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Final Environmental Impact Statement

Fish Passage and Aquatic Habitat Restoration at Hemlock Dam

Mount Adams District, Gifford Pinchot National Forest
Skamania County, Washington

S. 27, T. 4N, R. 7E, W.M.

APPENDIX A

RESPONSE TO COMMENTS TO DRAFT EIS (DEIS)

Appendix A

Response to Comments to Draft EIS (DEIS)

The Forest Service is directed to respond to substantive public comments on project proposals according to 40 CFR 1503.4. A substantive comment is defined as: "A comment that provides factual information, professional opinion or informed judgment germane to the action being proposed" (Forest Service Handbook 1909.15). Examples of substantive comments are those which:

- provide new information pertaining to the proposed action or an alternative,
- identify a new issue or expand upon an existing issue,
- identify a different way (alternative) to meet the underlying need,
- provide an opinion regarding one or more alternative, including the basis or rationale for that opinion,
- point out a specific flaw in the analysis, or
- identify a different source of credible research which, if used in the analysis, could result in different effects.

Responses to comments may include:

- modify alternatives, including the proposed action,
- develop and evaluate alternatives not previously given serious consideration by the agency,
- supplement, improve, or modify analyses,
- make factual corrections, or
- explain why the rational, authorities, and sources were used in the DEIS and why the USFS position is maintained.

The comments that follow were extracted from letters received and may be paraphrased to provide clarity or context. They are grouped according to their subject matter and organized according where these subjects are addressed in the final EIS (FEIS). An attempt has been made to accurately capture every substantive comment. Substantive comments are numbered indicating the individual or organization providing the comments. If the individual or organization made several comments, the comments were numbered. For instance, comment number 1.35 is the 35th comment provided by the Washington Department of Fish and Wildlife (1.) Letters received from Federal and State agencies, local governments, and tribes are attached to this document in their entirety. All comment letters are available for inspection in the project file.

The Forest Service response follows each comment or group of related comments. Where possible, reference is made in the response to places in the FEIS where these changes have been made, or where background information may be found, as related to the comment. Some comments were editorial in nature and referred to errors or inconsistencies in the DEIS. Direct responses to editorial comments have not been included in Appendix A, but these comments have been reviewed and the appropriate changes made to the FEIS. A response is provided if the comment appeared to arise from a misunderstanding of the information presented.

The following individuals or organizations provided comments to the draft Environmental Impact Statement during the formal 45-day public comment period which opened on October 1, 2004:

1. Washington Department of Fish and Wildlife (WDFW)
2. Norm Haight
3. Gifford Pinchot Task Force
4. Yakama Nation
5. NOAA Fisheries (National Marine Fisheries Service)
6. Washington Department of Ecology
7. Marlyn Misner
8. Irene Ward
9. Audrey and David Scott
10. David Scott
11. Arlene Johnson
12. Skamania County Board of Commissioners
13. U. S. Environmental Protection Agency (EPA)
14. Walt Loerke

Commenter Letter.Comment	Category	Comment	Response
NOAA Comments to DEIS; November 11, 2004 5.02	Scoping	Page 9, Public Involvement, second paragraph – When was the revised scoping notice issued and in what form (i.e not an NOI in the Federal Register, but an informal announcement of continued scoping)	A revised scoping notice in the form of a letter to interested and potentially affected individuals, organizations, agencies, and tribes was issued on May 24, 2004. This notice informed the public that this project was had been re-started after a delay and the public was still invited to submit comments, concerns, and suggestions. Please refer also to 1.6 Public Involvement.
EPA 13.01	Tribal Consultation	We recommend that the Forest Service engage affected Tribal governments, pursuant to EO 13175, in the further development of the project/EIS to ensure that Federal government meets its obligation to consult with tribes on government-to-government basis. Results of such consultations should be reported in the EIS.	During the scoping processs the USFS contacted the Yakama Tribe, whose members are known to make use of the Hemlock Lake recreation site, are interested and concerned about the potential for disturbance to the prehistoric site, and are keenly interested in the fisheries resource along the Columbia River and it's tributaries. We have received formal comments from the tribal Fisheries Resource Manager.
Skamania County 12.01	Existing Water Rights	Removal or modification of Hemlock Dam will directly impact the County's recreational beneficial use of Hemlock Lake under its Reservoir Water Right R2-23196C. The existing surface water rights S2-00909C, S2-26536C, and S2-00817C, have a point of diversion (POD) at the dam. The proposed alternative will impact this POD. The County has applied to the Washington State Department of Ecology to have its portion of these rights changed to a groundwater source. Therefore, County's interest should be protected until this change is approved by Ecology.	The status of water rights is discussed on page I-19 of the FEIS.
WDFW, Attachement "A" November 15, 2004 1.08	Issues	In the draft EIS it states, "Significant issues are identified as those concerns which when initially analyzed help drive the formation of a distinct alternative". It is unclear what criteria were used to define significant issues. Clearly, WDFW indicated in its previous written correspondence, and verbal comments provided at meeting meetings with the USFS and the public, that adult monitoring was a significant issue. Because it was not identified as a significant issue in the draft EIS, it did not receive the attention needed for a complete DEIS. Until the EIS includes adult monitoring, the EIS will be considered incomplete. By not addressing the adult monitoring, the USFS is retreating from its previous commitments to WDFW and partner agencies and NGOs. The adult monitoring cost needs to be included in the economic analysis.	The criteria for determining which issues are significant is explained on page I-12 of the FEIS. Adult monitoring is addressed in the FEIS. Please see 4.1.7 Fish Trapping and Monitoring.
EPA 13.02	Issues	We recommend that information contained in the sediment sampling and analysis report (Northwest Geotech 2002) be summarized and presented in the EIS.	Please see 1.7.3 Issues Not Carried Forward to Analysis in the FEIS for a summary of the findings of the analysis conducted by Northwest Geotech.

Commenter Letter.Comment	Category	Comment	Response
WDFW, Attachement "A" November 15, 2004 1.13	Alternatives	Page 4, paragraph 1. The authors state the primary purpose of the action alternatives is to enhance opportunities for viable and healthy fish populations, particularly ESA threatened steelhead in Trout Cr. If this is the intent, the resulted impacts from dam mortality are estimated between 10 and 23 steelhead annually (Rawding 2004). Addressing other limiting factors identified in LCFRB (2004) subbasin assessments and USFS (2001) watershed analysis are likely to better enhance opportunities for viable and healthy fish populations, than the removal of Hemlock Dam.	The USFS has applied more than 40% of all restoration funding (1990 to present) on the Trout Creek watershed. From 1992 to present, over 2,000 pieces of LWD have been reintroduced to 4.4 river miles, >.75 river miles of eroding stream-bank have been treated, 0.8 river miles of old growth habitat have been reconnected increasing stream shade by 20% and approximately 80,000 conifers and 200,000 hardwoods have been planted in the Trout Creek Flats area. These combined actions will, in the long term, give the Trout Creek steelhead thermal refuge, cover from predators, and provide greater channel stability to reduce the risk of additional deleterious effects of sediment loading. These efforts are ongoing however will take approximately 30 years to significantly increase stream shade and reduce water temperature. The Wind River Total Maximum Daily Load (WDOE 2001) recommendations identified removal of the dam as one of the main restoration actions to reduce water temperatures and rehabilitate habitat.
Gifford Pinchot National Forest Task Force 3.01	Alternatives	Alternatives B and C in the DEIS both adequately evaluate and consider the effects of dam removal on fish and other aquatic species. The remaining alternatives fail to adequately describe the magnitude and significance of retaining the dam.	As stated in the DEIS and FEIS, the effects to steelhead for alternatives that retain the dam are virtually identical to the existing condition or the no action Alternative A.
WDFW, Attachement "A" November 15, 2004 1.19	Alternatives	Page 27. The authors state that the effect on the structural integrity of notching the dam could not be determined, and water quality in the pond may not be sustainable. However, there was no discussion about the different approaches used assess structural integrity under a notched dam, or why these failed. Similarly, there was limited data or analysis to support the opinion that water quality may not be sustainable. In light of one adult monitoring approach of a 6' high dam with a fish ladder as detailed in Rawding (2004), I request that this alternative be re-evaluated since a notched dam with ladder maybe the most cost effective facility for monitoring.	The "notched dam" approach was initially proposed in the Barber and Perkins paper as a means of providing improved passage and retaining a recreational pond. Subsequent analysis of this alternative found that the presence of the notched dam was not necessary for the retention of an off-channel pond. As a result, the FS decided not to pursue the notched dam because it offered no apparent benefit that was not provided by completelty removing the dam or leaving the entire dam in place. And in fact if the dam could be made structurally sound under a notched scenario, it would impose additional costs for structural analysis, design, and reconstruction of the upper portion of the dam. Refer to 2.3 Alternatives Considered but Eliminated from Detailed Study and 4.10.2 Financial Analysis of Forest Service Costs and Revenues. We have chosen to analyze alternatives that best meet the purpose and need and have determined that construction of an off-channel pond would separately meet an objective for maintaining recreational opportunities at the site. If the decision is made to remove the dam, the option for creating an off-channel pond may be considered in the future in a separate analysis.
NOAA Comments to DEIS; November 11, 2004 5.06	Alternatives	Page 18, Alternative C, 4th bullet–The constructed channel should also be designed to incorporate large woody debris structures into the bed and banks the channel to contribute to bank stability, some grade control and to provide resting, hiding and rearing habitat for fish. (see page 24 Fish 13)	Alternative C does include large woody debris structures incorporated into channel design to maintain a stable grade and plan view geometry.

