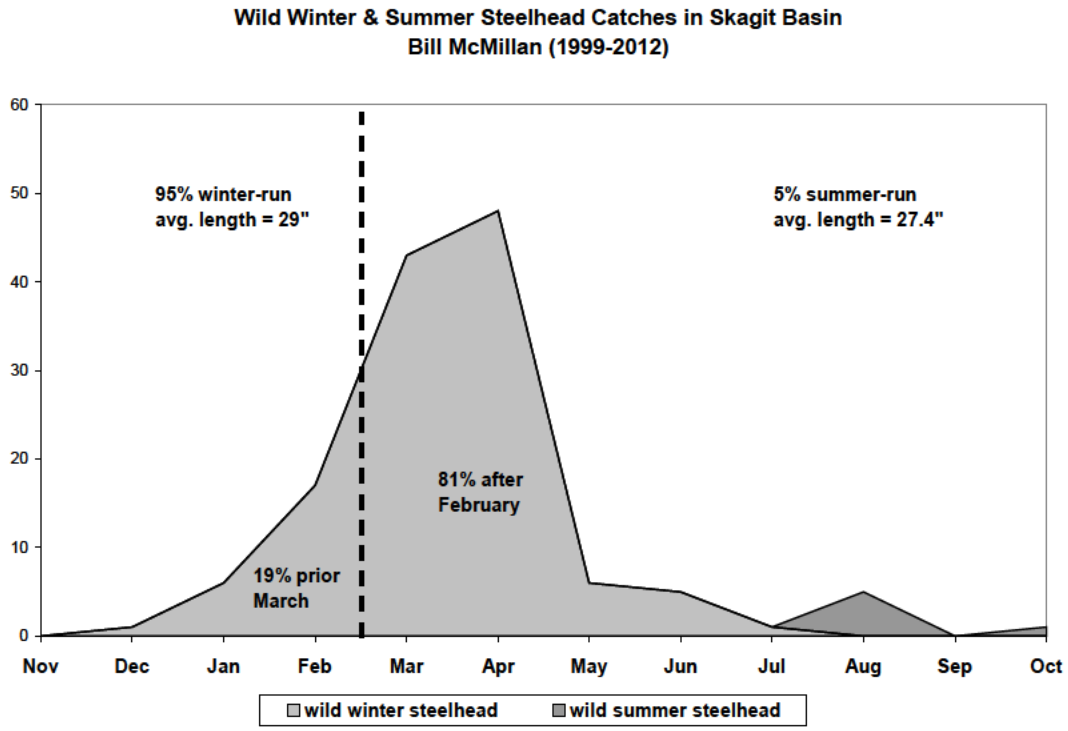


Figure 24.



As has been described in Washington steelhead literature, 80-95% harvest rates have long targeted early return winter steelhead in the assumed isolation (or segregation) of Chambers Creek origin hatchery steelhead from wild steelhead in that time period (McHenry et al. 1996; SASSI 1994). Yet the steelhead harvest managers have the fishery data to look at every single year in their analysis required to develop return forecasts from which to plan the coming fishery seasons. Even after years of this excessive harvest rate that wild steelhead can little withstand with subsequent reductions from former predominance of early return characteristics, as shown in the following figures they have continued to represent a significant component of the early-return catch – in some cases predominantly so. This altered beginning in 2003 in the Skagit basin when harvest of wild steelhead in the sport catch was theoretically eliminated with catch-and-release regulations for the first time year around. However, despite what is likely reduced fishing effort on the part of the Skagit tribes since the begin of the collapse of the steelhead returns in 2001, as shown in Figure 27 the proportion of the early tribal catch that is wild has further increased from what it was prior to that time as conveyed in Figure 25. Yet, due to the continuing presence of Chambers Creek origin hatchery steelhead in the periods depicted, without high harvest rates on the early steelhead return component there would be many more of those hatchery steelhead further straying into the spawning grounds than what already occurs as previously shown in the Skagit tributary creek spawning survey results. As long as Chambers Creek origin hatchery steelhead are present, recovering the depleted early run component of wild steelhead that historically dominated in Washington rivers simply can't occur due to the need for harvest rates that wild steelhead can't productively sustain. Yet management is trapped

Figure 25.

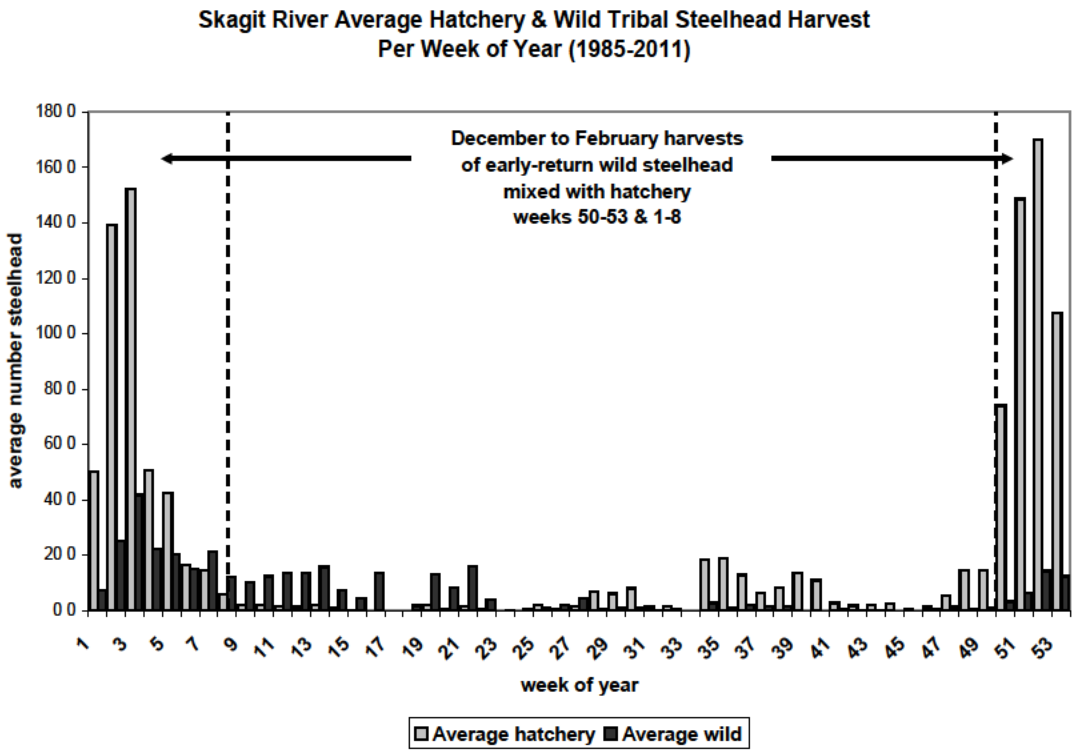

Skagit River Average Hatchery & Wild Tribal Steelhead Harvest
Per Week of Year (1985-2011)
December to February harvests
of early-return wild steelhead
mixed with hatchery
weeks 50-53 & 1-8
average number steelhead
week of year
Average hatchery
Average wild

Figure 26.

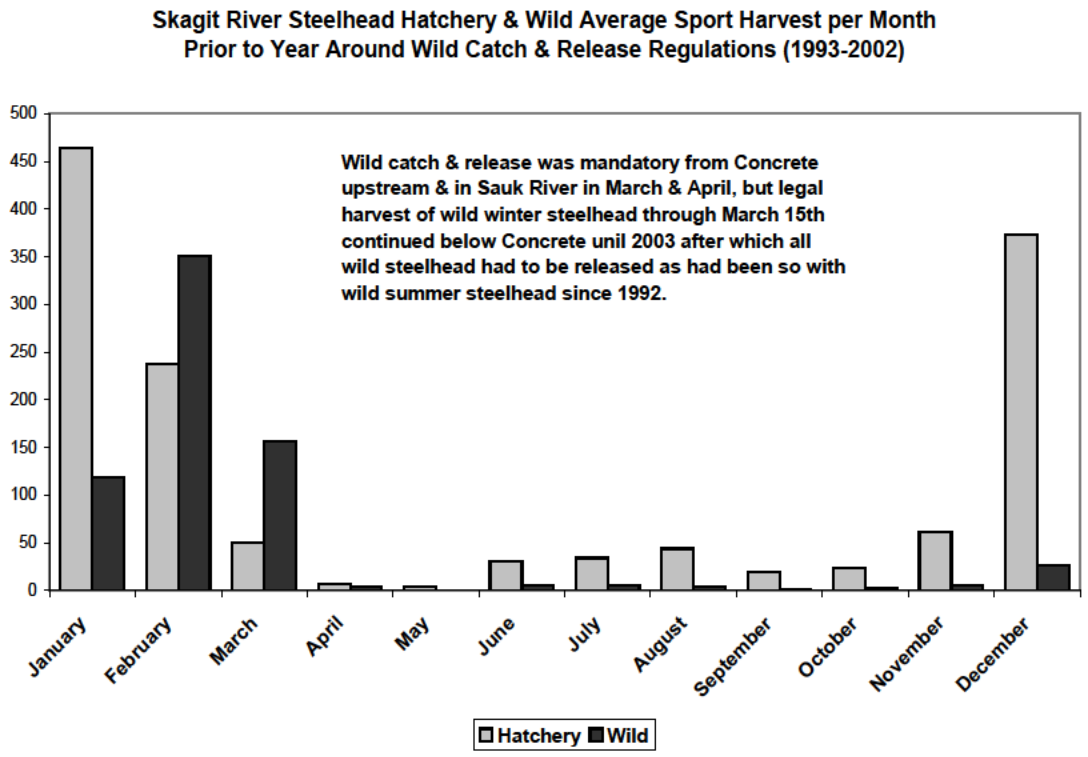
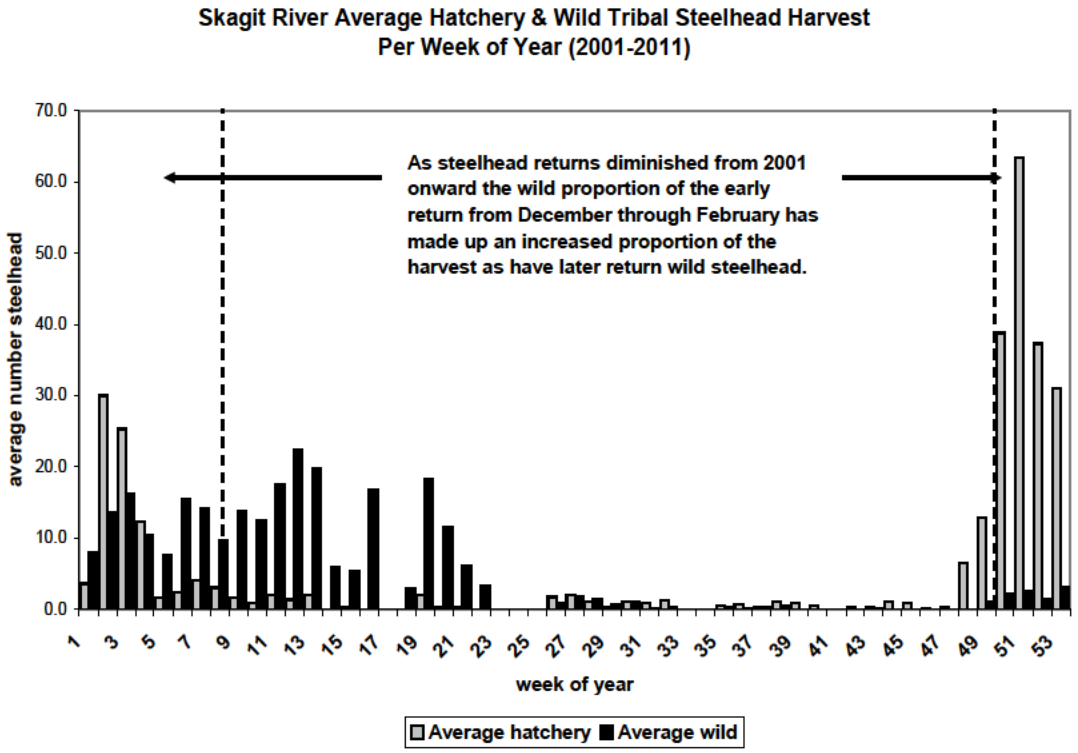

Skagit River Steelhead Hatchery & Wild Average Sport Harvest per Month
Prior to Year Around Wild Catch & Release Regulations (1993-2002)
Wild catch & release was mandatory from Concrete
upstream & in Sauk River in March & April, but legal
harvest of wild winter steelhead through March 15th
continued below Concrete unil 2003 after which all
wild steelhead had to be released as had been so with
wild summer steelhead since 1992.
January
February
March
April
May
June
July
August
September
October
November
December
Hatchery
Wild

Figure 27.



"between a rock and a hard place" in which nothing can be done to provide a steelhead future other than a continuing downward spiral as long as Chambers Creek origin hatchery steelhead are present.

All of this is at the heart of the development of an EIS for evaluation of the five Puget Sound hatchery programs described in the HGMPs, whether for Chambers Creek origin hatchery fish or eventual plans that may occur for transitions to that of wild broodstock. The discussions that occur have to honestly confront all of the above that has been provided in these comments, and more, not hide from them in the continued fabrication of steelhead management myths that have been the hallmark of Washington steelhead management the past 40-50 years with the inevitable results that have occurred in Puget Sound.

Habitat

Among the common justifications for hatcheries is that of habitat that can no longer sustain viable wild populations. However, there are rarely actual assessments made of available habitat for steelhead in Washington streams as they are at present and as compared to what they were in the 1950s and early 1960s when they were still providing large adult wild steelhead returns. The Nooksack in Figure 8 has previously illustrated what that former habitat capacity apparently was for wild steelhead at that time. For comparisons of what present habitat capacity is for wild winter steelhead production, the

North Fork Umpqua River on the Oregon Coast has not had a significant history of hatchery winter steelhead plants (Appendix D, Figure 9) and a contemporary habitat assessment for the overall Umpqua watershed has been included in the overall habitat rankings done for nearly 1,600 watersheds around the North Pacific Rim by the Flathead Lake Biological Station (http://rap.ntsg.umt.edu/overallrank). The rankings include those for Washington, Oregon, California, British Columbia, Alaska, and Kamchatka watersheds (Appendix D, Figures 1-8). Because of the long-term wild steelhead dataset for the NF Umpqua River from 1946 to the present from counts at Winchester Dam it provides a measure of whether habitat is presently a limitation for wild steelhead as compared to past returns over this 65+ year period of time. As can be seen, the wild steelhead returns of the NF Umpqua reflect the ups and downs of ocean and other variables on steelhead productivity, but the return trend over time has been level. It has also provided a level harvest trend over time, only diminishing recently because of requests from the sport fishing community to make part of the basin catch-and-release which has occurred. By contrast, the Skagit River of Puget Sound over a similar period of time has had a diminishing steelhead return trend as indicated by the historical harvest data that includes both wild and hatchery winter run steelhead (Appendix D, Figure 10). As can be seen from the earlier graphs of the five Puget Sound rivers under consideration for EIS development (Figures 7-12), their trends over the long-term period are similar to the Skagit as might be anticipated from the 2007 Puget Sound steelhead ESA listing. Does the present habitat of the Skagit explain the difference in steelhead returns and harvest trends from those of the Umpqua? The Skagit overall watershed ranking is 309th of ~1600 watersheds (upper 19%) while the Umpqua is 586th (upper 37%). In other words the Skagit's overall watershed habitat ranking is nearly double that of the Umpqua.

For other comparisons, the Keogh River of Vancouver Island (Appendix D, Figure 5) is ranked 1,363rd, near the very bottom of the 1,600 watershed rankings. The data for the Keogh is commonly referenced for trends similar to Puget Sound regarding the shared saltwater area of the Salish Sea. However, all four of the five Puget Sound rivers being assessed for the hatchery EIS have overall watershed habitat rankings better than the Keogh: Dungeness 585th; Stillaguamish 624th; Nooksack 988th; and Skykomish 1,106th. The Snoqualmie was not included in the rankings found. Both the Dungeness and Stillaguamish rank in proximity to the Umpqua. For further comparison, the Dean River of British Columbia is ranked 489th (Appendix D, Figure 4). Although the Nooksack and Skykomish are ranked below the Umpqua, both are ranked better than Oregon's Rogue River at 1,149th and about the same as Oregon's Trask River of Tillamook Bay at 1,100th (Appendix D, Figure 2). No similar level of wild winter steelhead depletion has occurred on the Oregon Coast as has occurred at Puget Sound as reflected by their lack of ESA listings.

Given the evidence of the NF Umpqua's continuing habitat capacity to bring back wild steelhead returns and sustained harvest without a declining trend for over 65 years, it would not appear that habitat loss in the five watersheds being assessed in the EIS provides any justification for the hatchery programs given the long-term trends of Figures 7-12. These are also the sort of comparative factors that need to be included in the development of the Puget Sound hatchery EIS.

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APPENDICES

Appendix A

From: http://www.ccrh.org/comm/river/legal/boldt.htm

Document:
Boldt Decision

UNITED STATES of America, Plaintiff, Quinault Tribe of Indians on its own behalf and on behalf of the Queets Band of Indians, et al., Intervenor-Plaintiffs, v. STATE OF WASHINGTON, Defendant, Thor C. Tollefson, Director, Washington State Department of Fisheries, et al., Intervenor-Defendants

Civ. No. 9213

UNITED STATES DISTRICT COURT FOR THE WESTERN DISTRICT OF WASHINGTON, TACOMA DIVISION

384 F. Supp. 312; 1974 U.S. Dist. LEXIS 12291

February 12, 1974

IV. RULINGS ON MAJOR ISSUES IN THIS CASE

.....

QUALIFICATIONS

The tribe shall:

(a) Provide for full and complete tribal fishing regulations which, before adoption, have been discussed in their proposed final form with Fisheries and Game, and include therein any state regulation which has been established to the satisfaction of the tribe, or upon hearing by or under direction of this court, to be reasonable and necessary for conservation.

(b) Permit monitoring of off reservation Indian fishing [**49] by Fisheries and Game to the extent reasonable and necessary for conservation.

(c) Provide fish catch reports, as to both on and off reservation treaty right fishing, when

requested by Fisheries or Game for the purpose of establishing escapement goals and other reasonable and necessary conservation purposes.

All parties in this case agree that on reservation fishing is not subject to state regulation and no issue to the contrary is presented in this case. Indeed, any contention to the contrary would be diametrically opposed to the Indian self-government intent and philosophy of Congress. However, state regulation of off reservation fishing to the extent reasonable and necessary for conservation requires that Fisheries and Game must have all information essential to such limited regulation. From the evidence in this case, the court hereby finds and holds that recording the number of fish taken in treaty right fishing, both on and off reservation, is essential to reliable estimates of future run sizes which are necessary for reasonably accurate calculation of spawning escapement requirements and for the allocation of harvestable fish as provided in this decision.

The lack of [**50] adequate, or any, approved identification of treaty right fishermen long has and now does seriously interfere with their fishing and hampers enforcement of both tribal and state regulations reasonable and necessary for conservation. Therefore, each of plaintiff tribes, self-regulated or not, is hereby directed to provide as promptly as practicable both (a) certification and identification of its tribal fishermen as specified in para. (f) of the above stated Qualifications; and also (b) fish catch returns as specified in para. (c) of the above stated conditions.

....

To clearly identify state treaty right fishing regulations and to make them more readily understood and usable by plaintiff tribes and others interested therein such regulations shall be published either separate and apart from other state fishing regulations or as a separate and plainly labeled part thereof readily distinguishable from other fishing regulations.

4. However broadly the word may be used and applied in the theory and practice of fisheries science and management, "conservation" as used in Supreme Court decisions and herein is limited to those measures which are reasonable and necessary to [**53] the perpetuation of a particular run or species of fish. In this context, as well as by dictionary definition, "reasonable" means that a specifically identified conservation measure is appropriate to its purpose; and "necessary" means that such purpose in addition to being reasonable must be essential to conservation.