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NOAA Comments to DEIS; November 11, 2004 5.07	Alternatives	Page 18, Alternative C–Could be modified to provide for sediment retention within the reservoir margins by terracing above the bank full width.	Alternative C would also construct flood plains and terraces to accommodate flood flows and deposition.
Ward 8.01	Preferred Alternative	Of the alternatives given, why is the Gifford Pinchot NF leaning towards a proposed action that is one of the least supportive of multiple-use on National Forests? The use of the Hemlock Dam goes beyond the numerous and unique recreation opportunities this site currently provides to the public.	The USFS has a legal duty to protect listed species under the Endangered Species Act. This is the primary purpose of the proposed action. Mindful of the Forest Service multiple use policy, the Responsible Official has made the continued support of recreational opportunities at the Hemlock site an objective for this action.
WA Department of Ecology 6.04	Permits	Permits, General Comment: The draft EIS does not mention local and state permitting requirements. State permits include a General Construction Stormwater Permit, a 401 water quality certification, and Dam Safety approval. Local permits may include shoreline, clearing and grading, and demolition permits. The final EIS should include descriptions of the local, state and federal permits that will be needed for this project.	Please refer to Chapter 1 (1.9 Permits Required) of the FEIS.
WA Dept. of Ecology 6.03	Water Quality	Water Quality, General Information: All of the alternatives should be evaluated to determine whether they meet the Washington State Water Quality Standards in Chapter 201A WAC both during activities associated with removal of the dam and after the dam has been removed.	Refer to Section 4.1.1 of the FEIS for discussion about water temperatures during and after removal. Water temperatures will continue to exceed state standards under all alternatives. Refer to Section 4.1.2 of the FEIS for discussion of turbidity levels during and following dam removal. Turbidity levels may exceed state standards for short periods during construction activities.
Misner 7.01	Water Temperature	Significant water temperature changes have occurred as a result of the thermal activity from underground.	We have no evidence that water temperatures in Trout Creek are significantly affected by subsurface thermal activity. Although geothermal inputs may occur and may contribute to warming of Trout Creek, the primary heating occurs as a result of wide, shallow, unshaded surface waters that are exposed to solar radiation. Refer to Sections 3.1.3 and 4.1.1 of the FEIS.
WDFW, Attachement "A" November 15, 2004 1.11	Water Temperature	Page 3, paragraph 2. The writers indicate the exposed reservoir is one of the reasons for high temperatures in lower Trout Creek. However, Figure 3-11 on page 40 and the accompanying analysis indicates that water temperature rise ~10 degrees in 1.75 miles in the Trout Creek flats but only ~1 degree in Hemlock Dam. Based on this data, the reservoir has a minor effect on increased temperature and the major factor resulting in increased temperatures on Trout Creek is loss of riparian function and adequate width to depth ratios in the Trout Creek Flats, and other management activities described on page 39. An alternate hypothesis is that if water temperatures are restored to historic levels above the dam and met Clean Water Act standards, the juvenile steelhead migration into the reservoir may not occur and assumed losses due to increase in water temperature caused by Hemlock Dam would not occur, or would be much reduced.	The comment accurately restates what was presented in the DEIS regarding the dominant sources and locations of heating in Trout Creek. The alternate hypothesis put forth in the comment is noted. It is likely however, that if temperature conditions are improved in the upper watershed, there would be little improvement in temperature conditions in much of Hemlock Lake. This is because there is excessive heating potential in Hemlock Lake due to the shallow water, slow velocity, and exposed surface area. The actual temperature increase in the reservoir is currently limited by the fact that the incoming water is already at a high temperature relative to ambient air temperatures. As incoming water temperatures are reduced, and a larger gap emerges between water temperature and air temperature, then the amount of heating that occurs in Hemlock Lake is likely to increase. Refer to Section 3.1.3 and 4.1.1 of the FEIS for more discussion on this issue.

Commenter Letter.Comment	Category	Comment	Response
WDFW, Attachement "A" November 15, 2004 1.21	Water Temperature	Page 38 & 40, Figures 3-9 and 3-11. If the intent of these figures is to compare water temperatures between sites, then seasonal maximum temperatures may not be the best metric. Standardizing temperatures to the same date, or using mean or high mean temperatures during a standardized time frame such as the typical warmest periods from July 16-31, August 1 –15, or July 16- August 15 may provide a better metric.	The charts do not reflect seasonal maximum temperatures. In fact they reflect temperatures from a single day as the commenter suggests they should. Unfortunately the charts were not labelled to allow the reader to determine this. For the Wind River chart,data, was collected July 31, 2000. For the Trout Creek chart, data was collected July 23, 2003. Figure titles have been corrected in the FEIS to reflect this.
Gifford Pinchot National Forest Task Force 3.02	Water Temperature, Fish Mortality	Any evaluation of existing impacts from the dam or on evaluating the effects of retaining the dam should be based on both the effects of sublethal maximum temperatures (causing decreased growth rates, increased disease, increased predation, etc.) as well as the impacts from lethal temperatures.	There are no records of observed "fish kills" or direct mortality associated with extreme water temperatures or low dissolved oxygen within the reservoir. Direct and indirect effects of maximum water temperature events on steelhead within the reservoir and downstream are extremely difficult to evaluate. The extent and duration of maximum water temperature events in the two mile reach downstream of the reservoir (13 hours $\geq$24˚C and 120 hours $\geq$20˚C continuous) are a serious concern. Prolonged exposure to temperatures in the range of those found in the reservoir during the late summer can cause stress, increase disease, and decrease vigor of juvenile fish. Moreover, it is likely that the limited areas of thermal refuge within the reservoir become overcrowded during particularly warm periods, heightening the chances for disease, competition, and predation. The summary of effects in the DEIS estimated a range of 0–10% mortality for fry and parr steelhead as an indirect and cumulative result of maximum water temperatures.
Gifford Pinchot National Forest Task Force 3.04	Water Temperature, Fish Mortality	We are concerned that the assessment of existing temperature impacts to salmonids at page 127 of the DEIS may not be accurate and could understate the level of current effects on salmonids from high temperatures. There does not appear to be significant information underlying the assumption that par and fry mortality is currently below 10% due to temperature effects.	Evaluating the direct and indirect effects in an uncontrolled environment is extremely difficult. The analysis acknowledges these uncertainties and professional judgment and the following factors were used to estimate the 10% mortality rate for steelhead in the EIS: Due to the existence of cooler water regions within the reservoir and the up-stream reaches, mortality rates within the lake, associated with maximum water temperatures, are expected to be much less than what was documented in the literature (Bell 1987). Steelhead within this lower reach do have the ability to escape to the Wind River or immigrate up the fish ladder and therefore the fisheries biologist estimates that the percentage of parr and fry dying indirectly from maximum water temperature exposure is <10% as opposed to the 50% Bell observed.
WDFW, Attachement "A" November 15, 2004 1.24	Water Temperature, Fish Mortality	There has never been evidence of a direct fish kill in Hemlock Dam or Trout Creek due to maximum water temperatures. The section should focus on indirect mortality due to warmer water and reduce speculation on direct fish kills unless authors believe temperatures are likely to continue to increase in Trout Creek.	Please see response to comment 3.02.
NOAA Comments to DEIS; November	Water Temperature,	Page 127, Water temperature, effects to steelhead, Alternative A - no Action, last paragraph, second sentence–It does not seem reasonable to assume less than 10% of the fry and parr are killed by high water	In the spring and summer of 2004, the U.S. Geological Survey Biological Resources Division (USGS BRD) collected movement and dietary data from juvenile steelhead in Hemlock Lake and two study sites above and below the influence of the

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11, 2004 5.18	Fish Mortality	temperatures in the reservoir, as stated in the DEIS. This is likely to be variable, and in drought conditions mortality could be much higher. For example, temperature data from Table 3-3 shows that in 1998, the maximum water temperature just upstream of Hemlock Lake was 23.2°C and exceeded the state water quality standard for 75 days. Adding the 2° C increase in temperature due to warming in the reservoir should indicate that mortality at times may be as high as 50%, per the Bell 1987 study referenced in the DEIS. At times, reservoir temperatures exceed 27°C, which could kill all salmonid juveniles in the reservoir if no temperature refuge exists. Since the reservoir is continually filling in with sediment, temperature refuge is decreasing with time and the potential for temperature related mortality will increase.	impoundment. (USGS - unpublished data, contact: Sally Sauter). This study documented juvenile steelhead movement from Hemlock Lake to or through the reach above the dam and from the lake through the fish ladder to or below the reach downstream of the dam during the summer months. These movements are postulated to be in response to environmental conditions such as warm water temperature. In July 1998 and 1999 snorkel reconnaissance indicated fish were most commonly found in the deeper water at the mouth of the reservoir and to a lesser extent around the bedrock shelf at the observation platform and the deep pool near the traveling screen (Wieman, 2000). Fish appeared to be targeting cooler water in areas deeper than six feet where there was a perceptible thermo-cline. The shallow regions of the reservoir (< 3 feet) were found to be nearly void of fish which may be due to the lack of thermal stratification and or cover. As discussed in the hydrology analysis of the EIS, deeper areas within the lake can maintain lower water temperatures. These pockets of cooler water may provide some thermal refugia for juvenile fish. However these cooler water pockets may also concentrate fish which could indirectly make them more vulnerable to predation and disease. There are no records of observed “fish kills” or direct mortality associated with extreme water temperatures or low dissolved oxygen within the reservoir. Direct and indirect effects of maximum water temperature events on steelhead within the reservoir and downstream are extremely difficult to evaluate. In 1987 Bell found in a laboratory experiment that 50% of the steelhead within a study sample died after 17 hours exposure to 24˚C (75˚F). For this study the fish were confined to tanks within a laboratory where there was no escape. The congregations of fish observed within the reservoir appear to be seeking cool water regions and or migration routes past the dam. Due to the existence of cooler water regions within the reservoir and the up-stream reaches (Coffin, 2004), mortality rates within the lake, associated with maximum water temperatures, were expected to be much less than what was documented by Bell. Therefore it was the professional judgment of the Fisheries Biologist that mortality rates were estimated at 10% or less.
WDFW, Attachement “A” November 15, 2004 1.10	Water Temperature, Fish Behavior	Page 2, paragraph 3. The writers assume that juvenile steelhead are delayed in the lake and exposed to the lakes high water temperature. This statement is one hypothesis regarding steelhead behavior and lake temperatures. An alternate hypothesis is that juvenile steelhead slow their migration in response to the cooler thermal refuges created in the lake. Utilization of this habitat maybe a normal life history strategy for *O. mykiss* during periods of elevated temperatures. For example rainbow trout utilize the cool water habitat in Northwestern Reservoir in the White Salmon River all summer. USFS has documented *O. mykiss,* seeking out thermal refuges in Trout Creek when water temperatures increased above preferred levels (Brian Bair – USFS pers. Comm.). When temperatures return to the preferred levels, juvenile steelhead in Trout Cr. re-distribute into habitat occupied prior to the increase in water temperatures.	The uncertainties of fish migration rates and behavior have been acknowledged within the FEIS. Fish may be emigrating downstream from Trout Creek Flats to seek refuge from stressful maximum water temperatures and are unable to find a suitable route past the dam. Another possibility is that fish may enter the lake to take advantage of the higher productivity. As discussed in the hydrology analysis, deeper areas within the lake can maintain lower water temperatures. These pockets of cooler water may provide some thermal refugia for juvenile fish. However, these deeper areas are extremely limited in size, so offer limited capacity for the number of fish commonly found in the lake. Moreover, during periods of peak tempmeratures, the deeper areas of the reservoir are often highly used by recreators, making them less than hospitable as “refugia” for fish.

Commenter Letter.Comment	Category	Comment	Response
WDFW, Attachement "A" November 15, 2004 1.17	Turbidity	WDFW is very concerned regarding the short-term impacts to steelhead and tule fall chinook salmon under the proposed alternative. If dam removal occurs, additional measures that should be added include the artificial rearing of these species in affected areas until sediment and turbidity levels return to levels that can sustain these wild populations. Examples include but are not limited to such techniques operating juvenile screw traps to capture juvenile steelhead and rear them to smolt stage or capturing adult tule fall chinook broodstock, spawning and rearing them in the hatchery, and releasing them as smolts. It is WDFW's intent that these hatchery intervention programs only occur until the habitat is restored to a level that sustains wild production.	Please see response to comment 1.03.
WDFW, Attachement "A" November 15, 2004 1.20	Turbidity	Page 41-43. The turbidity section focuses on recent data but USGS has recorded turbidity intermittently at the Shipherd Falls gauge for a long period of time. USFS has conducted sediment sampling funded by BPA, which describes the percentage of fine sediment in spawning gravels throughout most of the watershed. Both of these datasets and accompanying analysis should be included in the EIS	We are unaware of any turbidity data from the Wind River that would signfifcantly change or improve the analysis. The USFS sediment data from spawning gravels was included in the BE submitted to NMFS and is part of the record.
WDFW, Attachement "A" November 15, 2004 1.26	Turbidity	Page 129-33, Turbidity Section. This section starts out in Alternative A by making a statement regarding a number of factors but does not address turbidity. Alternative A should include a discussion of the change in background levels of turbidity due to current dam operation.	The effects of current dam operations on turbidity levels in Trout Creek were discussed in Chapter 3 of the DEIS and in FEIS Section 3.1.4.
NOAA Comments to DEIS; November 11, 2004 5.03	Turbidity	Page 11, Sediment release into Trout Creek and Wind River – This section should be expanded to include some discussion of at least a turbidity plume into the Columbia River for some distance downstream of the mouth of the Wind River.	Refer to Section 4.1.2 of the FEIS. It is acknowledged that the effects would continue into the Columbia River in the vicinity of the mouth of the Wind River, but that due to the significantly greater discharge and other larger scale phenomenon affecting conditions in the Columbia River, extending our analysis further would be too speculative.
WDFW, Attachement "A" November 15, 2004 1.35	Turbidity	Pages 142-47, Summary of effects. This section does not address impacts to listed Tule Fall chinook salmon. Increase of turbidity and fine sediment in spawning gravels pose a significant risk for this species.	Please see response to comment 1.03.
NOAA Comments to DEIS; November 11, 2004 5.19	Turbidity	Page 129, Alternative B Turbidity effects to steelhead–In general the effects on steelhead and chinook described for Alternative B are well documented and realistic. Not many juveniles and adults can be expected to survive the short term turbidity impacts of Alternative B.	Alternative C is now the preferred alternative and impacts from turbidity and sediment deposition are expected to be significantly less than what was described in Alternative B. Please refer to the Water Quality – Suspended Sediment effects analysis for Altern ative B and C in the FEIS (pg. IV-16, *ff.*)

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4.022 WDFW, Attachement "A" November 15, 2004 1.03	Turbidity, Fish Mortality	From a technical perspective Alternative C (dam removal with a dredged channel through the sediment), provides a lower risk to ESA listed salmon and steelhead in the basin than Alternative B and meet the goals of viable and healthy fish populations.	The concerns of adverse impacts related to sediment and turbidity were addressed in the FEIS and as a result alternative C is now the preferred alternative for dam decommissioning. Since the majority of sediment would be removed, impacts would be significantly less than what was described in Alternative B.
WDFW, Attachement "A" November 15, 2004 1.06	Turbidity, Fish Mortality	There is insufficient technical data regarding turbidity/sediment levels in specific reaches, their duration, and estimated impacts to salmon and steelhead populations to support the USFS's contention that the preferred alternative B (dam removal and let the river erode sediments) will achieve the stated goal of enhancing opportunities for viable and healthy fish populations, particularly ESA threatened steelhead in Trout Creek. In fact, turbidity/sediment levels may lead to an increase in short-term extinction risks to both steelhead and listed fall chinook salmon.	These risks have been acknowledged and as a result Alternative C is now the preferred alternative. See comment 1.03.
WDFW, Attachement "A" November 15, 2004 1.16	Turbidity, Sediment Deposition, Fish Mortality	Pages 21-26. The mitigation measures for federally listed anadromous salmonids are likely incomplete. To fully develop these measures an accurate risk assessment for each of the alternatives for each ESA listed species should be developed. This includes both short-term and long-term population responses to the proposed actions. For example, under the dam removal alternatives, what is the expected change in daily turbidity levels, and how will these levels fluctuate over time until they return to background conditions? What is the expected level of percent fines in spawning gravel during the same period? What is the affect of fines on salmon and steelhead abundance, capacity, diversity, and spatial structure? After these are estimated mitigation measures can be developed.	Please see response to comment 1.03. Alternative C is now the preferred alternative to reduce impacts to ESA listed fish. The USFS worked with NMFS to develop conservation measures to further reduce risk associated with the project on listed fish. These have been documented in the NMFS Biological Opinion.
WDFW, Attachement "A" November 15, 2004 1.27	Turbidity, Fish Mortality	In the other alternatives many citations are not listed in the reference section, such as CMFO (2001) and BOR (2004). This analysis relies on (BOR 2004) for an estimate of the turbidity levels, and without a reference or copy to understand the assumptions it is difficult to evaluate the uncertainty in their predictions. Assuming that the predictions are correct, the USFS attempts to address adult steelhead impacts using trap and snorkel surveys. When addressing adult impacts it should be noted that steelhead populations have been increasing over time so an average may under represent impacts. Snorkel survey efficiency is only about 33% to 40%, so 2.5 to 3 times as many steelhead are likely to be impacted. Adult impacts are difficult to assess because they may include displacement and direct/indirect mortality. Furthermore, if turbidity levels remain high steelhead may not enter the basin at all similar to the behavior exhibited by wild steelhead after the eruption of Mt. St. Helens (Leider 1989). Since the Tule fall chinook salmon entry and spawning occurs from August through November, high turbidity levels may also displace these ESA listed fish.	References identifed in the text of the DEIS were generally included in the Reference listing at the back of the document, but headings were not always consistent with how they were referenced in the text. We have remedied that situation in the FEIS. Expanded snorkel survey data and population estimates (1999–2004) provided by WDFW were used for the draft and final analysis. As stated previously Alternative C is the preferred alternative. This alternative will significantly reduce turbidity and sediment deposition and therefore reduce the potential impacts ESA listed salmon and steelhead.