5. The state having the burden of proof as above indicated, no regulation applied to off reservation treaty fishing can be valid or enforceable unless and until it has been shown reasonable and necessary to conservation as above defined. The arrest of, or seizure of property owned or in permitted custody of, a treaty right fisherman under a regulation not previously established to be reasonable and necessary for conservation, is unlawful and may be actionable as to any official or private person authorizing or committing such unlawful arrest or seizure.

6. If alternative means and methods of reasonable and necessary conservation regulation are available, the state cannot lawfully restrict the exercise of off reservation treaty right fishing, even if the only alternatives are restriction of fishing by non-treaty fishermen, either commercially or otherwise, to the full [**54] extent necessary for conservation of fish.

.....

For these reasons the court finds that the taking of fish for ceremonial [**56] and subsistence purposes has a special treaty significance distinct from and superior to the taking of fish for commercial purposes and therefore fish taken to serve ceremonial and subsistence needs shall not be counted in the share of fish that treaty right fishermen have the opportunity to take. Such needs shall be limited to the number of fish actually used for: (a) Traditional tribal ceremonies; and (b) Personal subsistence consumption by tribal members and their immediate families.

By dictionary definition and as intended and used in the Indian treaties and in this decision "in common with" means *sharing equally* the opportunity to take fish n29 at "usual and accustomed grounds and stations"; therefore, non-treaty fishermen shall have the opportunity to take up to 50% of the harvestable number of fish that may be taken by all fishermen at usual and accustomed grounds and stations and treaty right fishermen shall have the opportunity to take up to the same percentage of harvestable fish, as stated above.

.....

- - - - - - - - - - - - - - - - -End Footnotes- - - - - - - - - - - - - - - - - [**57]

While emphasizing the basic principle of sharing equally in the opportunity to take fish at usual and accustomed grounds and stations, the court recognizes that innumerable difficulties will arise in the application of this principle to the fisheries resource. For the present time, at least, precise mathematical equality must give way to more practical means of determining and allocating the harvestable resource, with the methodology of allocation to be developed and modified in light of current data and future experience. However, it is [*344] necessary at the outset to establish the scope of the anadromous fish resource which is subject to being "shared equally." The amount of fish of a particular species, from which the harvestable portions allocable to treaty right fishermen and non-treaty right fishermen are to be determined, is not merely the number of harvestable fish of that species which pass through the usual and accustomed fishing places of the various treaty tribes.

It is uncontroverted in the evidence that substantial numbers of fish, many of which might otherwise reach the usual and accustomed fishing places of the treaty tribes, are caught in marine areas closely [**58] adjacent to and within the state of Washington, primarily by non-treaty right fishermen. [Ex. F-6, 7; PL-67(b)-(c); JX-2(a), pp. 125-135; Figs. 49-54, Tables 34-60]. These catches reduce to a significant but not specifically

determinable extent the number of fish available for harvest by treaty right fishermen. A considerable amount of this harvest is beyond any jurisdiction or control of the State. Some of this harvest is subject to limited state control because the landings are made in areas of state jurisdiction. A considerable number of fish taken within the territorial waters of Washington are under the regulatory authority of the International Pacific Salmon Fisheries Commission, an international body established by treaty between the United States and Canada. While the defendants cannot determine or control the activities of that Commission, the Washington Department of Fisheries does have some input into development of the harvest program which is prescribed or permitted by that Commission, particularly as it pertains to harvest within Washington waters. The Commission is essentially concerned with assuring adequate spawning escapement from runs subject to its jurisdiction [**59] and equal division of the harvestable portion between the two countries. Its control over times, places and manner of harvest is designed to accomplish those results.

....

A. Definitions

...

2. *Adequate production escapement*: In an approximate number of anadromous fish, that level of escapement from each fishery which will produce viable offspring in numbers to fully utilize all natural spawning grounds and propagation facilities reasonable and necessary for conservation of the resource, as defined in the Decision of the court.

3. *Harvestable* [**258] *stock*: The approximate number of anadromous fish which is surplus beyond adequate production escapement and Indian needs as defined in the Decision; that is, the number remaining when the adequate production escapement and Indian needs are subtracted from the run size.

4. *To preserve and maintain the resource*: Upon a full consideration of (a) the history of State anadromous fish management, (b) the level of catch within the Western District of Washington in recent years, (c) the quality of freshwater and artificial production environments, (d) the most recent facts and data concerning anadromous fish production potential, (e) the potential for interspecific competition, and (f) the prospects for improvement of anadromous fish production, to perpetuate the runs of anadromous fish at least at their current level.

....

RULINGS ON FISHERIES' QUESTIONS PER RECONSIDERATION MOTION
....

12. Where two or more Indian tribes have treaty rights to fish in the same off-reservation area, how is the off-reservation 50% treaty share to be calculated?

A. The division among tribes of the Indian off-reservation share of the harvest shall be determined by the tribes fishing in the same usual and accustomed places. The only concern of the state would be to determine (a) whether the total harvest by all tribes exceeds 50%, and (b) whether any tribe or group of tribes will cut into escapement when fishing as the tribes had planned.

Appendix B

Chambers Creek hatchery steelhead eradication timeline and smolt plants:

Figure 1. From: Cooper and Johnson 1992

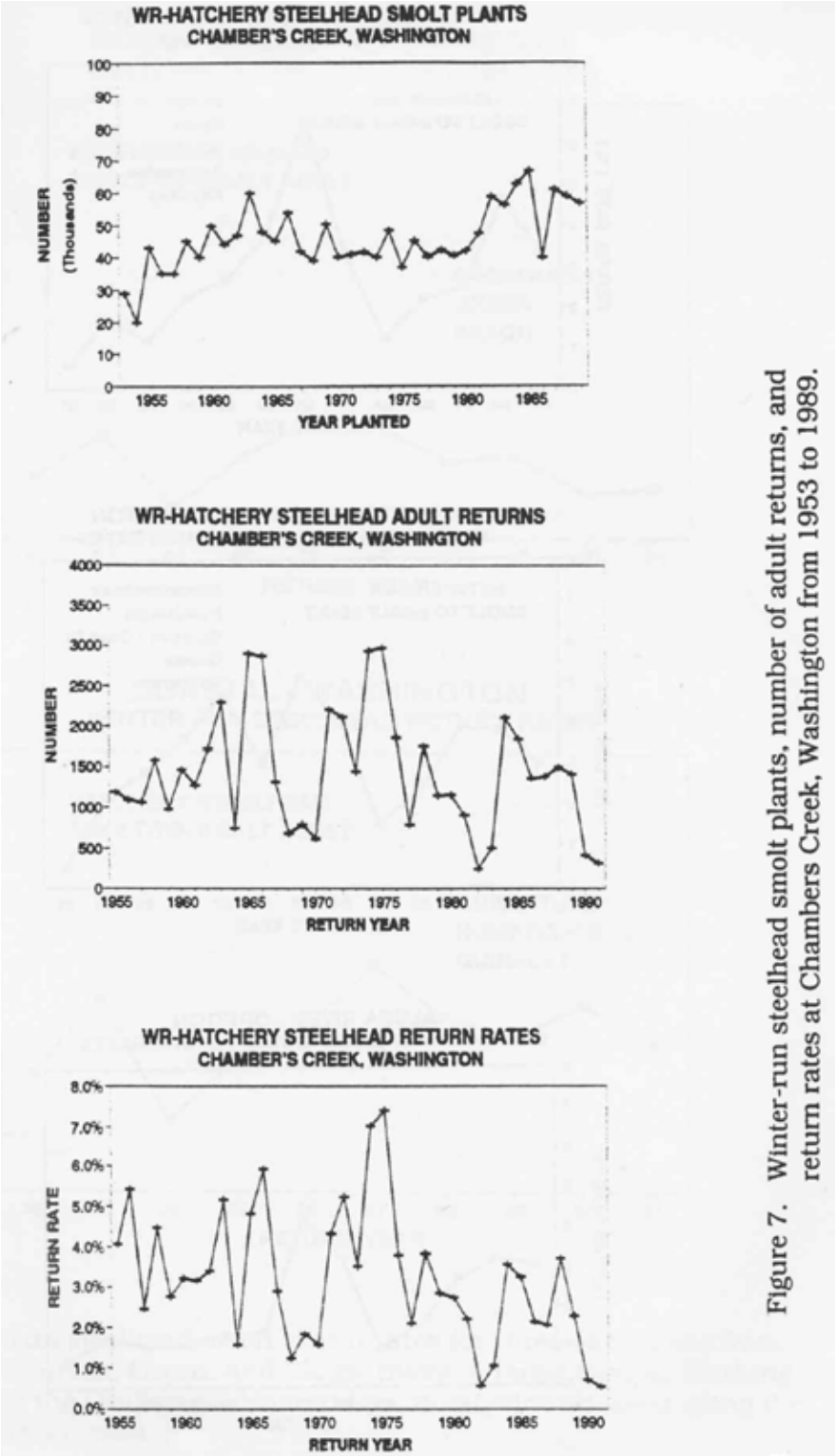
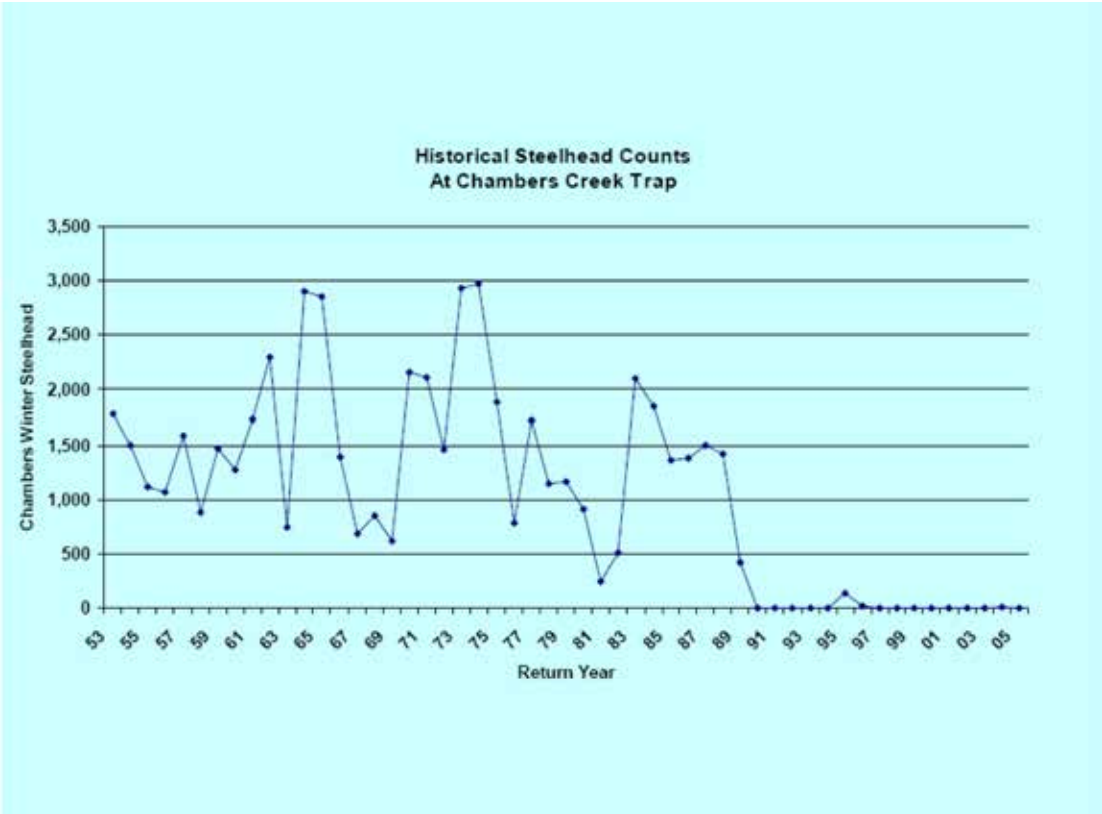


Figure 7. Winter-run steelhead smolt plants, number of adult returns, and return rates at Chambers Creek, Washington from 1953 to 1989.

http://www.co.pierce.wa.us/xml/services/home/environ/water/general/conferences/lid100507/presentations/10-Eltrich-ChambersRichPart2007.pdf

(The above was accessed in summer 2012 but was no longer accessible as of 1-20-2013.)



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Eltrich, R. 2007. Chambers Creek Hatchery Production: Historic and Present Programs. Washington Department of Fish and Wildlife. Presentation at: Chambers-Clover Watershed Conference, Pacific Lutheran University. October 5-6, 2007.

Appendix C.

Length and Computed Weight of 24 Chambers Creek Origin Steelhead from Marblemount Hatchery as Caught and Measured at the Skagit River by Bill McMillan (1998-2014) Using the Meigs and Pautzke (1941) Curve for Conversion of Length in Inches to Weight in Pounds from Several Hundred Winter Steelhead Sampled at the Green River at that Time

number	length in inches	weight in pounds using Meigs & Pautzke 1941 curve of length to weight
1	28.5	8.2
2	24	5
3	27	7.1
4	26	6.5
5	28	8
6	27	7.1
7	27	7.1
8	30	9.8
9	27	7.1
10	25	5.75
11	24	5
12	27	7.1
13	26	6.5
14	26.5	6.75
15	27	7.1
16	23	4.2
17	29	8.75
18	30	9.8
19	28	8
20	28	8
21	25.5	6
22	23	4.25
23	22.5	3.9
24	30	9.8
Avg	**26.625**	**6.95**

Appendix D.

Figure 1. Washington

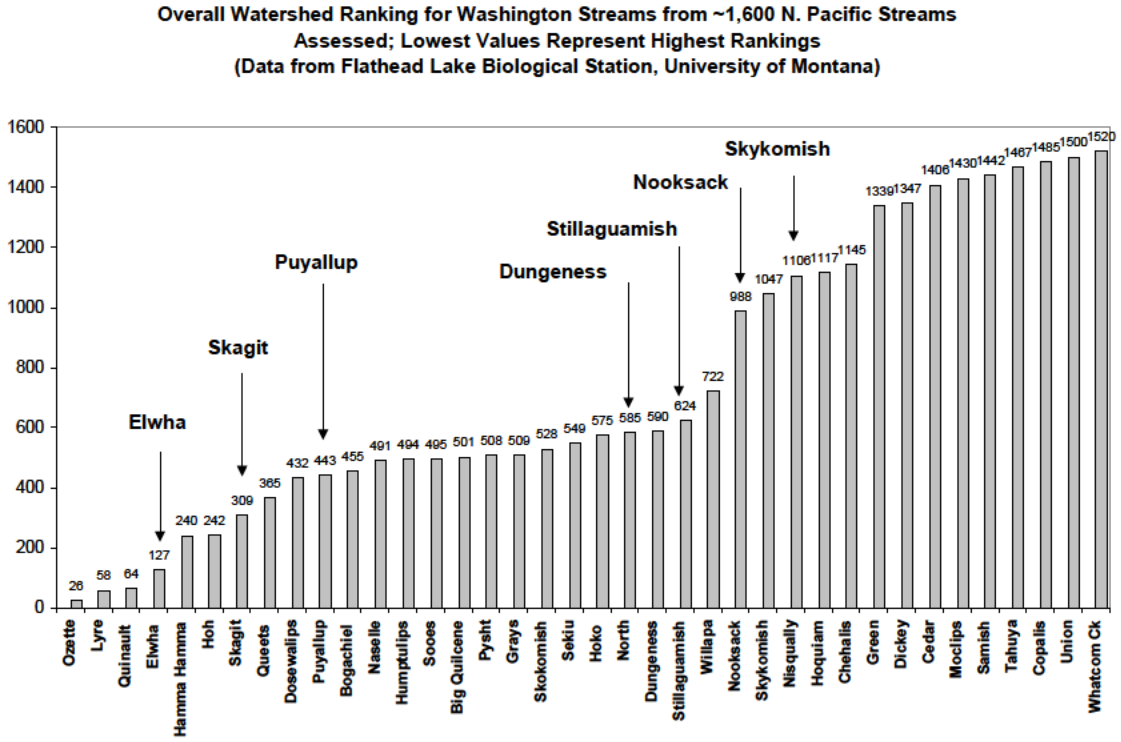


Figure 2. Oregon

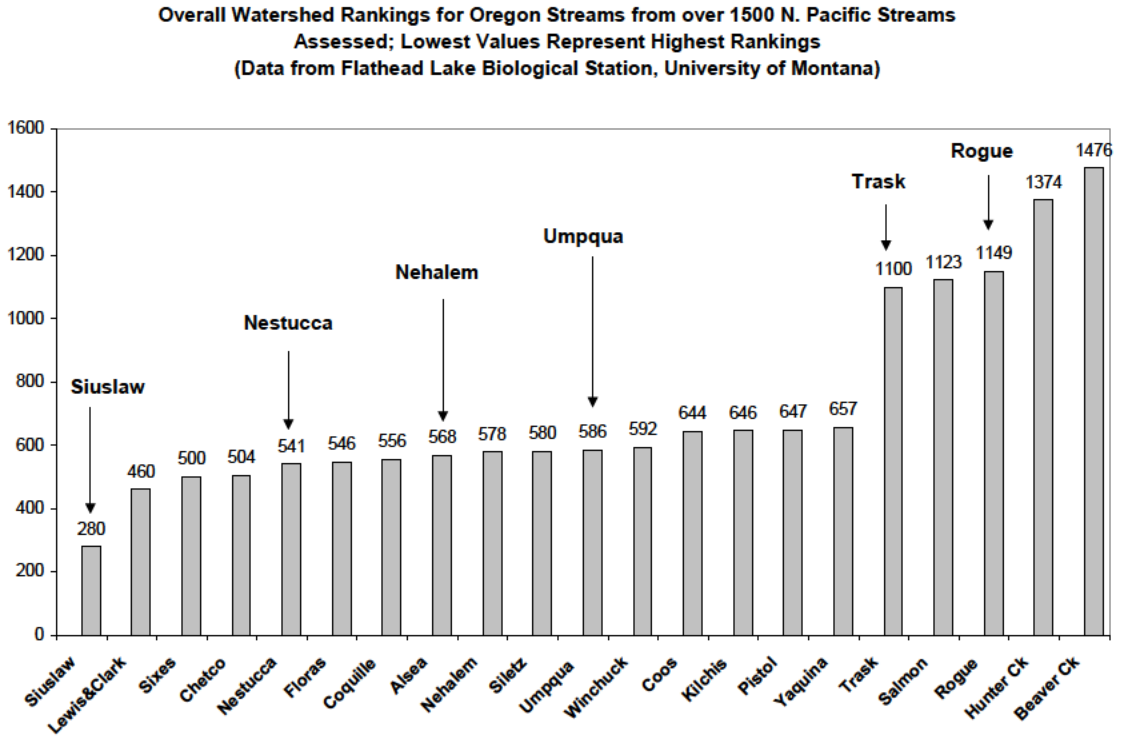


Figure 3. California

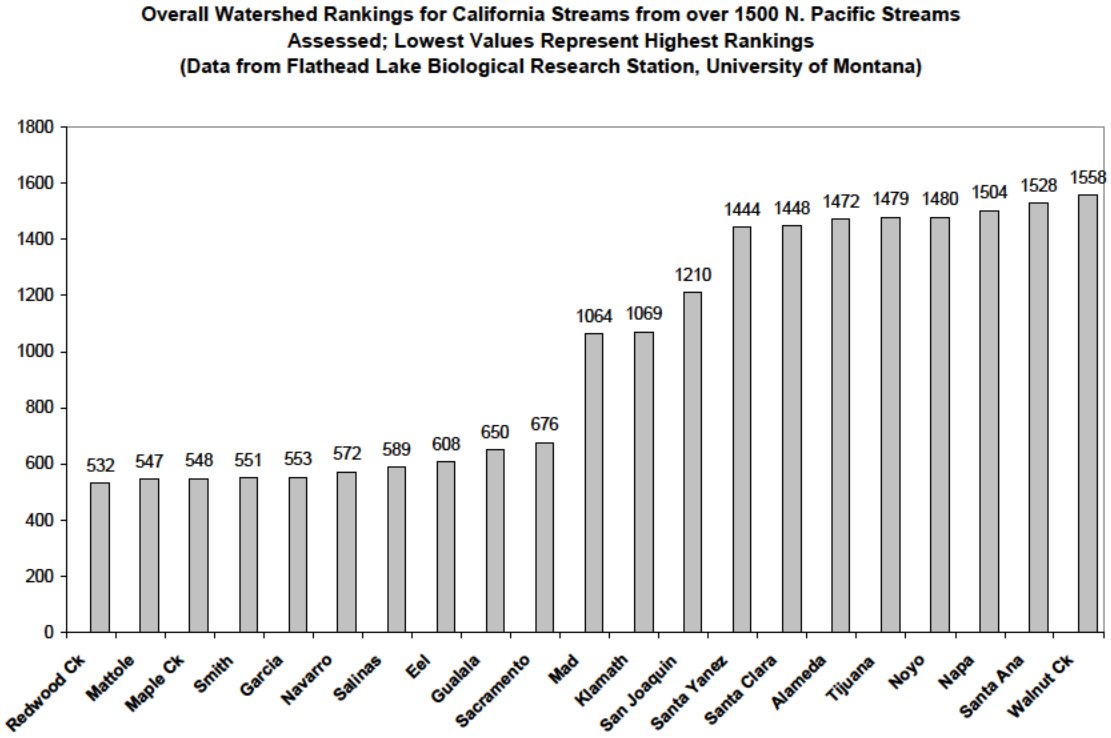


Figure 4. BC Mainland

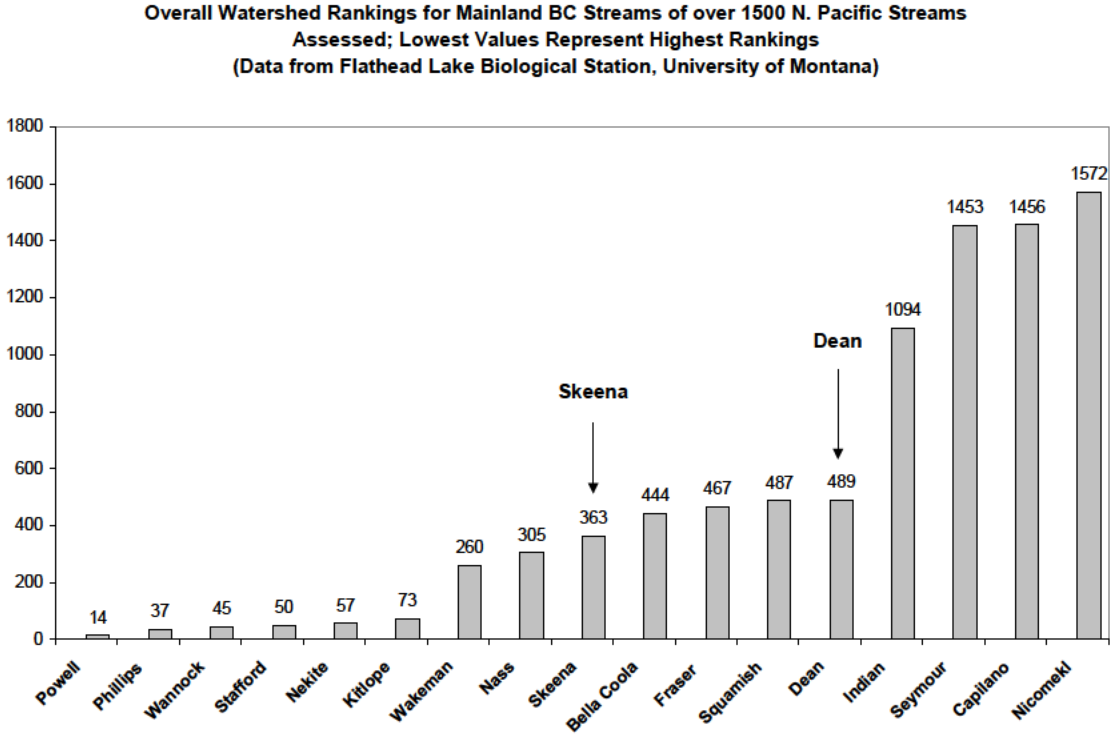


Figure 5. Vancouver Island

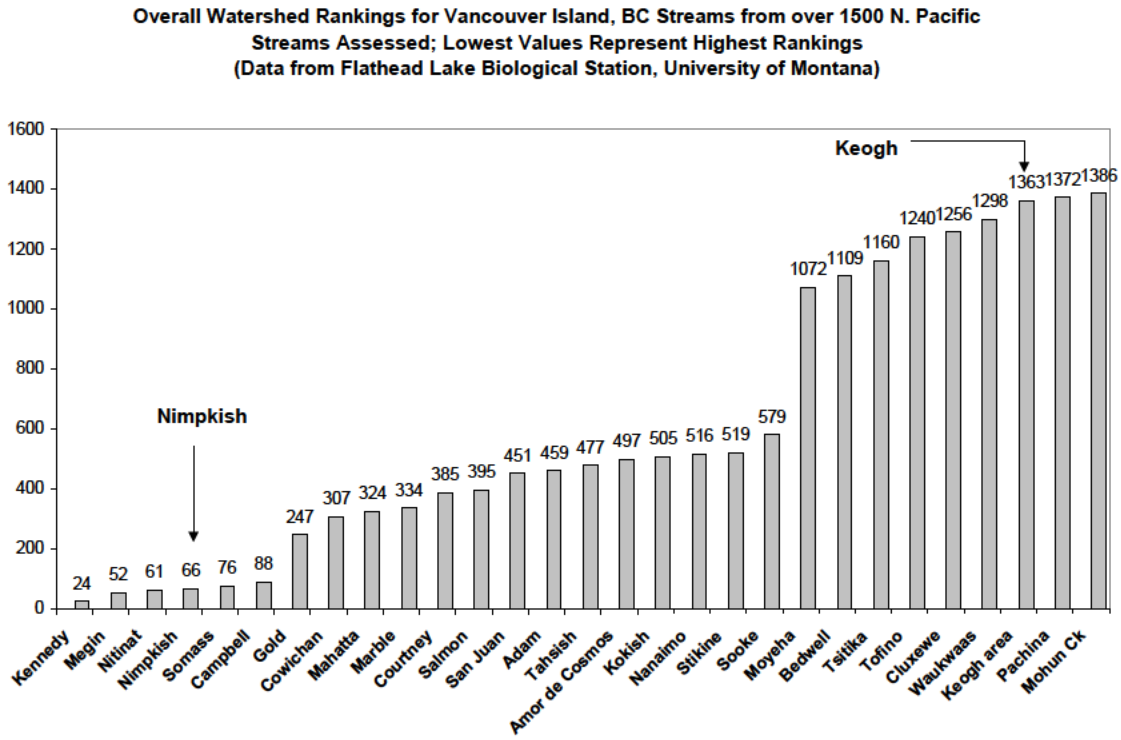


Figure 6.

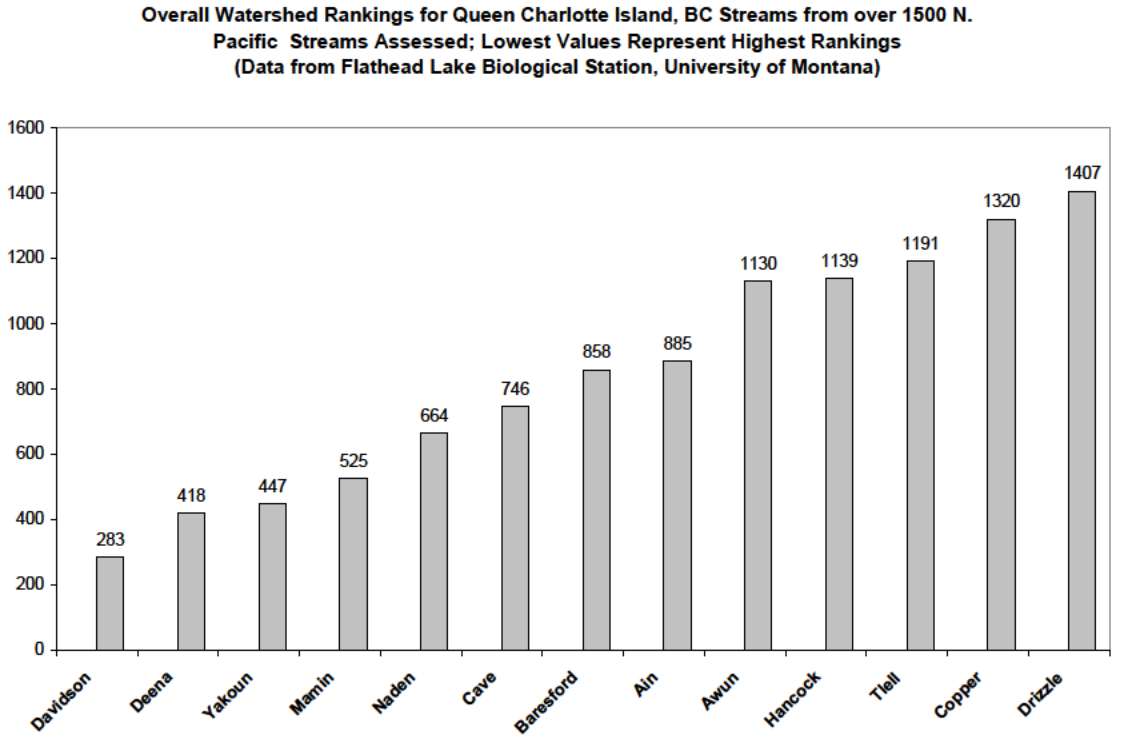


Figure 7. Alaska

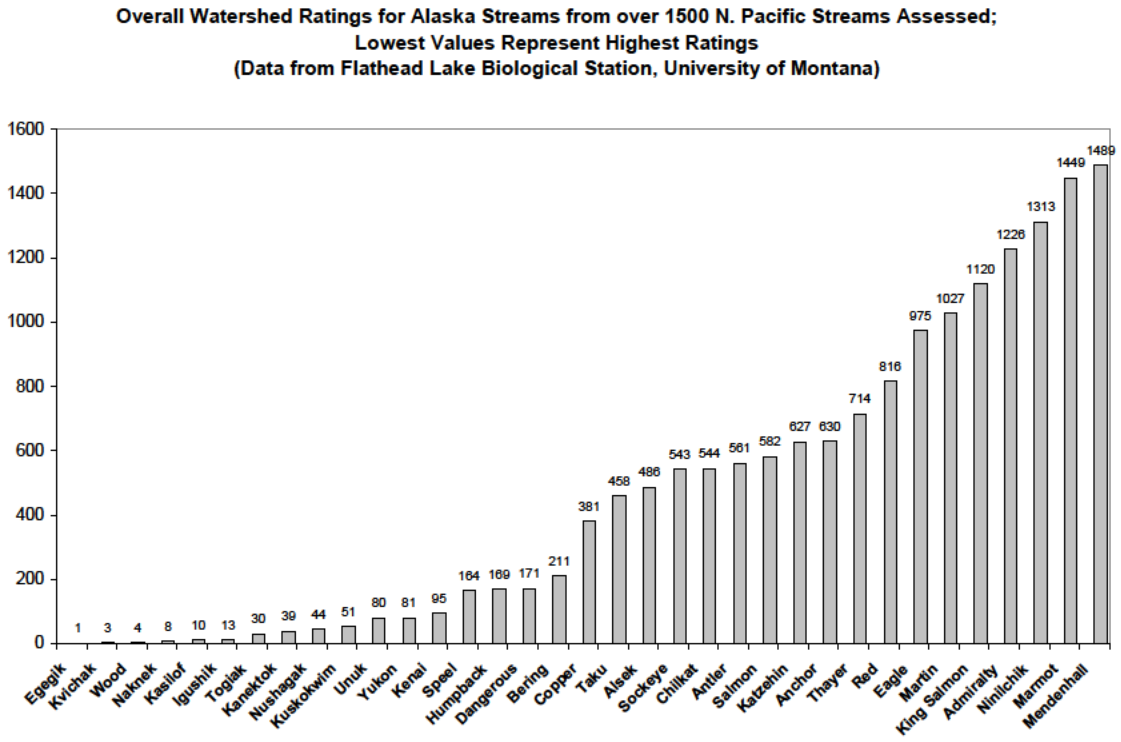


Figure 8. Kamchatka

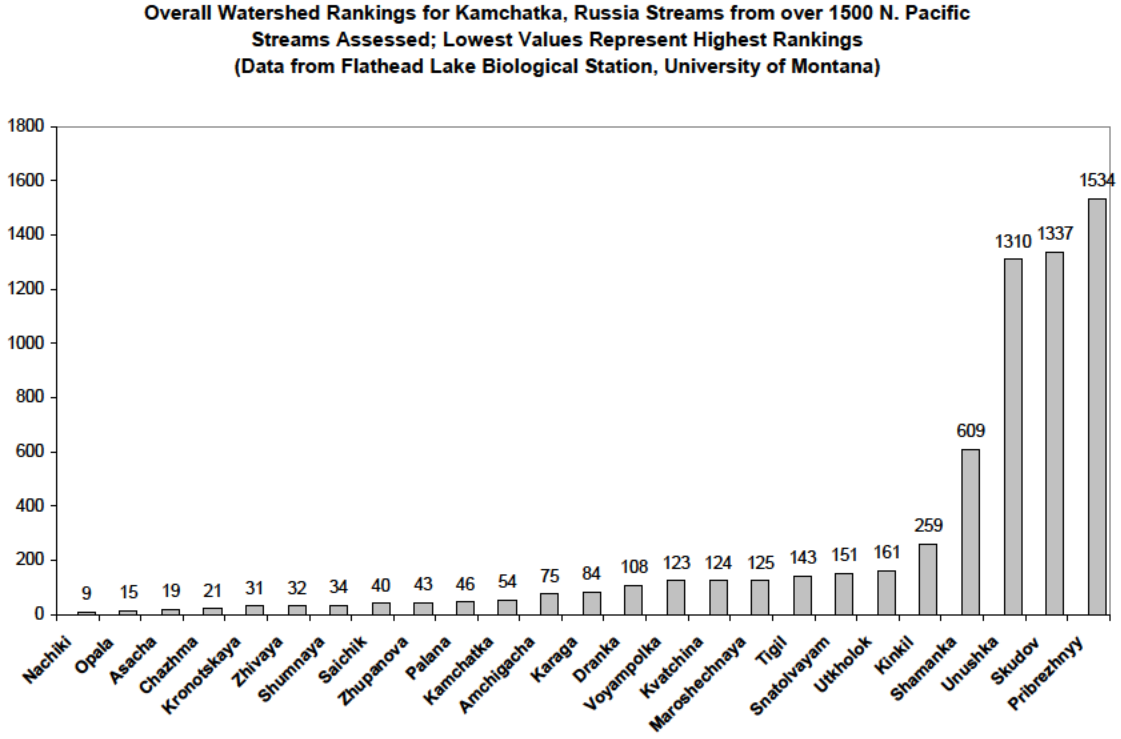


Figure 9. North Fork Umpqua Wild Winter Steelhead History

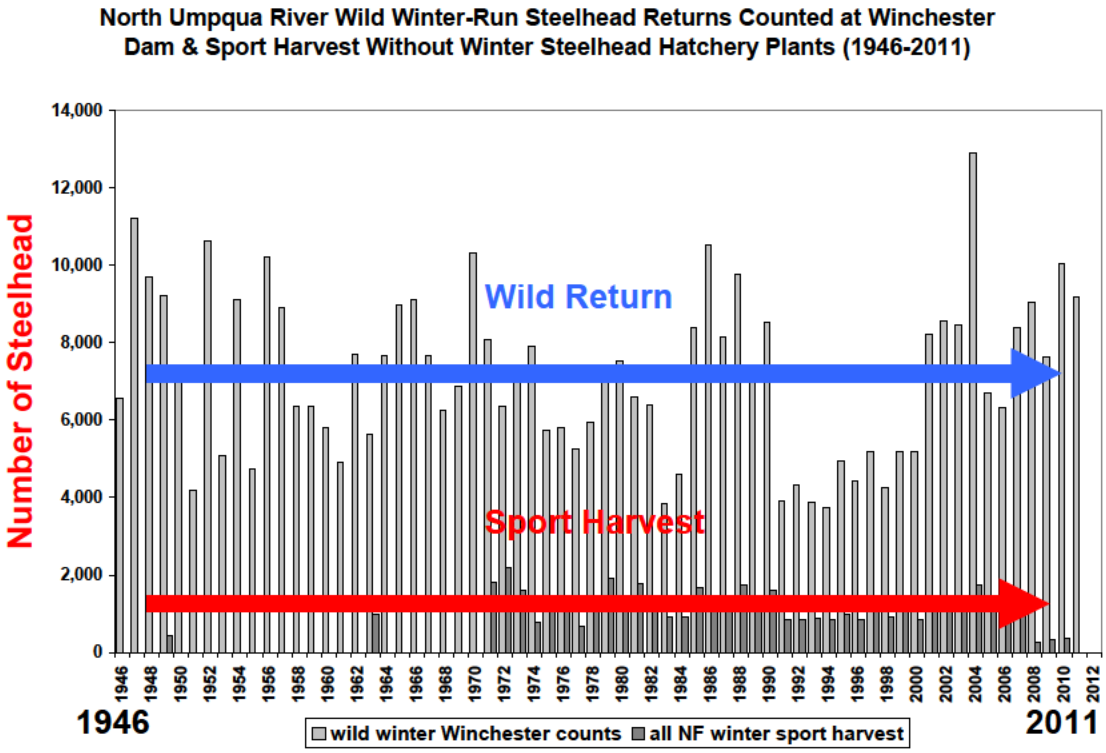
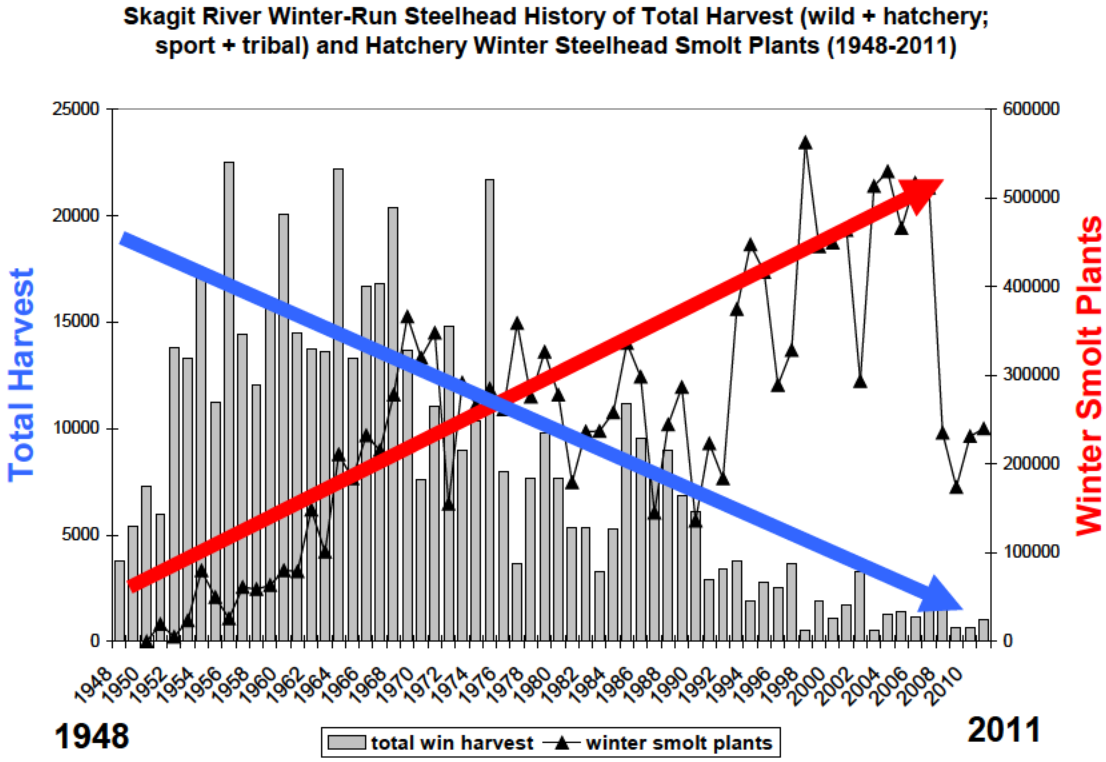


Figure 10. Skagit River



August 13, 2015

EIS Scoping Comments regarding Five Puget Sound Winter Steelhead Hatchery Programs

Trout Unlimited (TU), the nation's largest coldwater fisheries conservation organization dedicated to protecting and retoring our nation's trout and salmon resources and the watersheds that sustain them, appreciates the opportunity to submit these comments regarding the scope of the Environmental Impact Statement NOAA is preparing for five Puget Sound winter steelhead programs.