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WDFW, Attachement "A" November 15, 2004 1.29	Sediment Deposition	Page 133- 34, Sediment Section. This section does not address the impact of sediment deposition on incubation survival of salmon and steelhead. There is a strong relationship between the level of fine sediment in spawning gravel and incubation survival (Koski 1966, Tagart 1976, and Chapman 1988). If the BOR (2004) report did not estimate changes in fine sediment, then it is recommended additional analysis be completed to estimate changes in fine sediment so quantitative estimates of fry losses can be calculated.	Please see response to comment 1.03.
NOAA Comments to DEIS; November 11, 2004 5.01	Sediment Routing	Page 3, Water Quality and Aquatic Implications, 2nd paragraph, 3rd sentence–Should read " In past years……used a sluice gate to periodically flush a portion of the sediments from the reservoir……." What this does not mention is that the sluice is only effective at passing finer sediments. The heavier fractions near the upper end of the reservoir were probably not passed by sluicing. In addition, the passage of large woody debris passage was probably minimal if at all, and probably occurred during high flows at the spillway	Comment noted. We presume the comment is accurate, but did not speculate as to the materials passed during sluicing since there is no documentation of it.
WDFW, Attachement "A" November 15, 2004 1.23	Sediment Routing	The entire Wind River wild tule fall chinook spawning population spawns below Shipherd Falls. The draft EIS indicates that sediment is likely to be transported to Shipherd Falls and then be deposited between Shipherd Falls and the mouth. As this occurs the incubation survival of this population maybe reduced to a level that could lead to a high extinction risk.	Please see response to comment 1.03.
NOAA Comments to DEIS; November 11, 2004 5.17	Sediment Routing	Page 62, Sediment deposition–Notes that the reservoir refills quickly after sediment removal.	Comment noted.
Johnson 11.01	Cumulative Effects	What are the downstream consequences of the dam removal? What is the cumulative affect- this seems to be missing from the EIS document?	A more complete analysis of downstream effects and cumulative effects has been included in the FEIS.
Skamania County 12.03 WA Department of Ecology 6.05	Groundwater	Hemlock Lake is situated over a zone of direct recharge to the local basalt aquifers. We are unsure if there is sufficient data to indicate minimal impact on the recharge of the aquifer and how the County and downgradient private well users will be affected. Any impairment to groundwater wells in the area by removing the dam will need to be identified and analyzed through the Applications for Change to Water Rights G2-25679, S2-00817, S2-26536, and S2-00909 submitted by Skamania County	Please see 4.5.1 Groundwater in the FEIS.

Commenter Letter.Comment	Category	Comment	Response
WDFW, Attachement "A" November 15, 2004 1.22	Predation	Page 55 and 56. The discussion presented on juvenile mortality of salmonids is limited to mainstem Columbia River dams and reservoirs. These facilities are very different than Hemlock Dam. It is clear that extrapolating the results of predation rates of juvenile salmonids from Columbia River reservoirs is not appropriate because the dominant predators, northern pike minnow, smallmouth bass, walleye, gulls, and marine mammals are not found in Hemlock reservoir. The USFS should use the data that it collected to evaluate juvenile steelhead passage at Hemlock Dam. In this study, 19 of 19 radio tagged fish passed the dam in 1997, indicating passage survival was 100%.	The majority of mortality data related to predation associated with dams has been collected on larger hydroelectric projects with rates varying greatly from one location to another. Unfortunately there is limited data relative to smaller dams such as Hemlock. However, the analysis provided in 4.1.6 Fish Migration, is based on USFS biologists observations. Additional documentation of on-site predation is available from interpreation of video monitoring of the fish ladder and direct observations of USFS Fisheries personnel. This information is available for inspection in the project file.
WDFW, Attachement "A" November 15, 2004 1.33	Predation	Page 140. Predation Section. Predation risks are both increased and decreased by the dam but these are difficult to quantify. Fish using the spillway may be stunned upon entering the plunge pool and be more susceptible to predators. The same is true of adults and juveniles using the ladder. Yet on the other hand, the depth of the lake may decrease the predation rate because adult and juvenile steelhead may be better able to avoid predators than in a confined riverine section.	Please see response to comment 1.17.
WDFW 1.02	Fish Population Modeling	No EIS or analysis is complete without addressing the limits of the analysis and its uncertainty. At times the document attempted to address uncertainty, but in most instances, it did not and used a deterministic model with fixed inputs to produce one result. As you know, fish populations and their natural environment are dynamic systems and deterministic modeling is often leads to an over simplification of results. The EIS and analysis would be improved by addressing model and analysis uncertainty, addressing the limits of the analysis, using multiple models/hypothesis, and using the weight of evidence to determine a recommended alternative.	Uncertainties of the analysis are explicitly acknowledged in the document. The USFS model uses the factors associated with the dam that scientifically based or are known to be negatively affecting steelhead. This model was intentionally simplistic and deterministic to clearly present the range of estimated steelhead mortality associated with the dam to a wide range of people. The model used fixed life history values to generate a "snap-shot" estimate for the range of mortalities which could be occurring under the existing condition. For the most part, this data was derived from within the sub-basin and was comprised of the best and most recent data which was made available. In regard to using multiple models, both the EDT and Beverton/Holt models that the commenter provided were incorporated into both the draft and final EIS. The results of these models closely mirrored and independently corroborate the results of the analysis in the DEIS.
Haight 2.01	Fish Mortality	The best argument against moving forward with dam removal at this time, is the incredibly flawed Barber report of 1999 which is cited as major support for dam removal in the 2004 USFS Hemlock Lake report. Barber claims a drop in the population of adult steelhead in Trout Creek of 1000 fish, due to the presence of Hemlock Dam. A more accurate figure may be around 20 fish, according to a report by Dan Rawding of WDFW. This discrepancy needs to be resolved. In removing the dam, we also lose a valuable tool for direct measurement of the population of adult fish in the river.	The primary objectives of the 1999 Barber report were to evaluate the feasibility and cost of various alternatives for operation, modification or decommissioning of the dam. The fish production estimates within the report were flawed and not included in the Draft or Final EIS analysis. The fisheries analysis for the Draft and Final EIS were generated by a USFS Fisheries Biologist and a WDFW Fisheries Biologist. Three models were used independently by the biologist and produced similar results; removing Hemlock Dam would increase runs by 15–25 adult steelhead per year. An average of 50 adult steelhead have been returning to Trout Creek over the past five years therefore an additional 20 fish would be a significant increase in that population.

Commenter Letter.Comment	Category	Comment	Response
Gifford Pinchot National Forest Task Force 3.03	Fish Mortality	We also believe that the DEIS should consider the impacts to salmon (steelhead?) from Alternatives A, D or E not just from the perspective of current steelhead returns, but should see current returns as merely a snapshot of a run that even very recently has been reduced to a mere handful of individuals. This is important since the cumulative loss of parr, fry and adults from the combination of increased temperatures due to the dam, increased predation due to the dam, migration challenges due to everything from impingement to up-migration through an inadequate fish ladder and manual operated trap would be extremely significant to a population with only 7 adult returns.	The most recent population data (1999–2004) were used to provide readers with an estimate of mortality under the existing condition. When ocean or out of basin conditions decrease adult returns impacts of the dam to steelhead could become critical to the population in a cumulative sense. If the 10 year average is used an increase of 15–25 steelhead would equate to a 47–83% increase in the Trout Creek population.
WDFW, Attachement "A" November 15, 2004 1.05	Fish Mortality	The estimates for steelhead losses due to the operation and maintenance of Hemlock Dam in this report are more technically sound than those by Barber and Perkins (1999). However, the estimates of changes in adult steelhead equivalents used by the USFS are based on a density-independent model. This assumption is correct when the abundance of steelhead is low. However, when steelhead abundance is higher, this type of analysis is not consistent with the biology of the species. Therefore, the results of the USFS analysis are likely biased. WDFW has already supplied USFS with a density-dependent analysis using two approaches: 1) an expansion of empirical data and 2) Ecosystem Diagnosis and Treatment (EDT) model approach (Rawding 2004). These results indicate that current impacts are about approximately 2% of the Wind River population.	In the cumulative effects section of the DEIS a hypothetical population was used to evaluate the effects of the dam under a density dependent scenario which incrementally decreases the percentage of fish affected by the operation of the dam: "If runs increased to 300 adults, 6,800 smolts, 5,000 fry and 11,900 parr, returns would be decreased by 2–34% or – 103 adult steelhead per year." The majority of the analysis provides estimates for steelhead losses due to the operation and maintenance of Hemlock Dam and provide the range of mortalities which may be occurring under the existing conditions. The existing conditions include the most recent adult steelhead population data; adult returns over the last five years averaged 50 adult steelhead. The Beverton / Holt model suggested a potential increase of 16 adult steelhead per year if the dam were removed. The EDT model estimated an increase of 23 adult steelhead without the dam. Though it was not clearly stated in the Rawding document, the 2% increase in the Wind River adult steelhead population appears to be derived from ~900 adult steelhead which is approximately the number of adults which have been returning in the past few years or the current condition. In relation to the current conditions and population levels within Trout Creek (50 adult steelhead returning) the Beverton/Holt and EDT estimates would equate to a 32% and 46% increase in Trout Creek adult steelhead, respectively which are almost identical to the median and maximum values (14 and 24 adult steelhead) generated by the analysis in the EIS. Regardless of the population size used to estimate the percent decrease or increase, these three independent analyses produce roughly the same values and corroborates that the operation and maintenance of the dam is reducing the population/production potential of Trout Creek and the Wind River.
WDFW, Attachement "A" November 15, 2004 1.12	Fish Mortality	Page 3, paragraph 4. The authors cite the Barber and Perkins (1999) as the initial basis for dam removal. WDFW commented on the assumptions in this report in 1998 and 1999, and these comments were not addressed in their final report. Rawding (2004) re-examined some of the critical assumption in their report and arrived at different conclusions regarding the impacts to steelhead from the operation and maintenance of Hemlock Dam.	As stated in response to comment 2.01 the primary objectives of the 1999 Barber report were to evaluate the feasibility and cost of various alternatives for operation, modification or decommissioning of the dam. The fish production estimates within the report were flawed and not included in the Draft or Final EIS analysis. The fisheries analysis for the Draft and Final EIS were generated by a USFS Fisheries Biologist and a WDFW Fisheries Biologist. Three models were used independently by the biologist and produced similar results; removing Hemlock Dam would increase runs by 15–25 adult steelhead per year. An average of 50 adult steelhead have been