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 address issues relevant to the proper scope of the EIS that NOAA is now preparing, and we incorporate those comments by reference and urge NOAA to review our comments in the scoping process.

Our intent with these comments is to raise major points that should be addressed specifically in the scoping process.

Range of Alternatives

TU supports a range of alternatives that includes: (1) the proposed action; (2) a no-action alternative (the closure of the five hatcheries); (3) an alternative of full implementation of HSRG recommendations; and (4) an alternative that would shift from segregated hatcheries to integrated hatcheries using native broodstock.

Environmental Impacts

NOAA should evaluate the likely impacts of each alternative on:

- Both the short term extinction risk and the speed and likelihood of wild steelhead recovery. NOAA should consider both ecological and genetic impacts, and should specifically address how the alternatives would affect all four Viable Salmonid Population parameters. It should also take into account projected changes in watershed hydrology due to climate change and how the alternatives would affect the adaptability of wild steelhead to those hydrologic changes. We refer NOAA to the extensive comments we provided on these impacts in our previous NEPA comments and we incorporate them here by reference.

- Other salmon and trout species in the watersheds. For example, predation on and competition with chinook salmon by hatchery steelhead is one potential impact of these hatchery programs.

- The efficacy of the publicly-funded salmon and steelhead habitat protection and restoration actions in each basin. Are the alternatives beneficial, neutral, or detrimental with respect to achieving the full benefits of habitat actions?

- Wild steelhead and other salmonids that will likely result from tribal and sport fisheries that would be enabled by hatchery production under the alternatives. Likely impact on

early-timed wild steelhead (including the potential for the early-timed component of the run to rebuild). Gear types and the likely impact on resident rainbow, juvenile steelhead, and kelts (post spawn fish) should be considered.

Socioeconomic Impacts

As we noted in our January comments on the Puget Sound HGMP DEIS, the socioeconomic analysis was extremely weak with respect to the effects of the alternatives on fishing. We urge NOAA to review our detailed comments so it can remedy the deficiencies we identified in the forthcoming EIS. Specific socioeconomic impacts related to fishing that should be evaluated for each alternative include:

- The cost of producing adult hatchery steelhead
- The economic value of adult fish that would likely be harvested
- The economic cost of maintaining and operating the hatcheries, taking into account needed capital improvements
- How each alternative would affect sport fishing opportunity, as opposed to harvest. For example, for alternatives under which use of Chambers Creek fish would continue, how would harvest fisheries targeting Chambers Creek fish likely impact catch-and-release sport fisheries for wild steelhead?

The EIS should also evaluate each alternative wiith respect to its likely effect on the return-on-investment for publicly funded habitat projects in each of the five basins, both existing investments and likely future investments in steelhead recovery.

It bears emphasis that these socioeconomic impacts should be evaluated in both the short and long-term to get a reasonably accurate and balanced estimate of likely impacts. It may very well be that the short-term (e.g., one or two years) economic impacts related to sport fishing under the alternatives would be substantially different than the longer-term benefits. For example, under alternatives where Chambers Creek production would cease, there would likely be a short term economic hit due to the loss of the harvest fishery targeting hatchery fish, but elminiating such production or switching to an integrated program may, over time, provide much better fishing opportunity as the naturally reproducing population rebounds (either on its own or with the assistance of supplementation for a period of time). For sport fisheries, NOAA should be careful to not equate harvest opportunity with fishing opportunity for steelhead; they are not the same and harvest opportunity may actually decrease fishing opportunity.

Thank you for your consideration.

Sincerely,

Rosendo Guerrero
Chair, Washington Council of Trout Unlimited

Cc: Jim Scott, WDFW

117 E Louisa St #329, Seattle, WA 98102

August 13, 2015

Via Email
National Marine Fisheries Services
Sustainable Fisheries Division
510 Desmond Dr., Suite 103
Lacey, WA 98503
Email:EWShatcheriesEIS.wcr@noaa.gov

Re: Early Winter Steelhead Hatcheries EIS.

Dear Honorable Civil Servants:

Please accept these our endorsement of the comments submitted by the Wild Fish Conservancy (WFC) on the Scoping for an Environmental Impact Statement for Five Hatchery and Genetic Management Plans (HGMPs) for early winter steelhead hatchery programs in the Dungeness, Nooksack, Stillaguamish, Skykomish, and Snoqualmie River watersheds in Washington State, jointly submitted by the Washington Department of Fish and Wildlife (WDFW) and the Jamestown S'Klallam Tribe, the Lummi Nation, the Nooksack Tribe, the Stillaguamish Tribes, and the Tulalip Tribes (collectively, "Comanagers") for NMFS evaluation and determination under Limit 6 of the Endangered Species Act (ESA) 4(d) Rule for threatened salmon and steelhead.

I. <u>Introduction</u>.

WILDSTEELHEAD
COALITION

117 E Louisa St #329, Seattle, WA 98102

We provide these comments to supplement those that Wild Fish Conservancy submitted on the 2015 draft EA for three early winter steelhead hatchery programs (80 FR 15985, March 26, 2015), and on the 2014 draft EIS for Puget Sound salmon and steelhead hatcheries (80 FR 15986, March 26, 2015). The Federal Register Notice of July 14, 2015 (80 FR 41011) requesting comments for the scoping of the EIS notes that these earlier comments "will also be considered in developing the EIS". We hereby incorporate by reference all comments relevant to scoping issues that Commenters submitted for the 2015 draft EA and the 2014 draft EIS. We also incorporate by reference all supporting documents referenced or included with each of those comments. Each of those comments described the state of the wild steelhead and salmon populations of Puget Sound, their need of recovery/rebuilding, and the importance of fully evaluating the ways that wild steelhead and salmon may be adversely affected by hatchery programs, including those that are the subject of the EIS. Those comments further described and discussed the several key legal, ecological, and economic issues that must be addressed in order to properly evaluate the impacts that any or all of the individual hatchery programs may have on wild steelhead and salmon populations in Puget Sound, including those listed under the ESA. Our comments herein concerning the scoping for the EIS will, therefore, be general, highlighting the key topics that need to be considered and the details that need to be included.

We first note a general concern with the proposal to develop an EIS for the five HGMPs submitted by the Comanagers. We are not convinced that the decision to develop an EIS

for the five steelhead hatchery programs provides sufficient scope to avoid the concerns regarding piecemeal approvals of numerous salmon and steelhead hatchery programs and other actions requiring environmental review that we raised in regard to the March 2015 EA for three early winter steelhead hatchery programs. As we noted in our comments to that EA:

"The decision to treat the three HGMPs as a single RMP and the attendant decision to approve them by issuing a hastily drafted EA, instead of completing the comprehensive EIS on all Puget Sound hatcheries, in order to fast-track approval in hope that hatchery smolts can be released in early May 2015 sets a dangerous precedent of weakening the substantive public and environmental benefits of NEPA. Among other concerns, approval of this action by NMFS threatens to open the door to the approval of numerous individual HGMPs that can be bundled in small packages labeled as resource management plans. This would lead to widespread approval of numerous hatchery programs that impose significant risks to ESA-listed wild salmon and steelhead populations throughout the Pacific Northwest without having to subject them to a comprehensive NEPA evaluation and would deprive the public of its ability to evaluate the full cumulative impacts of such approvals. This would also extend beyond salmon listed under the ESA and would encourage other environmental evaluations to avoid proper public review and proper comprehensive evaluation of adverse effects by considering one or several small actions in a piecemeal fashion. This would further undermine the purposes of NEPA." (WFC Comments on Environmental Assessment to Analyze Impacts of a NOAA's National Marine Fisheries Service Proposed 4(d) Determination under Limit 6 for Three Early Winter Steelhead Programs in the Dungeness, Nooksack, and Stillaguamish River Basins, May 4, 2015, pp.12-13).

We see little substantive difference between an EA for three of the five programs that are the subject of this scoping notice and an EIS on the five programs with regard to the scope of potential cumulative impacts at issue and the scale of analyses required in order to provide the needed comprehensive analysis of appropriate alternatives and their associated costs and benefits. We believe that only a full EIS of all Puget Sound salmon

and steelhead hatchery programs treated as components of one or more joint state-tribal resource management plans (RMPs) can provide the appropriate level of analysis.

The absence of a Recovery Plan for Puget Sound steelhead makes the evaluation of any early winter run steelhead hatchery program problematic, in that NMFS cannot know whether or not any particular river or demographically independent population (DIP) may be required to be free of influence from production (non-conservation) hatcheries or, if not, how much production from an early winter run program may be compatible with recovery. In view of the recent recommendations from the Puget Sound Technical Recovery Team (PSSTRT, Hard et al 2015) regarding the minimum numbers of winter- and summer-run DIPS throughout the DPS that must attain viability (13 winter-run, 2 summer-run), it is likely that any determination to approve releases of early winter-run steelhead in any Puget Sound river can be at best provisional (temporary), and for this reason alone should be precautionary.

2. Purpose and Need.

The purpose and need (P&N) statement is crucial because only a sufficiently broad statement will allow full development of an adequate range of alternatives. It is essential, therefore, that NMFS provide a broad statement of the purpose and need for the drafting of an EIS for the five hatchery programs. A broad statement will be required in order to provide for a detailed evaluation of an appropriately broad range of Alternatives. The range of alternatives provided in the EIS must be broad enough to encompass reasonable

ways in which some or all of the objectives of the Comanagers can be met consistent with the requirements of the Endangered Species Act (ESA). The P&N statement must not be so narrowly described as to pre-determine approval of a preferred alternative favoring approval of the five HGMPs.

NMFS' obligation to meet treaty trust responsibility requirements for winter-run steelhead harvest must be explicitly quantified on a tribe-by-tribe, watershed-by-watershed basis. In both the withdrawn 2014 DEIS on all Puget Sound salmon and steelhead hatcheries and the 2015 EA, and elsewhere, NMFS has stated it will accept "impacts that may result in increased risk to the listed species to provide limited tribal fishing opportunity". It is incumbent on NMFS to provide explicit, measureable quantitative criteria by which NMFS determines a) that impacts to ESA-listed species in a specific case are required in order for NMFS to fulfill its trust responsibility, and b) the amount of the impacts (typically harvest impacts) that are tolerable in order to meet the trust responsibility in the specific case. Absent such objective, quantitative standards and related reasoning, it is impossible for either NMFS or the public to know whether or not the additional impact is reasonable, justifiable, and hence, legal.

In the P&N statement and elsewhere, where impacts to listed resources or impacts to stakeholder interests are at issue, and more generally where benefits and costs of actions or inactions are involved, the language of 'minimization' should be avoided. The language of minimization provides no objective criteria by which either NMFS or an

interested observer can determine what is required or whether the actions chosen in order to 'minimize' an impact are appropriate. Wherever possible specific measureable, quantitative metrics and/or guidelines must be provided and applied to determine the specific action required and the extent of the impact that is expected to result from the action.

3. Alternatives.

As we noted in our comments on the 2014 DEIS,

"'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" (WFC Comments on the DEIS, January 2015, page 4).

The No Action alternative is particularly critical to an EIS. As we noted in the same comments (page 5),

"Agencies must include a no action alternative in their NEPA analyses and give the no action alternative "meaningful consideration" in order to avoid violating NEPA's mandates. *See Bob Marshall Alliance v. Hodel*, 852 F.2d 1223, 1230 (9th Cir. 1988). "The no action alternative is meant to provide a baseline against which the action alternative . . . is evaluated." *Ctr. for Biological Diversity v. U.S. Dep't. of Interior*, 623 F.3d 633, 642 (9th Cir. 2010). A no action alternative is supposed to "facilitate comparison of the environmental impacts of the proposal and the alternatives." *Valley County v. United States Dep't of Agric*., 2012 U.S. Dist. LEXIS 106667 (D. Idaho July 27, 2012) (citing 40 CFR § 1502.14) (internal quotation omitted). NEPA's required no action alternative "is meaningless if it assumes the existence of the very plan being proposed." *Friends of Yosemite Valley v. Scarlett*, 439 F. Supp. 2d 1074, 1105 (E.D. Cal. 2006) (finding that a no-action alternative could not properly include elements of an

illegal plan)".

The No Action alternative should not assume that hatchery programs will continue; instead, it should describe the existing legal operational status for each Puget Sound early winter steelhead hatchery program being considered. Currently, under the 2014 Settlement Agreement between WDFW and WFC regarding WDFW's Puget Sound early winter steelhead hatchery programs, no releases of early winter run hatchery steelhead have occurred in 2014 and 2015, except for releases of 180,000 smolts into the Skykomish River. At a minimum, the No Action alternative should describe this situation. Preferably, however, in order to appropriately characterize the situation in which comanager Puget Sound early winter run steelhead hatchery programs do not have 4(d) take coverage under the ESA, the No Action alternative should describe the situation in which no releases of early winter run hatchery steelhead from any Puget Sound hatchery occur. This would include termination of all early winter run hatchery programs that do not and cannot obtain the appropriate 4(d) take coverage.

Among other Alternatives that should be described and evaluated, we recommend the following:

- An Alternative to maximize recovery potential for ESA-listed species;
- An Alternative to eliminate hatchery programs using non-native broodstock;
- An Alternative to only permit for-harvest hatchery programs that demonstrate census pHOS (*sensu* HSRG 2015) less than 2% (or 5% max, regardless of

effective pHOS, *sensu* HSRG 2015), 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.

- An Alternative to require any hatchery program that otherwise meets requirements to develop plans to transition to water re-use or re-circulation systems that will attain specific minimum water conservation objectives within the next five to ten years.

- An Alternative to require any hatchery program that otherwise meets requirements to develop plans for low-flow and high water temperature operating procedures that adequately protect wild salmon and steelhead.

The EIS should provide explicit evaluations of whether and how each Alternative meets the requirements of the 4(d) rule, including an analysis of whether (and if so, how) the alternatives will appreciably reduce the likelihood of survival and recovery of listed ESUs and the DPS. In doing this, the EIS should make extensive, appropriate use of NMFS's viable salmon population (VSP) concepts (McElhaney et al., 2000).

4. Quantitative Risk Assessment.

In our comments on the 2014 DEIS and the 2015 EA, we described in some detail the reasons why a quantitative probabilistic risk assessment framework is required in order to adequately describe, compare, and evaluate alternatives and specific actions that may be required under any particular alternative. We re-iterate the importance of that herein and refer reviewers to the relevant parts of our previous comments.

5. Economic Analysis.

The economic analysis should include an analysis of the benefits of the recovery of ESA-listed salmon and steelhead, and the contribution to recovery of applying funds devoted to hatchery production to recovery measures instead. As we noted in our comments on the 2014 DEIS (page 18),

"The DEIS' economic analysis is too narrow and fails to evaluate the economic benefits of recovery of listed ESA-listed salmon and steelhead. The DEIS should describe how the "harvestable surplus" is defined and quantitatively identified, and how this is related quantitatively to ESA issues such as take, recovery, and jeopardy. Chapter 3.3 does not provide commercial harvest data for individual tribes. The DEIS (chapter 3) 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.
"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 the hatchery programs and into habitat restoration and other efforts to support recovery of self-sustaining wild fish populations."

A specific ecological/economic analysis of early winter-run hatchery programs should be conducted given the low smolt-to-adult survival (SARs) of all such programs. All of these (and several other salmon hatchery programs) appear to violate a basic ecological characteristic of sustainable salmonid populations, viz. the ability to increase cohort biomass as the cohort incurs mortality over the course of its lifetime. Simply put, individual growth up to the time of adult return to natal rivers should result in an increase in the total biomass (weight) of the surviving adult members relative to the initial biomass of the juvenile (smolt) cohort. For example, each of the five HGMPs proposes to release early winter hatchery steelhead smolts at a weight of 5 per pound. If 100,000 smolts are released the total weight of this smolt cohort is 20,000 pounds. If the average weight of a returning adult from this cohort is (conservatively) 8 pounds, 2500 adults would have to return in order for the total weight of returning adults to equal the total weight of the cohort of smolts (20,000/8 = 2500), which would require a smolt-to-adult survival rate of 2.5%. The majority of early winter steelhead hatchery programs in Puget Sound have SARs much lower than 1%. An SAR of 1% would return 1000 adults from a cohort of 100,000 smolts. In order for this number of adults to return a total weight equal to the weight of the smolt cohort, the average adult would have to weigh 20 pounds, which is clearly out of the question. Consequently, these hatchery programs return considerably less adult biomass than the biomass of smolts that is required to produce them, a situation that would be unsustainable for a wild salmon or steelhead population. The economics of this situation needs to be analyzed in the EIS.

6. Cumulative Effects.

A cumulative impact is defined as "the impact on the environment which results from the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions." 40 C.F.R. § 1508.7. Under NEPA, cumulative impacts include direct as well as indirect effects, "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." 40 C.F.R. § 1508.8(a).

We note several issues that should be addressed in the EIS in order to properly describe and analyze the direct and indirect effects that may be caused by actions under the alternatives.

Cumulative impacts from harvest directed at hatchery populations and from straying of returning hatchery adults to the spawning grounds of wild populations needs to be included in the analysis. This is consistent with recent concerns noted by the HSRG (2015): "Efforts to harvest abundant hatchery fish form one population can impact natural fish in another population; hatchery strays can and do interact with natural populations from different locations within a region. The contribution of each hatchery program to the cumulative impact of all hatchery programs also needs to be considered."

The biomass deficit that results from poor SARs of hatchery steelhead also points to the need, in the EIS, to evaluate the impact of hatchery feed required to support hatchery

production on marine bait/forage fish populations that make up the fish meal that goes into many hatchery feeds. A full accounting of this is required in the cumulative effects analysis. Of course, it requires analysis of more than just the five steelhead hatchery programs that are the subject of the EIS in order to adequately evaluate the impact of hatchery feed on marine baitfish and forage fish populations. This again highlights the need for the EIS to include more than just the five steelhead programs in order to adequately evaluate the cumulative effects of these programs.

Competition and predation in the migratory corridors and nearshore rearing environment of juvenile steelhead and salmon from releases from early winter steelhead hatcheries must be evaluated. Straying of returning adults from each of the five programs to other nearby rivers and streams and the impacts this is likely to have on wild populations needs to be evaluated. In this regard, we also recommend that census pHOS standards should be more stringent for rivers and streams that do not have NMFS-approved early winter steelhead programs. If there are defensible reasons for approving early winter steelhead programs in any of the five river basins that are the subject of the EIS, census pHOS of hatchery steelhead within these basins as recommended above must apply. But rivers that are free of such hatchery releases should not be subjected to straying that results in census pHOS comparable to that permitted in the rivers into which the hatchery steelhead are released and to which they are to return to subsidize fisheries; rather, they should be held to more stringent census pHOS standards in order to protect their defacto status as wild-only populations.

Climate change threats need to be addressed in substantial detail in order to adequately account for the cumulative impacts of early winter steelhead (and other) hatchery programs, in light of known anticipated increases in stream temperatures and changes in the timing and magnitude of seasonal flows, including increased frequency of reduced summer/fall low flows and attendant temperature increases (Wade et al. 2013). The threats posed by climate change to stream flows and water temperatures make evaluation of water consumption by hatchery facilities critical, and support our recommendation to evaluate and require water re-use/recirculation of hatchery facilities. In any case, a comprehensive evaluation of current water use by each hatchery facility and the impact of that use on ground and surface waters is required.

The EIS needs to acknowledge and quantitatively account for the continued loss of habitat that is continuing to threaten ESA-listed salmonids in Puget Sound (Judge 2011) and evaluate the relation of each of the Alternatives to this loss and to the risk posed to listed species. The EIS should explicitly discuss Roni et al (2010) and Roni & Lierman (2008) in the context of the lack of funding of monitoring of Salmon Recovery Funding Board (SRFB) projects by the SRFB and the significance of this for evaluation of the Alternatives. The opportunity cost of funding the early winter steelhead hatchery programs instead of funding preservation, restoration, and monitoring actions in support of recovery should be analyzed.

7. References.

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Thank you for your consideration of our endorsement of these comments.

Thoughtfully,

Jonathan Stumpf
Chair, Board of Directors
Wild Steelhead Coalition

Puget Sound Early Winter Steelhead Hatcheries Draft EIS

July 2015

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Comments:-

Thank you for the opportunity to comment on the draft ESI for Puget Sound Early Winter Steelhead WDFW hatchery program.

Background information:

In 2007 at the time of the ESA listing of Puget Sound steelhead WDFW had released 1,785,000 early winter steelhead (EWS) hatchery smolts into the various streams in the Puget Sound DPS. In the current version of the draft ESI the program level of EWS under the preferred alternative calls for a release of 620,000 smolts. The production level under this preferred option represents a 65% reduction from the 2007 release level. A hatchery production reduction of this magnitude across a wide geographic area such as the Puget Sound DPS is not only astounding but likely unprecedented for any anadromous fish hatchery production programs in this State

Clearly such a reduction in the EWS hatchery program has a significant impact on both recreational and tribal steelhead fishery opportunities in throughout the Puget Sound basin. The loss of those opportunities represent both economic and social losses to the local area with particularly acute impacts on smaller local communities in the various river basins that are dependent on the activity steelhead fisheries generate. While many in the fishing community (either recreational or tribal) may feel that such a reduction in hatchery production is a steep price to pay others in society find the potential benefit to wild steelhead production from the elimination of hatchery/wild steelhead interactions find that the fishery loss is a reasonable trade-off for increased wild steelhead production.

The Puget Sound Technical Steelhead Recovery Team (PSTSRT) in examining the Puget Sound steelhead populations developed a list of criteria for establishing what they called Demographical Independent populations (DIPs). In the review of the greater Puget Sound steelhead population the PSTRT determined that there were 32 DIPs within the DPS. Of those 32 DIPs 5 were considered to be summer run populations and 27 winter runs. In a review of those 27 winter run DIPS I found that 70% of them have not had EWS (Chambers Creek) hatchery smolts released in their watersheds for 1 to 5 steelhead generations. Under the theory of significant adverse impacts on wild steelhead populations from hatchery interactions one would expect relatively rapid response from the wild population with the removal of potential hatchery interactions. Of those DIPs that have been “hatchery free” for one or more steelhead generations there is little evidence of positive benefits to the corresponding wild populations. In the aggregate the wild steelhead populations in “hatchery free” DIPs are faring no better than those DIPs where hatchery fish have continued to be released.

ALTERNATIVE 1 – not action; no production from isolated hatchery steelhead program

Based on the information provided in the preceding background section I find that total elimination of the EWS hatchery production within the Puget Sound DPS is not warranted and this alternative doesn't receive my support. The potential benefits from a EWS hatchery program and the potential for selectively targeting the hatchery fish minimizing impacts on co-mingled wild stocks out weight the marginal potential wild fish benefits from the complete elimination of EWS production in the Puget Sound basin.

ALTERNATIVE 2- Propose action, production from isolated programs as proposed in the co-managers 5 HGMPs with total hatchery production of 620,000 smolts.

This proposed action would also be my preferred alternative. It represents a significant reduction in the total EWS smolts in the Puget Sound basin from that seen in the recent past. In addition it concentrates those release in the north Puget Sound region where there has been historic hatchery programs of the proposed magnitude where the wild populations also tend to be in better shape than elsewhere in the DPS.

ALTERNATIVE 3- reduce production; reduction production levels in Alternative 2 by 50%.

This alternative would result in a production reduction to less than 20% of the 2007 levels. Such a reduction seems excessive and would result in significant reductions in economic benefits to the region. At the same significant hatchery release within the DPS has not demonstrated the expected wild fish benefits. Much like alternative 1 I cannot support this alternative.

I would argue that the Puget Sound region has supported more than its fair share of steelhead hatchery production reductions. Until such time as the State is ready to adopt similar production cuts across the State the Puget Sound region and anglers that would potentially fish those waters have done enough!

ALTERNATIVE 4 – transitions to Native Broodstock with a target production level remaining at 620,000 smolts.

While on the surface this alternative sounds attractive experience has shown that at least in the north Puget Sound region developing such a broodstock that would be representative of the Native winter steelhead required for a long term successful segregated hatchery program would be extremely difficult and expensive if not impossible. Use the Skagit and its wild winter steelhead as an example some of the potential difficulties would include:

With a river entry timing ranging from late October to early June under a wide variety of river conditions the collection of brood stock that would be representative of the wild run timing would be virtually impossible most. That difficulty is compound significant overlaps in run and spawning timing with significant numbers of fish entering the river well into the spawning period.

The extended spawn timing of the wild population extends from early March through late July; with peak spawning in mid-May. Again collection of a brood stock with a representative spawn timing would be very difficult. This spawn timing present some very difficult fish culture problems. With such late spawning the ability to raise the fry to smolt size in a single growing season; especially if attempting to include the fish from the later spawning portion of the population in the brood stock virtually impossible without adopting a 2 year smolt program. This would result in a much more expensive program to reach similar production levels.

With that extended spawning period it would be challenging to avoid rearing selection of those fish that most successful. There is ample evidence that within some general parameters the larger the smolt the more successful it will be. If the fry from a representative spawning process were raised as a single lot of fish the more early hatching fish would have significantly longer rearing periods resulting in larger smolts while the later spawned fry would be much more likely not be able to reach acceptable smolt size. The potential culture action to combat that selection would be to raise the fry/pre-smolts in several separate lots of fish with the goal have all the fish of similar size at the time of release. Again this may require modification of rearing facilities and most likely resulting in a more expensive program.

There are a number of fisheries management problems associated with these types of programs that are more significant that those with a EWS program. Because of the difficulty in development of native broodstocks that would representative of the native population to limit hatchery/wild impacts to acceptable levels would require a re-sizing of the program to such low levels that potential benefits would be of little benefit.

After careful thought and review of available information I find virtually impossible to construct any meaningful native broodstock program for north Puget Sound Rivers that would not have more adverse impacts on the wild steelhead of the basin that the EWS programs pre ESA listing.

ALTERNATIVE 5 – A propose alternative replace for with the current #1 or #3

This is an additional proposal that I'm putting forward for consideration. AS we all know over long periods of time stretching over decades it is common to see wide swings in the survival of both hatchery and wild smolt to adult survival that vary as much as 10 fold between good and poor survival periods. In addition the available data suggests there can be significant differences in smolt to adult survivals from river to river. While this is poorly understood it is clear that it occurs.

My proposal would be a modification of the alternative 2; the preferred one. Production levels would remain at the 620,000 smolt level with the proviso during periods of extremely poor marine survival there would be a suspension of the more marginal programs with the retention of a core program that has shown to have most consistently highest smolt to adult survival. The idea would be as survival conditions improve that core program would be available to provide start up broodstock for those programs that had been suspended. This option would provide flexibility to allow for the adjusting programs for what would make economic sense while preserving future options.

August 1, 2015
National Marine Fisheries Service
Sustainable Fisheries Division
510 Desmond Drive SE
Suite 103
Lacey, WA 98503

Reference: Early Winter Puget Sound Hatchery Steelhead HGMP EIS Scoping, Federal Register Notice RIN 0648-XE039, July 14,2015

To NMFS Person(s) engaged/responsible for this project:

I am providing by this letter my personal comments in response to above referenced Federal Register Notice (FRN). My interest stems from more than sixty years of fishing for steelhead in most Puget Sound rivers, nearly a half century of working to save and restore wild steelhead runs as a member of a number of sport fishing/conservation groups and as a member of a many federal, state and local government entity/citizen advisory committees. I am a retired State of Washington licensed professional Civil Engineer, having worked for the Seattle District U.S. Army Engineers for 30 years, retiring in 1993. I served as the first Director of Fishing Affairs for the Northwest Marine Trade Association (recreational boating industry) from 1996 through 2003. Currently I am a member of the Cedar River Council, Lake Washington Basin Salmon Recovery Council, Seattle Public Utilities (SPU) Adaptive Management Work Group and the SPU Cedar River Habitat Conservation Plan Oversight Committee. I had been a member of the Washington Council of Trout Unlimited for 30 years, now a member of the Puget Sound Anglers, Coastal Conservation Association and the Steelhead Trout Club of Washington. I have been a co-chair of the WDFW Steelhead/Cutthroat Policy Advisory Group. I was a stakeholder leader in the successful effort to secure the enactment of state legislation mandating the mass marking of hatchery Chinook and Coho salmon in 1995 – following the hatchery steelhead marking model. The mass salmon marking legislation saved our salmon fisheries. I was present when respected and well recognized fishery scientists engaged then Senator Slade Gorton with the concept of Hatchery Reform which ultimately was supported by the Federal government and the states of Washington and Oregon, as well as treaty fishing right Indian Tribes. Former Congressman Norm Dicks was instrumental in moving hatchery reform forward through the federal Hatchery Science Review Group (HSRG). Hatchery reform is a policy of the Washington Fish and Wildlife Commission.

Clearly I have been engaged enough to have an excellent understanding of the issues and processes which have lead to anti-hatchery groups unrelenting attacks on steelhead and salmon hatchery programs with the real intent of terminating those programs and associated tribal and sport fisheries. A spokesperson for Wild Fish Conservancy (WFC) made clear during testimony at a legislative hearing held by the Senate Natural Resources and Parks Committee in Olympia last summer, attended by Rob Jones (NMFS lead person on this project), that there is no hatchery that is acceptable to WFC. Consequently, there is no reason to believe this group will ever accept any hatchery program, no matter how well that program meets current standards and even if that program is in full compliance with best hatchery management practices as define by the federal Hatchery Science Review Group. Even though conducting their activities as a federal non-profit group, based on their business model which includes, in addition to state grants and other project related income, liberal use of litigation paid for by those sued, WFC can be expected to continue to pursue this successful approach which has been said to require an annual budget of a $ million or so to support a staff of twelve or more, in addition to attorneys. WFC can be expected to use the courts to prevent any Puget Sound early winter juvenile

hatchery steelhead from the five programs addressed by this project from every entering the respective river systems.

Closing down existing early winter steelhead hatcheries, mostly paid for by recreational fishing license buying citizens, or decreasing production of early winter hatchery steelhead, will not restore wild steelhead to fishable levels as has been demonstrated with the Cedar River where a once robust wild steelhead run is now functionally extinct. The Cedar River run has disappeared with no hatchery produced steelhead present, no fishing by the tribes or sports anglers and millions of dollars expended to significantly improve habitat for adult spawning and juvenile rearing. We owe the tribes and our citizens full mitigation for significantly diminished wild steelhead and salmon runs, beyond the net loss of habitat that continues to occur in spite an investment approaching a billion dollars for fish habitat restoration. In addition to expanded habitat restoration efforts, the mitigation obligation requires the use of properly managed steelhead and salmon hatcheries. We must redouble our efforts to fix our habitat, especially Puget Sound where ongoing research through the Salish Sea study is documenting significant growing losses of juvenile salmon and steelhead headed for the Pacific Ocean. Billy Frank, famous tribal leader, was right when he said habitat was the number one problem. However, until we can fully fix the habitat we need to have robust production of hatchery steelhead and salmon. This could be a reason to resurrect Boldt II.

The most current science shows that we can have significant hatchery production, and maintain meaningful tribal and sport fisheries, while protecting and perhaps enhancing the production of wild steelhead and salmon. Without steelhead and salmon hatchery production there soon will be no fishing by anyone, even on pink salmon runs. We have got to make this project succeed. Success is releasing all the early winter smolts into the appropriate rivers by May 1, 2015 so survivors can provide the broodstock to continue the runs. It is just not right that a governmental process be high-jacked such that the issues are not receive fair public airing and evaluation in time to allow the release of the last juvenile steelhead that can keep the hatchery program alive.

Having said the foregoing, I remain committed to working with NMFS, WDFW, affected Puget Sound Indian Tribes and others who believe we must wisely use hatchery fish to partially mitigate for the monumental transformation of freshwater and marine habitat that can barely support a fraction of wild steelhead and salmon runs that existed before the region was transformed by cities and other developments.

Range of Reasonable Alternatives

In addition to the four alternatives contained in the FRN there should be included a fifth: Alternative 5 – *Increasing annual early winter hatchery production to one million or more smolts*. This is to ensure fair consideration of a full range of possible alternatives and to recognize that marine and freshwater habitats are continuing to decline such that increased hatchery production will be necessary to compensate. Alternative 1 – No Action, Alternative 4 – Transition to Native Broodstock and Alternative 3 – Reduced Production, would eliminate or significantly reduce hatchery production and meaningful sport fishing for winter steelhead. These are not acceptable. Alternative 2 – Status Quo, NMFS's preferred alternative, would maintain production at current levels. Alternative 2 or Alternative 5 would be acceptable.

Methods of Analysis of the impacts of the Alternatives

Hatcheries of course have by and large been constructed to mitigate for lost natural production caused by Puget Sound area developments, including constantly expanding cities and lesser communities, water

supply, flood control and hydropower projects, ports, etc, that have adversely changed fish habitat in Puget Sound river basins and harmed Puget Sound itself. There is a legal obligation that is not being met with both the tribes and the citizens of this state to continue and improve mitigation. Boldt II is about habitat. It is possible that the affected tribes may be motivated to seek remedy again via the courts for the reneging on mitigation that had been partially provided by the hatcheries. Because habitat is an essential element of both wild and hatchery production it must be assessed during the discussion and evaluation of each of the five alternatives. There is a growing awareness of high juvenile steelhead mortality during migration through Puget Sound to the ocean. This marine habitat limiting factor must be included in the analysis.

When evaluating possible hatchery effects on listed stocks, it will be important to consider all potential risks and benefits of hatchery production. Social and economic benefits from tribal harvest and sport fishing opportunities must be given equal consideration to risks such as adverse ecological impacts, disease and genetic introgression. Each is important. Also, the analysis must address the mitigation obligation issue which many believe to be contractual, even if implied.

Impact of the Alternatives

Each of the alternatives must be carefully and fairly assessed as to whether or not it would indeed significantly harm or restore wild steelhead runs under reasonably expected future habitat conditions, especially Puget Sound. Realistic assessments are required as well for the impacts on sport and tribal harvest of steelhead. Because climate change and water conditions now being experienced under drought condition are likely to be the future, the scenarios used to evaluate the alternatives need to address this state too.

Process

There is much to do to provide sound basis for a NOAA-F decision that will allow release of all early winter steelhead smolts into respective rivers from the five covered hatchery programs this next spring. I do not want hatchery smolts wasted again as they were in 2014 and will again be dumped in lakes to die in 2015, effectively ending early winter Puget Sound steelhead hatchery runs. Accordingly, I ask that you expedite your NEPA and ESA processes so that a decision is made by early March 2016 such that the smolts can be released into their respective rivers when they are ready. Otherwise there would be no returning broodstock and you will have effectively terminated the Puget Sound early winter hatchery steelhead programs. Presumably, the affected Puget Sound tribes and State of Washington Department of Fish and Wildlife will be helpful in getting the required approval process completed to avoid this unacceptable outcome.

Thank you for this opportunity to share my thoughts. Please include me on your mailing and email lists for this project. I will send this letter to you by email as well.

Sincerely,

Frank J. Urabeck
[redacted]
Bonney Lake, WA 98391
[redacted]
urabeck@comcast.net

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

Hatchery steelhead

1 message

Bob Budd <rmbeyefish@aol.com> Tue, Jul 14, 2015 at 8:41 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

I am a resident of Pennsylvania but fished the Skagit River every April for 15 years, but now I must go elsewhere due to depleted wild stocks. I am against hatchery steelhead since they pose a threat to the wild stock gene pool. Please consider attempts to enhance wild steelhead recovery rather than increasing the number of hatchery fish. Thank you.
Sincerely,
Robert M. Budd

Sent from my iPad

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

hatchery steelhead

1 message

Greg Thomas <greg@reelfast.us> Wed, Jul 15, 2015 at 7:46 AM
To: EWShatcheriesEIS.wcr@noaa.gov

Please help our steelhead recover. Please reduce the stocking programs of hatchery steelhead. Our limited resource of wild fish needs your help and protection. You can also do the wild fish a giant favor by stepping in and insisting the local tribes stop their indiscriminate killing of all fishes in our rivers through their use of gill nets. Keep in mind that whatever policies you enact, the tribes will ignore as they net everything in the rivers, including the already listed ESA anadromous fishes.

Thank you for your efforts, I know this is not an easy task.

Greg Thomas

Sequim, WA

Comments on Draft Environmental Impact Statement

July 20, 2015

Earlier DEIS

Will NOAA address, in this draft, aspects of the earlier DEIS and EIS inputs which were rejected?

Schedule for DEIS and EIS approval

How will the DEIS/EIS be handled so as to preclude the failures to plant smolts for two successive years? If NOAA cannot do better than it has, it is recommended that the State and Tribal inputs which represent the interests of the citizens be accepted as presented to NOAA.

What ever regulatory changes are necessary to accomplish this should be undertaken immediately by NOAA. The last debacles cost the citizens many millions of dollars.

Hatchery Brood Stock

Please assure that the DEIS/EIS include provisions necessary so that wild brood stock of the ESU for that hatchery's river is used to the maximum extent possible.

Experience with wild brood stock

Will the DEIS reflect the success with wild hatcheries in the Wynoochee and Sol Duc as well as other similar programs?

Predation on wild smolts

Please provide data to depict the reduced survival of wild smolts when predators find that the normal huge quantities of hatchery fish are no longer available. A scientific evaluation of this potential is needed.

Fish Populations

The DEIS will need to address the documented fact that though hatchery fish may not do well for two or three generations the vast majority will survive and out number, by orders of magnitude, the wild fish spawned naturally. In a very few generations these hatchery fish will recover from the negative attributes caused by a single generation of hatchery exposure and will be impossible to differentiate from their hatchery cousins.

Phil Tucker

[redacted]

Bellingham, WA 98229

360 220 7640

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

Puget Sound Hatchery programs

1 message

1957smr . <steve.reiter411@gmail.com> Mon, Jul 20, 2015 at 9:38 AM
To: EWShatcheriesEIS.wcr@noaa.gov

To whom it may concern,

I am writing in favor of the steelhead and salmon hatchery programs for our Puget Sound rivers. I have been a resident of Washington State my entire 57 years and have been an avid fisherman for nearly all of those years. Hatchery reared steelhead and salmon provide fishing opportunities on our local rivers and seas. Without these hatchery reared fishes many fisheries simply would not exist, causing economic harm to our small communities which greatly benefit from the dollars spent by fishermen and women.

Great care has been given to reduce the interaction of native and hatchery reared fish although it can never be eliminated. Hatchery reared fish are released from facilities lower in the watershed and timing of releases are adjusted to reduce interaction. Using native brrodstock for hatchery production would in enhance the system by providing more available fish of the same gene pool and reduce the problems with hatchery and native interactions.