Commenter Letter.Comment	Category	Comment	Response
			returning to Trout Creek over the past five years therefore an additional 20 fish would be a significant increase in that population.
WDFW, Attachement "A" November 15, 2004 1.25	Fish Mortality	The authors address effects to steelhead in detail under Alternative A and should address them with the same level of detail under the other alternatives. They indicate fry and parr mortalities from current water temperature are variable and are expected to be less than 10%. There is no citation or data analysis to support the 10% indirect mortality rate. USFS and USGS data indicate that some minimum level of fry and parr migrate through the reservoir, but without trapping to obtain a count or continuous snorkeling counts, observer efficiency, and residence time, the number of potentially affected juvenile steelhead is unknown. The section should discuss the uncertainty in the juvenile steelhead estimates that are provided.	Please see repsonse to comment 3.04.
WDFW, Attachement "A" November 15, 2004 1.28	Fish Mortality	Juvenile steelhead impacts estimates maybe biased low. Johnson et al. (1988) indicated average late summer parr to smolt survival was 40%. If the average estimate of 10,000 smolts referred to in the report is correct, than an estimated 25,000 parr are in the lower Trout Creek and the Wind River. In addition to the 25,000 parr, an unknown number of fry would also be affected by turbidity. The analysis correctly concludes that in a worst-case scenario four brood years of steelhead production are put at risk during the initial year of dam removal. The report correctly concludes that under other alternatives, turbidity would be less. Therefore, the affects on steelhead and salmon would be less but additional analysis is needed to quantify these impacts to develop a preferred alternative.	Because of the potential impacts, Alternative C is has been identified as the Preferred Alternative. Please refer to the Water Quality – Suspended Sediment effects analysis for Altern ative B and C in the FEIS (pg. IV-16, *ff*.)
WDFW, Attachement "A" November 15, 2004 1.36	Fish Mortality	Although all the mortality rates listed on page 143 are discussed in the appropriate sections, only the adult fallback and smolt survival rate are based on empirical data. The predation, impingement, and water temperature/disease impacts are based on professional judgment, which is difficult to evaluate. It appears the ranges provided are reasonable, except for predation, which could be reduced to 0% for a lower bound. The average smolt outmigration is based on WDFW/USFS trap data but the other parr outmigration, parr in lower Trout Creek, and parr in the Lower Wind River, are not well documented.	Please see response to comment 1.17
WDFW, Attachement "A" November 15, 2004 1.37	Fish Mortality	The cumulative impacts for steelhead presented by the USFS are based on a density-independent model and average returns and survivals in Table 4-22 on page 143. The fecundity, sex ratio, smolt to adult survival rate are based on basin specific data but the egg to fry, fry to smolt, and parr to smolt are based on Keogh River data from British Columbia or professional judgment. The use of density-independent data is not consistent with the biology of the species, and may overestimate mortality as populations approach capacity. The USFS estimate does not take into account the restored habitat created by the	Please see response to comment 1.02.

Commenter Letter.Comment	Category	Comment	Response
		removal of Hemlock lake.	
WDFW, Attachement "A" November 15, 2004 1.36	Fish Mortality	The estimated mortality rates for the impacts due to the operation of Hemlock Dam from Barber and Perkins (1999) were ~90%, USFS draft EIS 2–54%, and Rawding (2004) at ~ 4% of the Trout Creek population. The Barber and Perkins (1999) estimate is well outside of the USFS estimate and Rawding (2004) indicated that it was not a realistic estimate due to their assumptions. The USFS draft EIS and Rawding (2004) used two different and independent approaches to estimates steelhead impacts from the operation of Hemlock Dam. The mortality estimates from both analyses overlap at the lower end of the USFS estimate. One conclusion from an examination of the weight of evidence is to use the lowest estimate from the USFS and the highest estimate from the WDFW analyses. In this case, the adult steelhead impacts from the operation of Hemlock Dam are likely to average from between 2% to 4% of the Trout Creek run size.	The fisheries analysis for the Draft EIS were generated by a Forest Service Fisheries Biologist and a WDFW Fisheries Biologist. Three models were used independently and produced similar results; removing Hemlock Dam would increase runs by 15–25 adult steelhead per year. An average of 50 adult steelhead have been returning to Trout Creek over the past five years therefore an additional 20 fish would be an increase of 40% not 4% in the Trout Creek population.
WDFW, Attachement "A" November 15, 2004 1.31	Fish Mortality	Repeat spawner rates for Wind River steelhead are old and based on a small sample size. The analysis correctly indicated that the Hemlock dam site exceeds NOAA Fisheries downstream velocity criteria. As with adult upstream fish passage, the actual measurements of juvenile mortality were 0%, based on the radio tag data, when the dam was operated to ensure safe spillway operation using flashboard management as encouraged by WDFW.	The zero percent juvenile mortality refers to the 1997 smolt telemetry study which evaluated 19 smolts in the spring when flows where optimal. Under flow conditions from 100 cfs to approximately 600 cfs, flashboard management could be an effective means of directing flow and reducing drop mortality risk. However, when water exceeds 600 cfs (> 1.0 feet of head at dam) the high flow boards would be overtopped and fish could be again exposed to unavoidable drop mortality risks. On average emigrants would be at an increased risk of fall related mortality 65 days per year when flows are >600 cfs (Trout Creek Gage Data, 1945–1948 & 1995–1996). A significant portion of that period occurs during the winter months (December–February) when juvenile steelhead migration would be relatively limited due to water temperature and food availability. On average 5 days per year would occur during smolt emigration.
NOAA Comments to DEIS; November 11, 2004 5.15	Fish Mortality	Page 55 Emigration—Most of the references in this section are not appropriate for comparison to Hemlock Dam, or for analysis of the impacts of Hemlock Dam on fish passage. Spillway mortality: For example, Columbia or Snake River (mainstem) dam spillways are significantly different than Hemlock Dam, so it is not reasonable to estimate spillway mortality at Hemlock Dam based on spillway mortality data from mainstem reports. Specifically, mainstem spillways provide a passage route with a much larger passage corridor (i.e. the flow path that can be safely traveled by fish), and much deeper receiving pools than are available at Hemlock Dam. The result is that	The mortality estimates within the Draft and Final EIS were generated from the best available information, including direct observation, and professional judgment. The 2 percent mortality rate referenced by Whitney et al. (1997) on the mainstem Columbia River dams was used as a point of reference in the EIS and not to estimate mortality. It is unlikely that all of the estimated 160 smolt/pre-smolt steelhead (4% of the emigrating population) that would potentially be exposed to spill related hazards would be directly or indirectly killed. Therefore mortality rates associated with fish striking objects below the dam were estimated below 2%.

Commenter Letter.Comment	Category	Comment	Response
		some fish will pass Hemlock dam and strike the spillway apron or appurtenant structures and become injured. In addition, mainstem spillways utilize flow rates tens of thousands of cubic feet per second greater than spillway flow rates at Hemlock Dam. Mainstem spillways that do not have deep receiving pools can experience much higher mortality. For example, at The Dalles Dam on the Columbia River, spillway mortality is close to 7%. Tributary dams with smaller flow volumes and smaller passage corridors also produce higher mortality than seen at mainstem dams. For example, at a tributary project on the Clackamas River (North Fork) in Oregon, spillway passage mortality is estimated at 16%, eight times higher than typically estimated for mainstem spillways. Since the North Fork spillway and The Dalles spillways have superior egress conditions as compared to Hemlock dam, it is not reasonable to imply that Hemlock Dam spillway mortality may be comparable to typical spillway mortality at mainstem projects. Spillway mortality at Hemlock dam would best be measured at the site, but lacking this data, spillway mortality could be much higher than 16%, especially when predation effects due to poor egress and fish injury due to spillway passage are considered.	
NOAA Comments to DEIS; November 11, 2004 5.20	Fish Mortality	Page 137, bottom paragraph–For reasons listed above under "Page 55, **Emigration**", a 2% mortality estimate is not valid for Hemlock Dam spillway passage. As a demonstration of this, the adult steelhead escapement to the upper basin in the 1990's was between 10 and 30 fish. The single kelt mortality observed in 1995, out of 10 to 30 total fish, would indicate higher than 2% mortality occurs for this life stage.	Please see response to comment 1.23.
NOAA Comments to DEIS; November 11, 2004 5.21	Fish Mortality	In the last paragraph of this section, it is estimated that 1-2% of the fry and parr passing Hemlock Dam could be killed by impingement or fall trauma. This is far too low of a mortality estimate. In the first paragraph, it states that the approach velocity at the existing screens can range up to 0.8 fps. At an approach velocity of 0.8 fps, much higher fry mortality will occur. For example, fry survival evaluations in the 1980's at Leaburg screens on the McKenzie River, Oregon, indicate that nearly 40% of the fry died when exposed to approach velocities of 0.75 fps. These screens have since been modified to reduce approach velocity.	We estimate that the majority of fish emigration past the dam is occurring in the spring when the flashboards are in the high flow configuration and mortality rates associated with impingement are very low as was demonstrated by the Wieman and Adams radio telemetry study in 1997 (available in project file). In addition, since adult immigration has historically tapered off in the summer months and pumping water into the attraction flow chamber can reduce the reservoir level and exacerbate water temperature maximums, the attraction flow withdrawal from the reservoir and associated fish screen are shut off which eliminates the possibility of impingement on the screen. Therefore based on the best professional judgment of the Fisheries Biologist, the percentage of fish being exposed to the impingement approach velocities on flashboards, dam structure or traveling screen is estimated to be relatively low and mortality rates were estimated at 1–2%.
WDFW 1.01	Adult Fish Trap	…it (the DEIS) fails to adequately address mitigation for loss of these facilities (fish trap) through the preferred option of dam removal. WDFW therefore recommends that both Alternatives B and C be modified to specifically incorporate fish monitoring facilities.	The purpose of this analysis is to evaluate alternatives for improving water quality and fish passage. Construction of a new fish trapping facility is beyond the scope of this document. If a dam decommissioning alternative is selected, the USFS would work with WDFW and other partners to evaluate steelhead census alternatives