In closing I would like to reiterate my support for the WDFW hatchery programs in Puget Sound waters and across the state.

Sincerely,

Steve Reiter
[redacted]
Everett, WA 98208

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

HGMP - EIS

1 message

Ken j. Mcleod <alpinequest08@yahoo.com> Mon, Jul 20, 2015 at 10:01 AM
Reply-To: "Ken j. Mcleod" <alpinequest08@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

To NOAA:
Please complete the EIS (HGMP) for the 5 rivers involved: Dungeness, Nooksack, Stillaguamish, Skykomish & Snoqualmie. It is essential that this process go forth and be completed for the sake of the entire resource itself, as well as the great recreational value these hatcheries provide to vast multitudes of anglers. I implore you do so without further delay, so that OUR hatcheries can continue on the timeline needed to raise & release steelhead smolts for both the summer & winter-run seasons into the future.
Sincerely,
Ken James McLeod
[redacted]
Bothell, Wa. 98012
(avid outdoor sportsman)
alpinequest08@yahoo.com

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

Puget Sound hatcheries

1 message

Bryan Nelson <Bryan.Nelson@cabelas.com> Mon, Jul 20, 2015 at 3:52 PM
To: "EWshatcheriesEIS.wcr@noaa.gov" <EWshatcheriesEIS.wcr@noaa.gov>

I am unable to attend due to work conflicts, but I am very much ***FOR*** hatchery fish and hatcheries. Please reissue the State the permits they need to continue our hatchery programs.

Sincerely,

Bryan Nelson

[redacted]

Bryan.nelson@cabelas.com

Cabela's

Do you really need to print this email?

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

your hatchery plans

1 message

William Fitzsimmons <wdfitz1@gmail.com> Mon, Jul 20, 2015 at 8:43 PM
To: EWShatcheriesEIS.wcr@noaa.gov

Now may be the most politically harmless opportunity for you to do the proper thing and shut down these money sucking environmentally abusive hatchery programs. I sincerely hope you grow the gonads to follow through with what is obviously the most beneficial choice supported by existing science. The alternative is maintaining the current course which clearly has been proven to be absolutely ineffective. Bill Fitzsimmons, Kingston WA.

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

Hatchery Closures

1 message

ctflyfish@aol.com <ctflyfish@aol.com> Tue, Jul 21, 2015 at 11:53 AM
To: EWShatcheriesEIS.wcr@noaa.gov

I think it's the best solution. The evidence is overwhelming that hatchery fish have negative impacts on wild stocks.
Thanks, Craig Lynch
Ridgefield, Wa.

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

Salmon and Steelhead hatcheries

1 message

Les Gilbert <wintercreek75@gmail.com> Tue, Jul 21, 2015 at 8:27 PM
To: EWShatcheriesEIS.wcr@noaa.gov

With all the problems our Salmon and Steelhead face I am outraged over the recent action taken by the W.F.C.The hatcheries are the only reason that we still have Salmon and Steelhead in our waters.I urge you to do all you can to see that our hatcheries remain functioning.Thank you for your consideration.

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

Puget sound hatchery production - - PLEASE READ

1 message

Ray Gombiski <ray@murphyauction.com> Wed, Jul 22, 2015 at 9:06 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>, "fishpgm@dfw.wa.gov" <fishpgm@dfw.wa.gov>
Cc: "director@dfw.wa.gov" <director@dfw.wa.gov>

To whom it may concern,

I am a lifetime resident and angler of the Snoqualmie Valley and am concerned that the collapse of the hatchery program in the Puget Sound will have generational effects among residents of the area. My father moved to the valley in 1967 and became an avid Steelhead angler of the Snoqualmie watershed. His passion for this fish lead him to be involved in local sportsman clubs, volunteer rearing ponds & restoration projects. In 1979 I was born into a family that was centered on Steelhead fishing and the passion was passed down. I spent my entire youth chasing Steelhead in the Tolt, Raging and Snoqualmie. In the early years fishing was world class. The mouth of the Tolt would have more than 20 anglers fishing nearly every day. Fishing was so good it supported a tackle shop in Carnation. By the mid-nineties the decline became evident and the downturn in fish population was not a fluke. The first step was to eliminate all take of Wild Steelhead. At the time this was a foreign idea and many fishermen were of the "kill it" mentality. After about two years of releasing wild fish the mentality of the local Steelhead fisherman began to evolve. The Wild fish became sacred, not to be harmed by anyone at any costs. There were a few poachers, but for the most part the fishermen cared.

A positive outcome of this evolution became that we, as fishermen, had a wonderful Wild Steelhead season in February and March and nobody really cared because we had the hatchery fish in December and January. Throughout my collage years I would spend weekends and winter vacations fishing the Snoqualmie. The hatchery fish provided a wonderful sustainable fishery that allowed all fishermen to have opportunity to catch and take home this magnificent fish. The river was full of fish, from our hatchery. Off station plants allowed for angling throughout the system and people would come from near and far to enjoy the same experience I had.

My passion for the Snoqualmie Steelhead led me into the sport fishing industry after collage. I became a fulltime guide on the Kenai river in Alaska. Each winter returned home in the winter to my native Snoqualmie river to enjoy a couple months with my father fishing our home river. In the mid 2000's I took a job in Washington as the general manager of North River Boats in Washington. My entire life now depended on Puget Sound fisheries.

At this point in time, I felt it was my job to ensure these fish remain viable. I attended meetings, coordinated donations and gave public testimony all in the name of protecting our opportunity. In 2008 we lost our hatchery summer run program in the Snoqualmie, the off station plants were eliminated and the landslide began. In the next five years fishermen stopped fishing regularly. The only Steelhead fishing was in December and January.

The passion, for me, never stopped. During our short season, I would take vacations on the Snoqualmie and reminisce with my father about the good old days on the Tolt while fishing hatchery fish on the Snoqualmie. The point is we still had our winter hatchery fish. We still had the ability to fish our home water and enjoy the time spent on the water.

In 2009 my father lost his battle with cancer and our time together ended. His last Steelhead was a Hatchery Chambers Creek Steelhead at Plum's landing on the Snoqualmie. Over the next few years I continued to fish the Steelhead in the Snoqualmie without my dad. It became a memorial for me, every turn in the river reminded me of a story or a fish that he and I shared.

Two years ago I had my first son, he is the grandson of a passionate fisherman and the son of what could be the last generation of Snoqualmie Steelhead fishermen. I hope not. Just last January my son and I shared his first look at a live Steelhead at the mouth of the Tolt. His eyes light up and I couldn't help but think his grandfather was watching.

Today I have two sons and I am raising them with my passion. I take them on adventures to the river frequently and often times we get to enjoy a Steelhead together.

When I sat down to write this letter I was going to quote scientific studies, use graphs and try to impress upon you some magnificent presentation of why we should keep this program alive. Then when it became time for me to write, I began to wonder what it would be like for my sons to never have a taste of Steelhead fishing in the Snoqualmie. I am not the only one that has a cultural identity with a fish and a river, most true Steelhead fishermen do. We call our rivers our home rivers, we speak of the fish as if they are a part of us and for those reasons I would like to see the successful continuation of our Chambers Creek Hatchery program.

Thank you

Ray Gombiski

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

WA hatchery programs

1 message

Kenny Jans <kennyjans@msn.com> Wed, Jul 22, 2015 at 11:48 AM
To: "ewshatcherieseis.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>

I am writing to voice my support for continuance of hatchery programs on the Snohomish River system, as well as other puget sound hatchery programs currently under review. These programs are vital to our economy as well as the Puget Sound sport-fishing way of life. PLEASE don't let groups like the WFC push an agenda that is not backed by good science.

My father, me, and my children all enjoy fishing for these hatchery fish and is the reason I live in western WA.

Thank you,

Kenny Jans
Arlington WA

Sent from my iPhone

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

Please don't close anymore hatcheries

1 message

Ron Hayes <ron@redfemconsultants.com> Mon, Jul 27, 2015 at 7:05 AM
To: EWShatcheriesEIS.wcr@noaa.gov
Cc: "Andy (Andrew) Okinczyc" <andrew.okinczyc@gmail.com>, Brian Roe <blroe9552@outlook.com>, Dennis Broderson <dencar@olympus.net>, Don Williams <fisherman@emeraldmedia.com>, Jay Campbell <jayandirene@cablespeed.com>, johnsjerry@gmail.com, Linda Sutton <lindasutton.wa@gmail.com>, Troy McKelvey <troy3@cablespeed.com>, tuckerworks@gmail.com

To: NOAA Fisheries,

I support a robust hatchery program in Washington state waters. The trend of declining wild stocks of salmon have continued for years as the WDFW reduces the amount of time recreational fisherman have opportunity to fish for salmon. The only hope for preserving fishing for my children and grandchildren is the hatchery programs throughout the state. The WDFW allows certain groups to continue to fish non-selectively for commercial purposes, which is the primary cause of the reduction in wild salmon stocks. Recreational fishermen can only fish for hatchery fish and must use barbless hooks and release all wild fish. Please support our hatcheries.

Thanks,

Ron Hayes

[redacted] Port Townsend, WA 98368

[redacted]

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

Support Hatchery releases

1 message

kenny boman <chukar14@yahoo.com> Tue, Jul 28, 2015 at 1:01 PM
Reply-To: kenny boman <chukar14@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Reading through the EIS, it seems that the hatchery reforms put into place seems sufficient to reduce impacts on ESA listed steelhead. I suggest that the plans be adopted and that plants resume. However, I am some concerns.

1. What mechanism is in place to increase hatchery steelhead plants? After how many years do we re-evaluate the program releases, and what criteria will be used to increase or decrease plants in the future.

2. If a population of wild steelhead become functionally extinct, then is it possible that there could be unlimited plants to that stream for fishing?

3. Also noted for spawning of fish section 8.1, I don't think a random selection is the way to go, i.e larger fish will spawn with larger fish and smaller with small fish. More selective spawning could improve SAR.

Thanks,

Ken

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

Complete EIS and restart chambers stocking program

1 message

Kenneth Boman <chukar14@live.com> Fri, Jul 31, 2015 at 12:52 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>

To whom it may concern,

The chambers program is extremely valuable and should be restarted. Please complete the EIS as fast a possible. It is vital to the anglers in the puget sound region without those plants there will be no steelhead fishing from the Canadian border south until to you reach the Chehalis system. This is unacceptable. The science has shown that hatchery practices put into place years ago are effective in limiting introgression of the chambers sock to the native stocks. A segregated stock allows limited to no impacts on wild fish due to the difference in return timing to the rivers, as well as the early river closures at the end of January. Please complete the review and adopt the proposals to restart the chambers creek programs in puget sound drainages.

Thanks,

Kenneth

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

The Truth About Hatchery Steelhead

1 message

Charles Courtier <csearider@hotmail.com> Sat, Aug 1, 2015 at 8:23 AM
To: EWShatcheriesEIS.wcr@noaa.gov

Bottom line: The Chambers program may be the most scientifically sound program the WDFW has ever produced.... WHY?

- **+Low potential for Wild vs. Hatchery interactions**

- **+2-4 week downstream migration has little to no impact on resident wild steelhead**

- **+Less than 6% integration of Hatchery vs Wild in all programs studied (even lower in popular fisheries)**

This study is scientific proof that Chambers Creek fish are not damaging the wild populations genetically, as a competitor for food or as a predator.

Do not let a small special interest group, WFC, that is in this just for their own profit, ruin the Pacific Northwest forever!!

Charles Courtier

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

I support Washington State fish hatcheries

1 message

Scott D <scott2694@gmail.com> Sat, Aug 1, 2015 at 8:40 AM
To: EWShatcheriesEIS.wcr@noaa.gov

I have been a lifelong resident in the Tacoma area and I understand there is a group that wants to shut down our fish hatcheries. The studies that I have seen have shown that hatchery Steelhead have minimal impact on any wild Steelhead that remain in the streams and rivers. I hope you will continue to support fish hatcheries for Steelhead and Salmon in Puget Sound and Washington State as a whole. Thank You!

Scott Douglas CCA member PSA Gig Harbor member

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

Fish Management

1 message

Destine Courtier <desc7@hotmail.com> Sat, Aug 1, 2015 at 10:36 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Fish management of fish by a singular group is wrong. Fish management of fish through litigation is wrong. Fish management for the almighty dollar is wrong. Its time this comes to a head. We need to save our Chambers program and set the stage for all stakeholders to work together.

Please help end this.

Thanks you.

Destine Courtier

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

Puget Sound steelhead hatcheries

1 message

customerservice@johnssportinggoods.com <customerservice@johnssportinggoods.com> Sun, Aug 2, 2015 at 6:11 AM
Reply-To: customerservice@johnssportinggoods.com
To: EWShatcheriesEIS.wcr@noaa.gov

Dear Michael Milstein, NOAA Fisheries,

RE Work Shop on Hatcheries:

I am dismayed by the fact that the microscope is on fish hatchery programs when the real issue is the loss of fish habit for steelhead and chinook as well as other Puget Sound species of fish. The fundamental attack on fish hatcheries is based on the lack of scientific evidence and mostly made up of junk science.

With that said a better use of tax payers dollars should be spent on improving freshwater habitat that has been lost by development and bad land use practices.

I am always befuddled by the fact that the anti hatchery crowd never wants to takes on the builders associations or the large home builders. I can only believe this is true because those organizations have deep pockets and are well connected politically.

Lets start concentrating on the issues that will have the most immediate profound change for improving salmon and steelhead stocks in the Puget Sound region. We have been needlessly focusing our attention on these side issues (anti hatchery) that have little impact.

John Martinis
[redacted]
Everett, WA 98201
[redacted]

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

WA Winter Steelhead

1 message

Rory O'Connor <rory@thewhiteroom.com> Sun, Aug 2, 2015 at 7:19 PM
To: EWShatcheriesEIS.wcr@noaa.gov

NOAA,

I'm writing to urge you to complete the EIS on early winter steelhead hatchery programs in WA. I am avid winter steelheader and look forward to fishing for them every year. I am not a scientist, but in my own expereince fishing the nooksack, skagit and cascade rivers - I have only encountered one wild steelhead. I can't see how the early-timed steelhead could possibly be interbreeding with wild steelhead. Just my experience.

Hopefully we can get steelheading back on track. With so many steelhead being put into lakes, any more interruption will kill it entirely!

Thanks,
Rory O'Connor
[redacted]
Bellingham, WA 98225

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

Steelhead

1 message

spankyswineheart@frontier.com <spankyswineheart@frontier.com> Mon, Aug 3, 2015 at 7:14 PM
To: EWShatcheriesEIS.wcr@noaa.gov

Hello please do not close the steelhead hatcheries.
Please do not bow down to this conservatory group,
Do they not understand that there is a lot of people.
relaying on sportsmen for the income by way of purchasing fishing gear
bait tackle, boats, of course the guide services
And lodging for trips?
How can 1 group do this?
What is NEXT?? SALMON?
The money that is brought into this state
For recreational fishing is huge, and it will be gone the way of the dodo bird.
And truly are there any real true live wild fish I would think not I am sure
Hatchery fish have spawned with native fish.
If they truly want a wild run on a river fine go clean up A river and
Repopulate it with native fish and do your catch and release
Fishing because you can not keep a Native Steelhead
I truly hope that between the tribes and fish and game and you guys
You will put them on the next boat leaving the state.

FREE Animations for your email Click Here!

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

Wild Steelhead

1 message

David Adamson <adamsond@gmail.com> Mon, Aug 3, 2015 at 11:54 PM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Hi there,

Please do everything you can to not just CONSERVE, but RESTORE the vitality of Wild Steelhead stocks, even if it means a few rough years for angler's. My understand is that hatcheries prop up sport fishing – of which I am a participant! – but at the cost of healthy wild runs. I'm an angler too but as a WA native it's more important to me that I have something to pass on to my children's children's children. I'd rather be careful with the stock we have today.

David Adamson

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

Comment on Puget Sound Steelhead Hatcheries Chambers Creek fish

1 message

Gary Clark <Gary_Clark@fsafood.com> Wed, Aug 5, 2015 at 6:30 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Thank you for excepting public comment on the WDFW Chambers creek steelhead programs for the Nooksack, Dungeness, Stillaguamish, Skykomish, and Snoqualmie Watersheds on the potential issues, impacts, and alternatives to be considered for the future. The Chambers creek steelhead are to clearly not a good fit for Northern Puget Sound Rivers because of very poor returns, cross breeding with wild stocks, and general small size. They are worthless as far as sports fishing is concerned compared to wild steelhead catch and release fisheries. The Excell spread sheet attached clearly shows how costly these plants are for the Nooksack and Skagit systems. The Nooksack is averaging over 2,500 wild fish per year and there is zero benefit in continued planting of this system. The river has been closed many times early to protect hatchery returns so they can recover enough brood stock to continue. this makes no sense what so ever to be protecting the inferior stock and not investing this money on the wild fish who are clearly doing much better.

Please stop planting the Nooksack and continue with the 12 year moratorium on the Skagit and see what happens.. We can always start the hatcheries back up if these populations do not recover. My final vote would be to eliminate Hatchery plants in the Nooksack, Skagit, Skykomish , and Stillaguamish and continue with them in the Snoqualmie while spending the funds from Hatchery reductions on Habitat restoration.

Please protect the Washington State fish the Steelhead, that's wild steelhead not hatchery imposters.

Also please focus on the elimination of Mixed stock fisheries in these systems to protect wild stocks in some form of selective fisheries by Native and commercial fisherman in all Puget Sound systems and salt water.

Thank you Gary Clark!

[redacted]

Cost of hatchery steelhead from amount required to produce a smolt at an average of $1 per smolt

Best Year Differences in data

Worst Year

Avg Year

Skagit River Marblemount Hatchery (from: WDFW Stock Status and Harvest Management Plan for Steelhead Returning to the Skagit River for the 2011-2012 Run Period; and from Bill McMillan Skagit study data 2013)

year	hat harvest	hat total retun	WDFW 2011	BM 2012 smc	cost/catch WDFW	cost/catch BM	cost/return BM
1999	747	1386	328461	328461	$ 440.00	$ 440.00	$ 237.00
2000	674	828	583720	562675	$ 866.00	$ 835.00	$ 680.00
2001	1641	2006	445434	445434	$ 271.00	$ 271.00	$ 222.00
2002	**3044**	**3756**	**449302**	**449302**	**$ 148.00**	**$ 148.00**	**$ 120.00**
2003	**492**	**623**	**463460**	**463460**	**$ 942.00**	**$ 942.00**	**$ 744.00**
2004	1062	1567	273712	293712	$ 258.00	$ 275.00	$ 187.00
2005	1223	1656	513330	513330	$ 420.00	$ 420.00	$ 310.00
2006	877	1397	529821	529821	$ 604.00	$ 604.00	$ 379.00
2007	2101	2512	466100	466100	$ 222.00	$ 222.00	$ 186.00
2008	1720	1965	517000	517000	$ 301.00	$ 301.00	$ 263.00
2009	551	701	511560	511560	$ 928.00	$ 928.00	$ 730.00
2010	497	804	235010	235010	$ 473.00	$ 473.00	$ 292.00
Average	**1219**			**442989**			
Average cost					**$ 489.42**	**$ 488.25**	**$ 362.50**

Nooksack River Kendall Creek Hatchery (from: Nooksack River Winter Steelhead 2009-2010 Management Plan)

year	hat harvest	hat return	smolts	cost/catch	cost/return
1999					
2000			35000		
2001	**342**	**360**	**30500**	**$ 89.00**	**$ 85.00**
2002	336	529	34800	$ 104.00	$ 66.00
2003	239	246	160000	$ 669.00	$ 650.00
2004	158	231	175500	$ 1,111.00	$ 760.00
2005	434	810	112500	$ 259.00	$ 139.00
2006	244	463	141700	$ 581.00	$ 306.00
2007	215	293	165000	$ 767.00	$ 563.00
2008	223	382	160000	$ 717.00	$ 419.00
2009	**59**	**109**	**146599**	**$ 2,485.00**	**$ 1,345.00**
2010					
Average	**250**		**116160**		
Average cost				**$ 753.56**	**$ 481.44**

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

hatchery closures

1 message

ctflyfish@aol.com <ctflyfish@aol.com> Thu, Aug 6, 2015 at 12:00 PM
To: EWShatcheriesEIS.wcr@noaa.gov

I have followed the hatchery problem for years and am convinced that science is the only factor that should be considered. Therefore, hatchery closures are a good idea, in my opinion. Hatchery money should be redirected to habitat projects.
Craig Lynch

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

Early Winter Run Steelhead Hatchery Programs are not the cause of wild steelhead declien

1 message

kenny boman <chukar14@yahoo.com> Thu, Aug 6, 2015 at 1:10 PM
Reply-To: kenny boman <chukar14@yahoo.com>
To: "ewshatcherieseis.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>

Examples river is system is the Nisqually, no harvest and no plants for 20 years and no improvement in wild steelehad numbers, the decline in PS habitat is responsible NOT hatcheries!!

• Hatcheries are required for salmon recovery and harvest as mitigation for habitat damage; yet, these hatcheries, built to make up for lost fish because of damaged habitat, are increasingly under attack, while the condition of habitat continues to worsen and goes unchecked due to inadequate habitat protections, climate change, and other environmental and ecological factors (such as climate change, or pinniped predation) that have nothing to do with hatcheries or harvest
• The fact that these programs were developed as mitigation for lost habitat and resultant natural salmon and steelhead production is well documented and very clear to everyone including myself
• Because of the ongoing habitat loss, we have been forced to become more and more dependent on hatcheries to provide any steelhead or salmon for our fisheries – today, the vast majority of our harvest is dependent on hatchery fish, including all the steelhead caught in recreational fisheries that are the subject of this evaluation
• Funding for hatcheries continues to be cut from crippled budgets that have already resulted in significant hatchery closures and reductions – in just the past six years alone, the Washington Department of Fisheries has cut more than 50 million dollars from its budget, much of it from hatchery production
• Meanwhile, greatly worsening effects from climate change are causing more and more harm to steelhead and salmon throughout their life cycle (use example of the current drought to emphasize that these effects, heaped on top of already depleted freshwater and marine habitat, are causing the vast majority of the problem/99% of the problem and something Has to change)!
• That something is the share of the conservation burden not being carried by habitat
• Chief opponents mainly just want all of the hatcheries to be shut down (and the alternatives as initially presented by NOAA Fisheries only offer this same failed remedy), yet, if wild fish continue to disappear primarily as a result of lost habitat and hatcheries are reduced or closed, there won't be any fishing, or ANY fish left the fact that these programs were developed as mitigation for lost habitat and resultant natural salmon and steelhead production is well documented and very clear to everyone including myself
• Comanagers have greatly reduced harvest of wild stocks and have significantly changed hatchery programs to reduce wild stock impacts
• Hatchery programs, and recreational and commercial harvest programs that depend on them, are well managed/the tribes and state operate safe, responsible hatchery programs that are guided by the best available science and we will need these programs for as long as habitat continues to limit production from our watersheds
• NOAA Fisheries' NEPA and ESA risk assessments should support hatchery and harvest programs that employ best management practices
• If simply eliminating hatcheries and harvest was the solution, we would have accomplished natural stock rebuilding a long time ago. Though these programs have been crippled and greatly curtailed or eliminated in many instances, the stocks have not rebounded and are declining at a faster rate than ever because habitat quantity and quality drives steelhead and salmon health. We have lost more steelhead and salmon due to

disappearing habitat than have ever been harvested or lost due to hatchery effects
• These hatchery programs support the economy and way of life for all Washingtonians, and the current climate of litigation, hatchery closures, and reductions has harmed all of the citizens of Washington State. NOAA Fisheries must do a better job in this EIS to recognize the importance of harvest to all constituencies, the economy, and the northwest way of life
• The burden of conservation must be better shared by habitat if we ever going to recover steelhead or salmon and state and tribal hatcheries and fishers have been carrying most of the weight for far too long/or, and we/I have been carrying.....
• NOAA Fisheries must adequately clarify interactions between habitat, natural production and hatchery production in the EIS for early winter steelhead hatchery programs and their relative cumulative effects and
• Hatchery programs, where severely depleted fish populations exist due to degraded habitat conditions, should be managed appropriately for all factors affecting viability and not solely on hatchery effects. Until these populations are healthy, these hatchery programs are essential and must not be reduced or eliminated - all this will lead to is no fish whatsoever
• Habitat is the cause, the mitigation, and the solution to recovering our imperiled steelhead and salmon populations, not any further devastating cuts to hatchery and harvest programs and NOAA Fisheries' NEPA and ESA risk assessments must consider all factors affecting priority salmon populations, not just Tribal and State hatchery and harvest programs
• Hatcheries can help rebuild natural populations or buffer impacts on natural populations, meet treaty fishing rights, and critically important tribal and non-tribal fisheries simply could not happen today without hatcheries.
• Hatcheries help recreational fishers and tribes pass on the culture of fishing between generations, preserve the icon of our state, and the important values and treaty rights that depend on them, affecting all citizens
• Hatchery fish are used daily in management to assess the status of natural populations through marking, tagging tracking studies, etc, e.g., Indicator Stocks, or, related to the marine mammal predation problem: Recent radiotagging and tracking studies show that >80% of WILD juvenile steelhead die in Puget Sound before they reach the ocean
• As already presented in the scoping, the DEIS suggests that the only options to benefit conservation are through reduced hatchery production. This is ludicrous! There are other actions that can actually achieve conservation benefits that don't include reduced production.
• In general, the DEIS scoping has a very negative connotation to it (i.e. issues, concerns, impacts) that already sets the tone for the scoping that the actions themselves are harmful and destructive, while ignorig the immense benefits.

So what is the best way to move forward?
• Adjust parts of some programs, possibly (in very few cases)... but if at all, do it based on rational thinking, not rapid reaction to lawsuits
• Base considerations on hatchery, harvest AND especially, HABITAT.
• No closures, injunctions, or reductions before NEPA and ESA processes are COMPLETED, which is unfair a illegal
• Use the comanagement process at all stages. It's the law anyway - - -
• State and Tribes must work, and are working, together to prevent 3rd Parties from subverting the process any more than they have already done
• Tribes and sport fishers are weighing in on NEPA and ESA consultations this time around to let everyone know who the majority is in Washington State
• TOGETHER, the State, Tribes, and the Federal Government must vigorously fight any future injunctions that would threaten to unfairly eliminate these programs through attrition even before they have been evaluated
• While it is highly likely, or it should be anyway based on the best available science, that the final decision by NOAA Fisheries on these hatchery programs may result in a no jeopardy determination, for ALL of the proposed early winter steelhead hatchery programs, but if yet another injunction is unfairly allowed before

the facts are in, they will be killed anyway, and that will not be acceptable and will only trigger additional litigation

• I think each watershed should have its own balance of natural and hatchery production, based on the needs of treaty and non-tribal fisheries, tailored to its own needs based on the unique habitat conditions, the specific hatchery practices, and the status of the hatchery and natural populations and the robustness of the watershed's natural production potential

• Hatchery programs that is based on habitat condition & coordinated with habitat restoration & protection

• The only approach that will lead to long-term sustainable salmon and steelhead resource, and the only way this NEPA evaluation can begin to adequately encompass the scope of possible and realistic

Steve Leider - NOAA Federal <steve.leider@noaa.gov>

My first Steelhead

1 message

kenny boman <chukar14@yahoo.com> Thu, Aug 13, 2015 at 2:16 PM
Reply-To: kenny boman <chukar14@yahoo.com>
To: "steve.leider@noaa.gov" <steve.leider@noaa.gov>

I started Steelhead fishing in 2004, and had basically witnessed the end of an era. I was determined to catch a steelhead and went every day during my winter break to fish the snoqualme right where tokul creek dumps in. Everyday It was not untypical for me to see 20-40 fish caught every day by the several guys that knew what they where doing, however I was newbie and there to learn. I didn't catch my first steelhead into 2005, and that was a very cold december day during my winter break at fishing at reiter ponds. I had probably had 40 fish less days before I hooked that fish,needless to say I was surprised when it happened. I still remember I was drift fishing a orange corkie and a piece of roe. In the excitement of landing the fish, I waded out to far and cold skykomish river water filled my hip waders. I put that first skykomish winter run on the bank and was warm with excitement but shivering from the cold. I marked my fish on my CRC, cleaned it and hustled back to warm of my pickup. I called my Dad to tell him I caught my first steelhead, he was proud and excited he had seen how hard I worked for that first one. What I didn't know was how much more he knew about steelhead fishing than I did.

See,my Dad grew fishing steelhead in the early 70's and would tell me stories about people lined up in fall city to fish the snoqualmie, and catching 25lb steelhead out the raging river. He didn't have the internet and all the fancy gear we have now,but there were fish in the river to catch,and that is what you need to learn how to be a good fisherman. My Dad basically quit steelhead fishing after Boldt, too many skunked and disappointed fishing trips that it wasn't the same enjoyable experience it once was.

After my first fish,I was hooked. I went steelhead fishing a ton more, explored new rivers and caught more fish. Little did I know that after my first steelhead, hatchery reform was taking place,reduced plant numbers, no scatter planting.. I returned to reiter ponds and the snoqualmie to fish during my winter breaks from college,but I continued to see less and less fish caught,than when first started. Growing frustrated with lack of fish, I basically quit going there and traveled farther to the cowlitz or wynoochee to catch fish.

I'm grown up now and have my own family and a busy job. I still love steelhead fishing, and want to be able to fish close to home and have a chance of actually catching something! I want my son to have the same or an even better experience than I did catching his first steelhead. The only way he will ever get that chance is to plant hatchery fish in our local puget sound streams.

The cold hard truth about why the wild fish are doing poorly,is because of poor habitat. Both in river,and in puget sound. Eliminating hatchery steelhead plants,will not bring wild fish back to these streams,only improving habitat will. Eliminating hatchery steelhead plants, will only succeed in eliminating steelhead fisherman, and that is an unacceptable outcome. I support bringing back wild fish to the numbers that we had in the 1900's,but the only way

that can ever happen,is if we turn back the clock on the habitat, and also relocate the extra 6 million people that now live in this state. Hatchery fish are a trade off, they are compensation to fisherman for the loss of fish due to societies general pollution and use of the land, it is unfair that fisherman get blamed for the demise of the wild steelhead. Please continue to support hatchery plants in puget sound streams, to save the steelhead fisherman from certain extinction.

Thanks,

Ken Boman

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

shutting down hatcheries (BAD IDEA)

1 message

bobbotnen@yahoo.com <bobbotnen@yahoo.com> Thu, Aug 6, 2015 at 3:21 PM
Reply-To: bobbotnen@yahoo.com
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

Dear noaa, this movement has been hatching for awhile, and is a very bad idea. First we have Indians not clipping fins, so we have to throw those hatchery fish back, now the environmental nutjobs are trying to kill the whole hatchery program. Besides killing a great recreation resource, think of the monetary impact. Sales of boats, motors, rods, reels, motels, petrol, trucks, bait, trailers, and my brother's job, a herring fisherman. Most of this vile behavior is being done behind closed doors, in secret. One day, we will wake up, and might as well sell our boats, but who will buy them? Please do what is morally right , and use some common sense, Robert H Botnen bobbotnen@yahoo.com [redacted]

Steve Leider - NOAA Federal <steve.leider@noaa.gov>

Hatchery Steelhead

1 message

Tom Wallace | TMW TILE <tom@tmwtile.com> Thu, Aug 6, 2015 at 5:45 PM
To: steve.leider@noaa.gov

Steve,

I am writing this letter to let you know of the importance of hatchery steelhead to me and my concern over losing them.

First off Steelhead is my favorite fish to fish for and the pursuit of steelhead consumes most of my spare time and money. The majority of the steelhead I target are hatchery. This is for several reasons.

Opportunity .Hatchery steelhead are available to target and harvest year round in this state.

Abundance. Hatchery steelhead are more abundant and locally available. The few places that have fisheries open for wild steelhead are far from Seattle making day trips too long and expensive.

Morality. I don't believe wild steelhead populations should be targeted as catch and release fisheries. If they are threatened they should be left alone. I still want to fish for steelhead and feel good about it.

I believe the current attack on hatchery fish to be a case of misplaced blame currently scapegoating hatchery fish instead of addressing the real (much harder to address) problem, Habitat.

The loss of hatchery steelhead would effect not only local economics but would be devastating to the fishery as a whole. Steelhead is one of the only fish we can target in the winter. Having local hatchery fish to target gives people the opportunity to embrace the sport. Many people simply don't have the opportunity to travel to the coast for fishing. On the coast however the small rivers are being overrun with anglers because they are now the only place to fish. An inadvertent side effect of an attempt to help wild fish in the puget sound is harming wild fish on the coast.

Finally I support the findings of the HMRG and I don't believe curtailing the plants further wild result in an increase in wild fish. I am unaware of any river system that has eliminated hatchery production resulting more wild fish propagation. I am aware of rivers that have had continued decline in wild fish since hatchery production stopped. (Nisqually) Additionally the loss of hatchery fish will likely put more predation pressure on the wild fish. Some of those predators are endangered and rely on hatchery fish as well. (Orcas)

I hope you will take my concerns to heart. It would be very sad to loose something so important. It won't save the wild fish.

Sincerely,

Tom Wallace
[redacted]
Shoreline WA 98177

[redacted]

Steve Leider - NOAA Federal <steve.leider@noaa.gov>

Fish hatcheries

1 message

Larry Haaga <LarryHaaga@hotmail.com> Thu, Aug 6, 2015 at 5:46 PM
To: steve.leider@noaa.gov

Steve,
As a retired NOAA employee and avid sport fisherman I think it is imperative that salmon and steelhead hatchery production be kept at a high level. I think that studies have shown that breeding between wild steelhead and hatchery steelhead does not occur to much of a degree as WFC and other anti-hatchery groups claim.
Thank you.

Larry Haaga

—
This email has been checked for viruses by Avast antivirus software.
http://www.avast.com

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

Steelhead in Puget Sound

1 message

Norman Pollock <pollock.norman@gmail.com> Thu, Aug 6, 2015 at 7:46 PM
To: Sustainable Fisheries Steve Leider <EWShatcheriesEIS.wcr@noaa.gov>

Dear Sustainable Fisheries Leider,

I am writing to urge NMFS to proceed to shut down all hatcheries on the west coast. They have done nothing but downgrade the gene pool and make for weaker fish that could be wiped out by a disease.

Thank you for considering my comments.

Sincerely,

Norman Pollock
[redacted]
Crossville, TN 38572

Steve Leider - NOAA Federal <steve.leider@noaa.gov>

Hatchery

1 message

DOUG AVERY <afamily14@msn.com> Thu, Aug 6, 2015 at 8:44 PM
To: "steve.leider@noaa.gov" <steve.leider@noaa.gov>

I'll keep it simple. No hatchery's, no fishing seasons for sportsmen. No sportsmen buying licenses, no money to run fish and game dept.

Thanks,
Doug Avery

Sent from my iPad
Doug Avery

Steve Leider - NOAA Federal <steve.leider@noaa.gov>

Protection plans

1 message

Timothy Leslie <studio2north@hotmail.com> Sat, Aug 8, 2015 at 10:38 AM
To: steve.leider@noaa.gov

I personally urge you to keep in mind the actual science of well managed wild and hatchery conservation plans for the future of our endangered and important fisheries.

Our hatcheries are an important piece of the puzzle to care for the resources we all so diligently aim to protect.

Thank you for giving the time to consider my opinion.

Timothy Leslie

[redacted]
Springfield, Or.

Sent from my ASUS Pad

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

Early Winter Puget Sound Hatchery Steelhead HGMP EIS Scoping, Federal Register Notice RIN 0648-XE039, July 14,2015

1 message

Kit Rawson <krawson50@gmail.com>
To: EWShatcheriesEIS.wcr@noaa.gov

Sat, Aug 8, 2015 at 6:20 PM

National Marine Fisheries Service

Sustainable Fisheries Division

510 Desmond Drive SE

Suite 103

Lacey, WA 98503

I am contributing these comments in response to the above FRN as a concerned citizen of Washington State and retired tribal fisheries biologist with over 30 years' experience working with salmon and steelhead in Washington and Alaska.

I am concerned that the range of alternatives suggested in the FRN ignores the key point that hatchery programs were originally established to mitigate for natural production that was lost due to the loss and degradation of the freshwater and marine habitat necessary to produce fish naturally. Therefore, I do not believe that it is possible to adequately analyze the impacts of alternative approaches to steelhead hatchery production without concurrently considering alternative approaches to habitat management.

Given the above, I believe that any hatchery production alternatives analyzed should each be considered under two different habitat scenarios. Habitat scenario 1 would be the current path, where habitat quality and quantity continues to decline, resulting in declining abundance and productivity of Puget Sound natural origin steelhead. Habitat scenario 2 would be a situation where protection and restoration of habitat is actively pursued in a manner that will support

recovery of natural origin Puget Steelhead. While there is currently no recovery plan for Puget Sound steelhead, NMFS has issued a set of properly functioning conditions for key habitat parameters, which could be used to analyze expected natural origin steelhead production under habitat scenario 2. Of course, habitat scenario 2 would have to include the actions required to achieve properly functioning habitat conditions. I believe that NOAA knows what those actions would be and therefore could describe the impacts of such actions to the fish resource, the economy, fisheries, treaty rights, and other factors you are required to analyze.

I believe that the approach I have suggested above would be the only way to evaluate the effectiveness of alternative scenarios for hatchery production relative to other factors the determine natural origin steelhead abundance and productivity. For example, the alternative of switching to integrated hatchery programs makes no sense in the current situation of declining habitat conditions. Integrated hatchery production relies on natural production, and to even consider such an option without also talking about the habitat improvements required to make it work is pure folly. The same principle applies to the analysis of the other options as well. For example, any purported benefits to natural production from reducing or eliminating hatchery production would be much different under the two habitat scenarios. There is simply no way to adequately analyze the hatchery alternatives without considering habitat.

Also, when considering the impacts of the alternatives, I hope that you will take into account the fact that people who catch fish make up a key component of the constituency of people who will support the necessary reforms in land use, water withdrawal, damming, and other practices that will be necessary to restore endangered and threatened resources. One obvious (or should be obvious) consequence of removing or reducing hatchery production while maintaining the status quo of habitat decline will be the eventual loss of harvestable fish and therefore of the people who are harvesting them. Without a strong base of people who are harvesting fish, we will lose support for restoring fish populations. Therefore, we will lose the fish. This consequence must be considered in your analysis of the impacts of the alternatives, in my opinion. If hatcheries are the only way to keep people fishing today, until we reform habitat management, then we must have hatcheries in order to have fish.

Thanks for the opportunity to contribute to the design of the environmental

analysis for these important hatchery steelhead programs.

Sincerely,

Kit Rawson

Mount Vernon,WA

krawson50@gmail.com

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

Comments on NOAA draft EIS on Puget Sound Hatcheries

1 message

Henry Boynton <fishaholic1950@gmail.com> Sat, Aug 8, 2015 at 10:30 PM
To: EWShatcheriesEIS.wcr@noaa.gov, fishaholic9@juno.com, fishaholi1950@gmail.com, Frank Urabeck <urabeck@comcast.net>

NOAA should develop a rigid schedule to complete the EIS and apporove a responsible set of Hatchery programs for the 5 Puget sound rivers that provides angler recreation and Tribal fisheries.We have dragged this process out unnecessarily wasting NMFS,WDF&W and Angler time, recreation and money.The Wild fish Conservancy has no evidence that eliminating hatcheries will restore our wild runs.NOAA prevailed in Oregon in a number of cases in favor of hatcheries and should not be afraid to go to court again.