Commenter Letter.Comment	Category	Comment	Response
WDFW, Attachement "A" November 15, 2004 1.15	Adult Fish Trap	Pages 16-19. The authors address adult monitoring in action alternatives A, D, and E but not under the dam removal alternatives. Without addressing adult monitoring under the dam removal alternatives the EIS is incomplete. As noted in our previous correspondence, Rawding (2004) provided two alternatives and costs for adult monitoring with dam removal. These should be included in the final EIS.	Please see response to comment 1.01.
WDFW, Attachement "A" November 15, 2004 1.34	Adult Fish Trap	Page 141, Adult trapping. The authors state that trap avoidance is a concern and WDFW concurs with this assessment. USFS and WDFW have made at least 3 major modifications to the trap since 1992 to decrease avoidance behavior. After the review of USFS video in 2003, WDFW proposed another modification that we believe will reduce avoidance further, but these measures have yet to be implemented. Since continued adult monitoring is essential, Rawding (2004) proposed another alternative of a resistance counter with video. If trap avoidance continues to be a problem, this may be the best alternative to meet adult monitoring requirements.	Video surveillance of the adult steelhead trap was conducted by the USFS (2002–2004). The trap rejection and escapement rates observed are a concern not only to the Trout Creek steelhead population but also raise concerns relative to the credibility and integrity of the monitoring data.
NOAA Comments to DEIS; November 11, 2004 5.04	Adult Fish Trap	Page 12, Fish monitoring options–It is not clear that the Wind River run-at-large benefits from the monitoring provided by operating the existing trap. In subsequent sections of the DEIS, the text refers to passage problems when the trap is operating. The ability to estimate extinction risk does not justify adverse trap effects which include, but are not limited to: 1) handling all fish at least twice for the mark-recapture studies; 2) holding fish in a confined space, intermixing adult and juvenile fish of all species and subjecting fish to predation within the trap; and 3) migration delay as noted in the DEIS. There are feasible options to continue this monitoring if the dam and trap were removed, and these options could be developed to reduce or eliminate the adverse impacts of the existing trap.	The FEIS details the known and perceived problems of monitoring adult fish including trap rejection and predation. Video cameras have been installed in the fish ladder and at the trap to evaluate potential problems associated with the structure. The existing data has been shared with WDFW. WDFW maintains the section 10(a) permit for the trapping facility. If the dam is decommissioned the USFS would work with WDFW and partners to investigate adult steelhead census options.
WDFW, Attachement "A" November 15, 2004 1.30	Fish Ladder, Adult Fish Trap	Pages 134-141, Dam Modification Section. Although the fish ladder does not meet NOAA Fisheries design criteria, it should be emphasized that over 300 adult steelhead returned to Trout Creek before improvements to passage were finished in the late 1990's. In this section, the authors imply that adult steelhead are impacted by this ladder because it does not meeting design criteria. While this may be true, passage of steelhead based on video monitoring indicated that adult steelhead rapidly ascend the ladder and the delays appear to be associated with the top of the ladder near the trapping facility (Brian Bair – USFS pers. comm.). In assessing potential impacts, it is important to use the actual fallback rate. At Hemlock Dam this can only be determined by using fish Floy tagged at Shipherd Falls, captured at Hemlock Dam and released above the dam, and recaptured a second time at Hemlock Dam. The 2% reference based on WDFW/USFS data appears to be high.	Two percent of tagged adult steelhead were documented to fall back over the dam and return to the trap in 1999 and 2001. Since a fraction of the fish migrating above the dam are tagged fall back rates may be higher than 2%.

Commenter Letter.Comment	Category	Comment	Response
NOAA Comments to DEIS; November 11, 2004 5.14	Fish Ladder	Page 44, Fish and fish habitat, last paragraph, last sentence–There is a reference to Mack, 1995, that states the ladder is still functional today. There is no data to support this conclusion, assuming "functional" is defined as the ladder providing safe and timely passage of fish. Numerous deficiencies exist and are described later in the DEIS. Some deficiencies include, but are not limited to: 1) cracked and leaking ladder walls possibly due to foundation issues; 2) inadequate auxiliary water system layout (no energy dissipation and no fish guidance); 3) poor trap and fish handling facilities; 4) upstream juvenile passage is very limited by 1 foot pool to pool jump heights; and 5) current Federal and state design criteria are not met with the existing ladder design.	The majority of Alternatives are designed to correct or remove the stated deficiencies of the fish ladder.
NOAA Comments to DEIS; November 11, 2004 5.13	Fish Ladder	Page 44–States that the current fishway was built 1936 and that it is still functional, but it fails to state that the fishway walls are seriously deteriorated…	The walls of the ladder have repair needs which would be addressed in Alternatives B, C, D and E.
NOAA Comments to DEIS; November 11, 2004 5.12	Fish Habitat	Page 43, Fish and Fish Habitat–This section should be expanded to identify the devastating environmental impacts of splash-damming on anadromous fish; including partial or complete lack of fish passage, complete removal of instream large woody debris below the structure to facilitate log transport, scour of the stream channel to bedrock as a result of the unnaturally high and frequent freshets created by splash-damming, scour of fish spawning redds, direct injury to adult and juvenile salmonids from log transport, stranding of adult and juvenile fish below the structure because of unnaturally high and frequent artificial freshets with dramatic flow elevations and reductions and the impacts on fish from the use of explosives to clear log-jams created by log transport during splashing (Wendler and DesChamps, 1955, Sedell and Luchessa, 1982). Building a fishway at the Trout Creek splash dam would have had only very partially mitigated the cumulative effects of the splash dam operation for log transport on fish and fish habitat in Trout Creek and the Wind River. Trout Creek may have been more heavily loaded w/ LWD before the splash dam was installed and operated. Long –term riparian restoration could provide more LWD and roughness to the channel below the dam site and trap more sediment for spawning and macroinvertebrate production.	The FEIS acknowledges past anthropogenic perturbations within the watershed which have cumulatively lead to loss of riparian function, decreased LWD and increased water temperatures. LWD is incorporated into the channel restoration design of Alternative C.
NOAA Comments to DEIS; November 11, 2004 5.16	Fisheries	Bypass survival: Bypass studies for the mainstem are inappropriately referenced in this section. The reference to mainstem is inappropriate because mainstem passage systems are fundamentally different in design than are typical tributary types of bypass systems. Due to orders of magnitude difference in flow volumes, mainstem bypass systems utilize a through-screen velocity several times higher than tributary bypass systems. Mainstem bypass systems divert fish into a gatewell with turbulent flow conditions with at times poor egress conditions, as	Thank you, references to bypass were deleted and or corrected.

Commenter Letter.Comment	Category	Comment	Response
		compared to tributary bypass systems that are designed to quickly route fish back to the river below the dam. Upon evaluation, tributary screen and bypass systems consistently produce mortality of less than 2% and often 0% for all life stages of anadromous salmonids, much less than the mortality that can occur in a mainstem bypass system.	
Yakama Nation 4.01	Fisheries	I also suggest that the affects of dam removal on Pacific lamprey (*Entosphenus tridentatus*) should have been included under the section of Fish and Fish Habitat in Chapter 3.	Pacific lamprey do utilize the lower Wind River below Shipperd Falls and are now mentioned within Chapter 3 of the Final EIS.
WDFW, Attachement "A" November 15, 2004 1.04	Fisheries Effects of Mitigation	However, as noted in our previous correspondence, either of these alternatives would require capturing juvenile and/or adult steelhead and chinook salmon and rearing them in a hatchery until environmental condition are restored to a sufficient level to sustain wild populations. The extent and duration of this mitigation will be related to extent and duration of the increased sediment and turbidity. This mitigation was not identified in the EIS and its costs are not included in the economic analysis.	Please refer to 5.1 Mitigation, measure Fish-5. Alternative C is the USFS preferred alternative. If this alternative were to be implemented, exposure to turbidity would be far less than for the oiginal proposed action (Alternative B). Please refer to the Water Quality – Suspended Sediment effects analysis for Altern ative B and C in the FEIS (pg. IV-16, *ff*.)
Scott, A. Scott, D. 9.01	Recreation	A few weeks ago we visited Beavercreek Campground only to see a sign reading "no picnicking". This may be one of the closest areas similar to Hemlock Lake and currently families can't even go there to play in the water for a short time. The suggestion that this campground be open to picnicking FOR ONE YEAR if the Dam is removed is almost insulting. What about the other years? Your draft EIS has given up the recreation resource without adequate exploration of alternatives for mitigating the slack water recreations opportunities destroyed.	Removal of Hemlock Dam may require closing of the Hemlock picnic are during construction. Alternative day use areas are identified in the FEIS. The Hemlock picnic area would remain open under all alternatives.
Gifford Pinchot Task Force 3.05	Recreation	The DEIS for example projects up to a 90% drop in visitors without the attraction of the lake, but we could not find any data to support this conclusion. Similarly, there is little explanation as to why even if there were pools in a restored river that would provide for water recreation visitor use would drop by 50%. See page 148.	The analysis of recreation impacts has been revised. The estimates were inexact, though they were based on observation and experience. The specific design modifications of the future site will be analyzed separately and would include estimates of visitor use.
Loerke 14.01	Wildlife	Nothing significant is said about present Riparian use, including Duck, Geese, Migratory and/or Local Avian species habitat. (Don't forget the Salamanders, frogs and millions of aquatic, local insects that will no longer have what they thought was a place to live.) What about the Beavers? What about the Coyotes?	Please see 4.8 Other Species in the FEIS.

Commenter Letter.Comment	Category	Comment	Response
WA Dept. of Ecology 6.02	Wetlands	The draft EIS has insufficient information regarding wetlands. The final EIS should include a delineation and functional assessment of wetlands associated with the Lake; an analysis of the impacts of the various alternatives to these functions and values; and the mitigation proposed for any lost functions and values.	A wetlands assessment has been included in the FEIS. The details of any wetland mitigation that results from this project would be identified through the development of a Wetlands Mitigation Plan (refer to Chapter 5 of the FEIS).
Gifford Pinchot Task Force 3.07	Invasive Weeds	We are concerned about how the project may affect the spread and introduction of weeds. We believe that non-mechanical methods to control problem species that are not treatable with mechanical control, such as reed canary grass, should be considered prior to project implementation.	Control of invasive weeds is discussed in the FEIS in 4.9.3 Invasive Weeds. The USFS is limited to use of mechanical methods of control until non-mechanical control methods are analyzed in a separate, site-specific EIS concerning the treatment of invasive weeks on the entire Gifford Pinchot National Forest. This analysis is in progress at this time and we expect that it will be completed before implementing this project. Though we can't be certain of the outcome, an objective of the Invasive Weed EIS is to authorize the use of practical control methods while ensuring adequate protection of the aquatic resource.
WDFW, Attachement "A" November 15, 2004 1.07	Economics	The economic analysis only addressed USFS costs and benefits. Other USFS partners including Bonneville Power Administration (BPA), Underwood Conservation District (UCD), U.S. Geological Service (USGS), U.S. Fish and Wildlife Service (USFWS), WDFW, and the Yakama Nation (YN) and their constituents incur costs and receive benefits under the proposed alternatives. The narrow scope of the analysis ignored these partners, and the analysis should be broadened to include costs and benefits to all parties. Since the goal of the DEIS is viable and healthy salmon and steelhead populations and this is a regional issue, it makes since to examine the impacts at the regional scale, not just for the USFS.	An analysis of the costs and benefits of Hemlock Dam to the identified list of partners and their constituents would be impractical and beyond the scope of this EIS. The economic analysis is focused on comparing the costs of the various alternatives. Since the FS owns the dam, the costs associated with its maintenance, repair and operations are the responsibility of the FS. To date, we have received partnership funding and suppor t to help defray some but not all of the costs associated with managing the dam and trap. However, we have not received any long term commitment of funds from any partner for long term operations and maintenance of the dam, so the analysis assumes that we would continue to bear the responsibility of funding that work or seeking outside funds to cover it.
WDFW, Attachement "A" November 15, 2004 1.09	Economics	The adult monitoring cost needs to be included in the economic analysis.	Adult monitoring costs were not included in the analysis because they are not an essential component of managing the dam. If funding for the monitoring (which is currently provided by BPA) were to be eliminated, the FS could remove the trap, but would still be obligated to maintain the other appurtenances of the dam, and to make daily trips to inspect and clear the fishway per state regulation.
WDFW, Attachement "A" November 15, 2004 1.14	Economics	Page 4, paragraph 2. The authors infer that USFS conducts daily visits to the fish ladder and bypass system and these costs are incurred by the USFS. USFS does not conduct daily visits to the fish ladder. During most weekends the ladder is not inspected and much of the cost of ladder visits is supported by BPA. Furthermore, the daily visits are necessitated by cooperative agreement with Wind River watershed partners, including WDFW. The purpose of these visits is to operate the Hemlock Dam adult trap to provide escapement data, to assess federally funded restoration actions in Trout Creek, and to provide counts of tagged and untagged wild steelhead to calculate Wind River summer steelhead population estimates based on mark-recapture data.	Daily cost for operating the fish trap at Hemlock Dam was based on a 5 day work week. However, USFS personnel have in the past and currently inspect the fish trap and ladder on weekends during times of peak migration. In fact, a Fisheries Biologist who was stationed at the Hemlock site monitored the trap most weekends over a seven year period.

Commenter Letter.Comment	Category	Comment	Response
NOAA Comments to DEIS; November 11, 2004 5.05	Economics	Page 13, ISSUE: Expenditures by recreation visitors– There is no mention of the potential for increased angling opportunities and the resulting increased expenditures that would be provided if the upstream habitat is fully utilized via dam removal or improved fish passage facilities.	Trout Creek, including the reservoir have been closed to fishing since 1994. WDFW is responsible for fishing regulations.
Skamania County 12.02	Economics	The fiscal impact of the loss of the dam is not fully quantified in the EIS. We have the following comments regarding potential economic loss: The County is marketing the Wind River Site as a recreational and economic site. The loss of a key recreational asset could be detrimental to this effort. The removal of the dam will reduce recreational traffic flow through the area and will reduce revenue to small commercial operations in Carson and Stabler. The loss of a key recreational facility adjacent to Skamania County property and the surrounding area could result in a loss of property values and erosion of the County property tax base.	Please refer to 4.10.01 Local Economy in the FEIS. Loss of property value as a result of dam decommissioning alone cannot be specifically determined, however it has been included in a general discussion under cumulative effects of the dam removal alternatives. Transfer of the dam was proposed to Skamania County, however they declined this offer. Please refer to 1.8 Other Related Efforts in the FEIS.
Gifford Pinchot Task Force 3.06	Economics	The EIS did not fully consider the potential for finding a commercial use for the dredge material from Hemlock lake, but we believe that efforts to find a commercial use should be made since they would substantially decrease the cost of dam removal. The DEIS did not consider the effect of the off-site movement of dredge materials from the dam to a location other than the nursery field. In the event there is a commercial interest in this material that could substantially decrease the cost of sediment removal we believe this would make sense for the Forest Service to pursue. As a result, the Final EIS should consider the effects of trucking 35,000 cubic yards of sediment to a location, such as, Vancouver, WA, and should describe the visual, acoustic, traffic safety and other related effects of such shipments. It seems likely that the number of truck trips could be substantially larger than those described in DEIS.	A commercially viable alternative to disposal of sediments at the Nursery site has not been located. There has been potential interest as close as Stevenson. Disposal at the Nursery site was the only feasible solution that we could readily identify. Costs would be less if a commercial use could be found and the USFS will continue to seek such opportunities. However, for the purposes of this FEIS, we chose to analyze the feasible options as opposed to speculative potential.