While I recognize that studies show reduced fitness of hatchery fish in the wild and impacts to the wild population ,,strong evidence shows that the problem is elsewhere in Puget Sound.

1. We stopped hatcheries on the Nisqually and many other Puget sound rivers with no rebound of the wild population.In the Nisqually,hatchery production was stopped in the late 80's when wild populations were over 5000 fish on average and now the wild run is less than 500 Steelhead (less than 10%) of former abundance).

2. In the Queets,where SAR records have been kept since 1978 there has been no decrease in SAR on average indicating that ocean survival has not decreased,.If the Nisqually with wild smolt outmigration of 60.000-100.000 smolts were to get the return of the Queets(over 11%),the Nisqually wild run would return to the abundance of the 80's.Also acoustic tagging has shown that the wild smolt mortality in Puget sound is 90 % requiring Steelhead to survive in the ocean at 100% to return our wild Steelhead back to the abundance of the 80's.The primary problem is Puget sound TAKE, and we are not putting a fraction of the effort in solving it as we are in bashing hatcheries.

3. Hatchery reform has levied constraints on percentage of hatchery fish staying and spawning in the wild.In 1985 on the Green river we harvested 0ver 12,000 hqtchery fish and with the now= assumed stray rate of 20-30%,2400-3600 hatchery strays occurred for a PHOS of 100% (we are now managing PHOS to a max of 5%)and the wild run in those years held up.It wasn't until 2005 when the Green crashed due to high mortality in Puget sound as evidenced by the acoustic tagging studies.We now have reduced hatchery plants and have releases only where returning adults can be trapped and have conducted studies to show that the hatchery introgression into the wild fish is down to acceptable levels on the rivers being submitted for approval with further improvements expected due to the recent decreasest in smolt output andimproved collection of adults.The Green river wild run increased to 80% of escapement goal in 2015 with hatchery programs still ongoing.

Angler recreation is very important for many people in Puget sound even with the reduced returns in recent years.The Salish sea studies(although underfunded) may solve some of our Steelhead survival problems in the Sound and Straits,returning both our wild and hatchery to former abundance.

One option needs to be added to the EIS: increased hatchery production in river where introgression into the wild stock will permit this..One million Steelhead total Puget sound production is recommended..

I want the hatchery programs approved by NOAA at a level that will still protect the wild fish by Feb 15th to allow for the expected litigation by WFC and still allow for hatchery programs to continue in Puget Sound.I also want NMFS to approve transfer of Chambers creek stock from the Bogacheil (or some other river with abundant returns) for 3 years to allow the hatchery programs to continue.

.Do not approve any delays -let's get this program moving !

Respectfully ,

Hal Boynton

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

hatchery fish

1 message

darrell richardson <darrellrichardson@gmail.com> Sun, Aug 9, 2015 at 6:58 PM
To: EWShatcheriesEIS.wcr@noaa.gov

where would the commercial, native american, and recreational fishers be without hatchery fish in puget sound? the idea that hatchery fish are harmful, is based on very limited science. please protect this process that enhances our environment, economy, and recreation resource.

thanks

darrell richardson

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

hatchery fish

1 message

Raymond Lampers <raysbait@frontier.com> Sun, Aug 9, 2015 at 8:55 PM
To: EWShatcheriesEIS.wcr@noaa.gov

I am very much opposed to the changing of our hatchery system by these few wild steelhead only groups. We have seen the way these self serving people want to steal the tradition of fishing for our hatchery fish and am outraged that they can do this to our community. We are the mass amount of residents in the pacific northwest and don't want their agenda to cripple small business and the livelihoods of small towns throughout our region.
Raymond Lampers
raysbait@frontier.com

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

Hatcheries

1 message

Johnny Brown <jbrown@illumres.com> Mon, Aug 10, 2015 at 9:46 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

I am very concerned about what I have been reading and hearing about the drive to shut down the steelhead production in the state of Washington, with hatcheries. The decline of fish populations in the Pacific Northwest in a direct result of human encroachment in the habitat, not hatcheries. I do not know who this group is that has brought litigation, as a way to force a change to the hatcheries up here.

I am against any changes to the hatchery system that will reduce the steelhead population to our rivers and will financially support the efforts to stop it.

Regards,

Johnny M. Brown

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

NOAA Fisheries to hold workshops on Puget Sound steelhead hatcheries - Comment

1 message

Michael Lavigueure <michla@microsoft.com> Mon, Aug 10, 2015 at 11:37 AM
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

NOAA, I have been a part of steelhead fishing all my life in Washington for the past 49 years. My family has been in the drift boat business since 1965. Now, I'm an avid sports angler who spends at least 20 thousand dollars a year to go fish on the weekends with friends and family. Without our hatcheries, there just won't be enough fish for the growing population in Washington. Hatcheries are what makes sport fishing in Washington possible that is over 1 billion dollar year business.

I have reviewed some of the information and agree the Chambers program may be the most scientifically sound program the WDFW has ever produced -

o Low potential for wild vs. hatchery interactions
2-4 week downstream migration has little to no impact on resident wild steelhead
Less than 6% integration of H v W in all programs studied (even lower in popular fisheries)

This study is scientific proof that Chambers Creek fish are not damaging the wild populations genetically, as a competitor for food or as a predator. http://wdfw.wa.gov/conservation/fisheri ... 071315.pdf

Thanks,

Mike Lavigueure

Imaging Service | IPAK Service | MSG Tier2 Ops | MSG Labs | MS Update | MSG Trends

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

Runaway Environmentalism

1 message

ranyong@comcast.net <ranyong@comcast.net> Mon, Aug 10, 2015 at 3:51 PM
To: NOAA <EWShatcheriesEIS.wcr@noaa.gov>

Yes, most of us consider ourselves to be environmentalists. We care about our heritage and want to leave it intact for our grandchildren. But these runaway enviro groups have long passed beyond those basic motivations. Environmentalism is now big business. They are raising huge amounts of funding to support their enormous staffs of lawyers and idealists lobbying at state and federal levels. And they are anti-fishing, whether commercial or recreational. Why? Because if they can magnify the crisis, overstress the current situation, they can raise more funds. Their contributors need to feel they are "doing good" so the runaway enviro movement feeds them the overstated and manufactured environmental crises they need to open their checkbooks. Overfishing is rampant on our Pacific Coast? Check. Never mind that the Pacific Fisheries Management Council (PFMC) has been intelligently managing overfishing for the past 15 years. Facts and science are only tools to be used for political advantage, not to save a resource.
Runaway environmentalism is here to stay and the science no longer matters. What matters to them is that they get a "win" and their next round of funding.

Randy Graumann
ranyong@comcast.net
[redacted]
Lacey WA 98516

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

: Early Winter Steelhead Hatcheries EIS

1 message

Wes Hoppler <wes.hoppler@gmail.com> Thu, Aug 13, 2015 at 5:46 AM
To: EWShatcheriesEIS.wcr@noaa.gov

Hello,

I am a Washington resident fisher. I urge you to make a competent and timely review of these hatchery programs and prepare an Environmental Impact Statement (EIS) for five Hatchery and Genetic Management Plans (HGMPs) for early winter steelhead hatchery programs in Puget Sound.

The HGMP's have been submitted and earlier work towards an Environmental Assessment and other hatchery reviews should have your staff well up to speed on the relevant issues.

Please understand that due to the ongoing nature of this unresolved issue, we are at the point of loosing an acceptable source of broodstock for these programs, and policies on inter-basin stock transfers mean that a finding that is produced too late to allow for the release of smolts this year will significantly harm any of these hatchery efforts dramatically going forward. So again i urge a competent and timely review.

As I understand it, all primary data for the evaluation has been submitted to NOAA. The process is known. I therefore expect that there should be no credible reason to extend comments periods or other procedural delays. Please plan on having your finding complete by March of 2016 so that there are actually two going forward options possible. A finding that is not rendered until after May 2016, may be functionally meaningless, with only one practical outcome (no hatchery permit) possible.

So please manage this process well, paying close attention to notice requirements and comment timelines, so that this phase of the process may be completed in a timely manner.

Thank you for the opportunity to comment on this process.

Sincerely.

Wes Hoppler
[redacted]
Seattle, WA 98117

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

Vote for Hatcheries option 5 / alternative 2

1 message

Zingleman, Fred <Fred.Zingleman@kingcounty.gov> Thu, Aug 13, 2015 at 6:20 AM
To: "ewshatcherieseis.wcr@noaa.gov" <ewshatcherieseis.wcr@noaa.gov>

Validation;

I was there @ the Ballard Locks with other sportsman asking for help addressing the pinniped predation.

I was @ the Channel 9 studio seated behind the 3 County Executives (Drewl, Sims. Sutherland) when Will Stelle addressed ESA listings for Puget Sound.

I spent 4 years with other volunteers @ the Ballard Locks with the late WDFW Biologist Steve Foley counting invisible fish going thru the fish ladder, I called it the Death Watch.

I helped restore creeks only to realize their wasn't enough nutrients to feed fry or smolts.

I virtually stopped steelhead fishing 12 years ago & sold my Wooldridge sled, I never was a threat .

I quit beating my head against the wall & stopped all activities around fish & politics 10 years ago until this July 21st meeting, Steelhead are magnificent creatures.

Now all I can say is SHAME on you Mr. Stelle for letting this continue to decline. & Mr. Beardslee who could have taken a love of steelhead & perverted it to the point of holding NOAA, The sportsmen, The Tribes, & WDFW hostage to your greed. Shame on you.

Now Mother Nature with low hot water, uncontrolled predation from animals & man spell disaster for their future.

Please give the fish a chance & vote for OPTION 5 or Alternative 2

Don't let the apathy that was the past continue into the future.

Sincerely.

Fred Zingleman

Fred Zingleman

[redacted]

Steve Leider - NOAA Federal <steve.leider@noaa.gov>

Hatchery Steelhead and Salmon

1 message

ï»¿Mark Reed <markfromsea@frontier.com> Thu, Aug 13, 2015 at 9:19 AM
Reply-To: ï»¿Mark Reed <markfromsea@frontier.com>
To: "steve.leider@noaa.gov" <steve.leider@noaa.gov>

Please approve WDFW's plan to produce hatchery steelhead and salmon in the most expeditious manner. The option that allows WDFW to produce these catchable and retainable fish at the most efficient cost is what matters most since they can produce more of them in the shortest amount of time.

Please do not cave in to the devilish desires of WFC, they are out to destroy all hatcheries and someone MUST stop them in their tracks.

I went to the NOAA meeting in Lynnwood, I asked that sportsmen support NOAA in this endeavor and try to put past deficiencies in the rear view mirror. Focus on the future, get this done, save our catchable fish, hatchery fish. Wild fish is a misnomer and a pipe dream. They are all hatchery hybrids, they will never support a strong fishery. Keep our hatcheries strong!

Thank You, Mark Reed

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

Early Winter Puget Sound Hatchery Steelhead HGMP EIS Scoping, Federal Register Notice RIN 0648-XE039, July 14,2015

1 message

matthew kelley <matthewskelley@yahoo.com> Thu, Aug 13, 2015 at 10:29 AM
Reply-To: matthew kelley <matthewskelley@yahoo.com>
To: "EWShatcheriesEIS.wcr@noaa.gov" <EWShatcheriesEIS.wcr@noaa.gov>

I would like to share my thoughts on the Hatchery fish issue in the Puget sound. I have lived in Washington state for the past dozen years and have had the chance to enjoy the wonderful fishing the state has to offer. I am quite concerned that my days of fishing in this region are going to be greatly compromised. The issues of closing, not funding, and reforming are very complicated. There is science on both sides of the hatchery fish argument. I understand the NOAA and WDFW are afraid to make the wrong decision in this complicated process. As it stands right now the state has been litigated against due to not having proper permits to operate hatcheries that have basically been in place for more that 50 years or ten or more generations of fish. It looks to me that NOAA is not wanting to be litigated against and would like to do nothing the move the process of hatchery fish forward. We will lose the hatchery fish if they are not released to come back to reproduce based on the lifecycle of the fish. There is a small group of people that are trying to use litigation to get what they want, no hatchery fish. This is a disservice to the rest of the people in the state that want to fish in this region as we are only allowed to fish and retain hatchery fish. This group is able to sue as the hatchery do not have permits. The do not sue based on their science as it can be refuted by other science. Im not a scientist, but theses are my observations for the benefit of hatchery fish. They provide fish for people to catch and harvest, feed our families and provide economic benefit to communities. They provide cover for Wild fish when they have to survive birds, seals, sea lions, whales, and commercial fishermen in other states and countries. The facts that the hatchery steelhead are not as fit, return earlier, and mostly stay in hatchery areas prove that they are a good fit for the systems that they are in. I would like to see NOAA approve HGMP's in a timely manner so we don't lose hatchery fishing. If NOAA wants to make Wild fish gene banks then there are plenty of rivers that have not had hatchery plants and those rivers should be the focus.

I am hoping that NOAA will do the right thing for the fish, the fishermen, the tribes, and local economies.
I am hoping to be able to take my three young children fishing for the wonderful Steelhead and Salmon species of fish.

This is a link to another side of Hatchery Steelhead science....
http://wdfw.wa.gov/conservation/fisheri ... 071315.pdf

Thank you,
Matthew Kelley

RECEIVED
NOAA - NMFS

National Marine Fisheries
510 Desmond Drive S
Suite 103
Lacey, WA. 98503

Los Gilbert
[redacted]
Monroe, WA. 98272

Sirs,

the fact that a small group of misguided indivuals can threaten a vital recourse is in itself, a gigantic threat to our Salmon and Steelhead population.

There are many reasons why our waters are struggling to support a fisheries. Gill nets, pollution, habitat loss and a exploding population of seals and sea lions are just a few examples

Our hatcheries help mitigate these adverse obsticles and we need to do all we can to continue our

Marina T. Ball
MarinaTBall@gmail.com
Lake Stevens, WA 98258

August 13, 2015

RE: Puget Sound Early Winter Steelhead Hatcheries Draft EIS

Comments

I attended the July 21 Public Scoping Workshop in Lynwood in hopes to learn more about the potential results and public opinion of alternatives 3 and 4 in the Puget Sound Early Winter Steelhead Hatcheries Draft EIS. The audience however was more interested in discussing the calendar of the EIS process and most discussion was based on concerns around legally mandated dates.

Because of historical treatment of river environments in the Puget Sound watershed, adequate habitat for early winter steelhead in this area is barely existent. Dikes have reduced estuary and spawning habitat and prevent natural tree growth along rivers and even several of the tributaries in the lowlands. These dikes have also caused miles of river that lack habitat diversity.

Alternative 1 – no action
Current water flow levels, lack of action over the past few years, and lack of habitat diversity makes this alternative unattractive to me. My concern with this do nothing approach is that current environmental concerns do not provide a healthy environment for a sustainable breeding of winter steelhead. The current numbers would risk obsoleting returns dramatic impacting local cultures and economics.

Alternative 2 – proposed action
The proposed action has been calculated by the co-managers to meet the cultural and economic vitality of the region. Because the current environment cannot guarantee a strong recovery of wild breed steelhead, I support this alternative.

Alternative 3 – reduced production
Current water flow levels, lack of action over the past few years, and lack of habitat diversity makes this alternative unattractive to me. My concern with this do barely anything approach is that current environmental concerns do not provide a healthy environment for a sustainable breeding of winter steelhead. The reduction in production risks inadequate returns and impacts on local cultures and economics.

Alternative 4 – transition to Native Broodstock
I prefer this daring alternative as it focuses on recovery of native populations. However the economic impacts of initiation and advancements in redeveloping natural river habitats for native steelhead must be considered in order to avoid wasting funds on an incomplete plan that would fail if all needs of native steelhead are not considered.

Marina T. Ball

Rec'd 8/11/15

August 5, 2015

National Marine Fisheries Service
Sustainable Fisheries Division
510 Desmond Drive SE
Suite 103
Lacey, WA 98503

Subject: Early Winter Puget Sound Hatchery Steelhead HGMP EIS Scoping, Federal Register Notice RIN 0648-XE039, July 14,2015

The following are my comments in response to above Federal Register Notice (FRN).
As a concerned citizen and fisher of the state of Washington, we believe that hatcheries are not the problem causing the decline of our Steelhead in our river systems today. Our steelhead are in trouble from California to Alaska and this is not an isolated problem, but a coastwide problem.

- Please allow no time extensions At a minimum, this means that there should be no extensions allowed on comment periods and no discretionary grants of additional time so that proponents can run to the courthouse and cause a delay, running the clock out.
- Poor habitat causes take of fish every day. Currently, our warped idea of conservation translates into closing hatcheries and fisheries and doing nothing to address the degraded habitat which precludes salmon recovery.
- Poor habitat causes take of fish every day. Currently, our warped idea of conservation translates into closing hatcheries and fisheries and doing nothing to address the degraded habitat which precludes salmon recovery.
- Hatcheries can help rebuild natural populations or buffer impacts on natural populations, meet treaty fishing rights, and critically important tribal and non-tribal fisheries simply could not happen today without hatcheries.

We want to see the Published Final end date for EIS (Environmental Impact Statement) NEPA Record of decision, and final ESA decision be ***on or before March 1.*** This allows time for litigation and the release of the smolts in a timely manner.
Please dedicate all of your resources to these particular EWS HGMPs so to meet the timeframe and not run the clock out on this program. We have wasted the last two years of broodstock and if this third year brood stock is lost, it will kill this program for ever.

For the alternatives you asked for , we would like to see an alternative added to the list:
Please use added alternative #5 below, with alternative #2 as a second choice
Please add Alternative 5: **Increasing annual early winter hatchery production to one million or more smolts.** This is to ensure fair consideration of a full range of possible alternatives and to recognize that marine and freshwater habitats are continuing to decline such that increased hatchery production will be necessary to compensate.

Sincerely,

Allen Lupfer

[redacted]

Tukwila, WA 98168
[redacted]
allenalthor@gmail.com

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

HGMPs for Steelhead in Puget Sound

1 message

Jim Stein <aounltd@gmail.com> Thu, Aug 6, 2015 at 3:39 PM
To: Sustainable Fisheries Steve Leider <EWShatcheriesEIS.wcr@noaa.gov>

Dear Sustainable Fisheries Leider,

I am writing to urge NMFS to proceed with its consideration of early-winter steelhead HGMPs for hatchery programs in the Dungeness, Nooksack, Stillaguamish, Skykomish and Snoqualmie rivers. These and other Puget Sound hatchery programs are being managed to minimize effects on wild fish while supporting valuable recreational fisheries.

Unfortunately, Puget Sound recreational fisheries have suffered in recent years and will suffer further unless NMFS begins approving HGMPs that support sound hatchery management practices and sustainable fisheries.

Among the alternatives listed, I support alternative 2, which maintains the status quo and is also NMFS' preferred alternative. To ensure fair consideration of a full range of possible alternatives, I urge the additional of an alternative that would increase annual early winter hatchery production to one million or more smolts.

When evaluating possible effects of hatcheries on listed stocks, it will be important to consider the conservation, economic and social benefits that accrue from sustainable recreational fisheries in both urban and rural communities. Special consideration should also be given to the benefits of selective harvest to the management of these hatcheries and the protection of wild salmon and steelhead populations. In addition, there is a growing awareness of high juvenile steelhead mortality during migration through Puget Sound to the ocean. It will be important that the effect of current marine survival rates is considered in the overall analysis.

Early winter steelhead smolts are produced with the specific purpose of being released into local rivers to support recreational and tribal treaty harvests. Unfortunately, in the past two years, hundreds of thousands of steelhead smolts have instead been dumped into local lakes due to the lack of approved HGMPs. This harms recreational fisheries and local economies.

Additional delays also threaten the future of these hatchery programs since broodstock may no longer be available. Accordingly, I ask that this process be expedited so that a decision is made in time to allow smolts to be released into their respective watersheds next spring.

Thank you for considering my comments.

Sincerely,

Jim Stein
[redacted]
Monroe, WA 98272