Commenter Letter.Comment	Category	Comment	Response
Scott, D. 10.01	Local Community	Maybe what is most important here is what is missing from your discussion of cumulative effects. Over the years the Forest Service has built a proud history of successful and productive management of the national forests. This success was gained from the knitting together of a myriad of seemingly small, local issues from numerous small towns and communities within and adjacent to the national forests. Let's look at the succession of Forest Service decisions affecting the Hemlock/Stabler community. First you closed the nursery and the biggest single employer in Skamania County. Next you closed the ranger district office losing more jobs for the community as well as a loss of prestige.	This has been addressed in terms of the cumulative effect to local economy (please see page IV-93 of the FEIS).
Ward 8.02	Environmental Justice	In Chapter 4. Environmental Consequences, there is not a discussion on the cumulative effects for the Economics or the Environmental Justice sections. It simply is not accurate to portray the effects of the loss from removal of Hemlock Dam as if it were only this single event that is occurring here. Since the Gifford Pinchot National Forest chose to close the Wind River Nursery in the mid-1990's, the economic opportunities for people have incrementally been reduced.	Please refer to the revised cumulative effects analysis: 4.11 Social and response to comment 10.01.
WA Dept. of Ecology 6.01	Mitigation	The Final EIS should include specific monitoring information as well as describing what parameters will be monitored, how monitoring will be done, when it will occur, and where. The final EIS should include the Pollution and Erosion Control Plan and Spill Prevention Plan for review for compliance with the Washington State Water Quality Standards. (refers to Fish Mitigation number 6) The final EIS should include the specific location and design of a temporary storage and treatment site that complies with the Stormwater Management Manual for Western Washington… (refers to Fish Mitigation number 11)	The FEIS has clarified the requirement for the development and review of specific plans prior to implementation of the selected alternative. Please refer to 5.2 Monitoring in the FEIS.
WDFW, Attachement "A" November 15, 2004 1.18	Monitoring	Page 26. The monitoring plan provides little detail and therefore is difficult to evaluate. It is very focused on some environmental parameters but ignores other important parameters, such as the percentage of fine sediment, which is strongly correlated with salmon and steelhead incubation survival. The DEIS states that monitoring would be implemented for one year prior to, and for five years after, project implementation depending on funding. There is no justification that this duration of the monitoring study design is of sufficient duration to meet the objectives of establishing baseline conditions and monitor project effects. Finally, monitoring only includes environmental parameters but the stated purpose is to improve the health and viability of federally ESA listed salmon and steelhead populations.	As stated on p. 26 of the DEIS, the final monitoring plan would be developed in coordination with other agencies after a decision is rendered on which alternative is selected for implementation. The monitoring plan must be specifically tailored to the project being implemented to allow sufficient detail for evaluation of state water quality standards and effects to listed species at a minimum. It would be impractical to develop a detailed monitoring plan prior to knowing what project activity will be undertaken.

Commenter Letter.Comment	Category	Comment	Response
NOAA Comments to DEIS; November 11, 2004 5.09	Monitoring	Page 21, Hydrology-5–This measure is incomplete without some commitment by the USFS to some level of action (or no action if not needed) to further mitigate unexpected or unintended consequences of the selected project.	This has been noted and the FEIS incorporates this concept.
NOAA Comments to DEIS; November 11, 2004 5.10	Monitoring	Page 26, Monitoring–This section is incomplete without some commitment by the USFS to some level of action (or no action if not needed) to further mitigate unexpected or unintended consequences of the selected project discovered during post-project monitoring.	Please see response to comment 5.02.
WA Dept. of Ecology 6.02 EPA 13.03	Monitoring	Monitoring should continue for at least 10 years to ensure success of mitigation and the project. (refers to Fish Mitigation number 13) For each of the five alternatives under consideration, the final EIS should include contingency plans if monitoring shows adverse impacts. We are concerned, however, that the draft EIS does not present the monitoring strategy that would be employed as part of the project. We believe that it is essential that the specific details of the monitoring efforts be defined so that consistent and meaningful information is generated related to project success. Consequently, we recommend that the monitoring plan be completed and included as an appendix to the final EIS (and summarized in the EIS and Record of Decision).	Both effectiveness and compliance monitoring are addressed In Chapter 5 of the FEIS.
WDFW 1.37	References	Many citations in the document were not found in the reference section. It appears that the USFS relied heavily on the BOR (2004) report. However, I was unable to find this reference or to obtain this document for this review. Key documents like this should be properly referenced and provided as an appendix, so that reviewers can examine the key assumptions and analyses.	The References section has been corrected and cross-referenced in the FEIS.
WDFW, Attachement "A" November 15, 2004 1.32	Dam Management	Page 139, Fish Impingement Section. Alternative A provides a discussion of possible impingement. However, operation of the flashboard system and auxiliary water supply (AWS) for the adult ladder can currently be constrained to reduce the levels specified in this section. USFS chooses to impound the reservoir after the end of the smolt migration in late June until after Labor Day. If flashboards were not installed then impingement would not be an issue. USFS has used placed heavy plastic over the current flashboards and has successfully reduce impingement (Ken Weiman – USFS pers. comm.) If flashboards are installed then the continued use of a plastic liner will reduce impingement. Finally, the installation of the AWS for the adult ladder was based on water withdrawal for irrigation of the nursery. Since the	If the flashboards were not installed the width to depth ratio of the reservoir would be higher and potentially increase water temperature to a greater extent. In addition, reducing the pool volume would also reduce or eliminate the cool water pockets / thermal refugia within the reservoir. The plastic placed over the flashboards does appear to have reduced impingement mortality. However cracks develop over the coarse of the summer and impingement has been observed though it is believed to a lesser extent than with out the plastic. The AWS provides attraction flow and also creates impingement hazards and it is in fact unclear if the benefits out weigh the mortality associated with the facility.

Commenter Letter.Comment	Category	Comment	Response
		nursery is no longer operating, it is unclear if the AWS provides more benefits than risks.	
NOAA Comments to DEIS; November 11, 2004 5.11	Dam Management	Page 28, Comparison of alternatives (table)- In alternatives D and E, geotextile fabric is specified to address flashboard leakage and subsequent fish impingement. Geotextile will likely not be a sufficient long term solution because it is insufficient structurally for long term non-protected use, and will likely not solve the leakage issue in the long term.	The geotextile fabric would be placed when flashboards are erected and taken down in the fall. When the fabric shows signs of wear it would be replaced.

Comments received from Federal, State, and local agencies, elected officials, and Tribes

Department of Energy

Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

ENVIRONMENT, FISH AND WILDLIFE

February 4, 2005

In reply refer to: KEC-4

Ms. Cynthia Henchell
Environmental Team Leader
Gifford Pinchot National Forest
Mt. Adams Ranger District
2455 Highway 41
Trout Lake, WA 98650

Certified Mail
Return Receipt Requested
7003-2260-0001-3355-9048

Dear Ms. Henchell:

Enclosed, please find a copy of the near final Environmental Impact Statement (EIS) for the Fish Passage and Aquatic Habitat Restoration at Hemlock Dam that includes my hand written comments in the text. Because of the extent of the document and limited time to respond, my handwritten comments were a simpler and quicker means to respond.

It has been enjoyable coordinating with the Forest Service's staff on this EIS effort and I appreciate the opportunity to have participated on this planning effort. I again commend your interdisciplinary team for a job very well done in crafting this document as that is an important instrument in decision making for the Ranger District.

If you have questions or need clarification to my comments, please let me know at (503) 230-7692 or email at cjkeller@bpa.gov.

Sincerely,

Ronald L. Rose

FOR Carl J. Keller
Fish and Wildlife Biologist

Enclosure:
"Final Environmental Impact Statement for Fish Passage and Aquatic Habitat Restoration at Hemlock Dam" w/my handwritten comments

cc:
Mr. Bengt Coffin, Team Leader, Adams Ranger District, 2455 Highway 41, Trout Lake, WA 98650

STATE OF WASHINGTON
DEPARTMENT OF ECOLOGY
PO Box 47775 • Olympia, Washington 98504-7775 • (360) 407-6300

November 8, 2004

Mr. Bengt Coffin, Team Leader
Mount Adams District
Gifford Pinchot National Forest
2455 Highway 141
Trout Lake, WA 98650

Dear Mr. Coffin

Thank you for the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the Fish Passage and Aquatic Habitat Restoration at Hemlock Dam project as proposed by the US Forest Service. The Department of Ecology has reviewed the DEIS and has the following comments:

WATER RESOURCES: Michael Dexel (360) 407-6167

Any impairment to groundwater wells in the area by removing the dam will need to be identified and analyzed through the Applications for Change to Water Rights G2-25679, S2-00817, S2-26536, and S2-00909 submitted by Skamania County.

Trout Creek flow provisions that currently exist below the dam on the aforementioned water right certificates may need to be re-evaluated by Ecology and/or Washington Department of Fish & Wildlife.

Recreation is a beneficial use under the existing reservoir certificate of water right #R2-23196. The recreational opportunity would be lost by removing the dam.

TOXICS CLEANUP: Russ McMillan (360) 407-6254

Ecology reviewed and provided detailed comments on the *Sediment Sampling and Analysis Report, Hemlock Dam Site Investigation, Skamania County, Washington* in a letter dated June 24, 2002 to Bengt Coffin of the USFS. The purpose of the report was to provide data to allow assessment of the quality of the sediments retained within the reservoir. Our June 24, 2002 letter is attached to these comments and is incorporated by reference. In summary, our letter explains that Ecology believes that the sediments do not warrant special consideration regarding future uses in uplands or in-water.

FEDERAL PERMIT COORDINATOR: Jo Sohneronne (360) 407-6926

Pages 16 – 20: For each of the five alternatives under consideration, the final EIS should include contingency plans if monitoring shows adverse impacts.

Pages 21, Mitigation Measures, Hydrology-5: The final EIS should include specific monitoring information as well as describing what parameters will be monitored, how monitoring will be done, when it will occur, and where. At a minimum, monitoring stations should be located upstream of the area of

impact to establish a baseline; at the point of impact; and downstream of the impact at the limit of allowable short term impact (See Chapter 173-201A of the Washington Administrative Code (WAC)).

Page 22, Mitigation Measures, Fish-6: The final EIS should include the Pollution and Erosion Control Plan and Spill Prevention Plan for review for compliance with the Washington State Water Quality Standards.

Pages 23 – 24, Mitigation Measures, Fish 11: The final EIS should include the specific location and design of a temporary storage and treatment site that complies with the *Stormwater Management Manual for Western Washington* which can be found at Ecology's website at http://www.ecy.wa.gov/programs/wq/stormwater/manual.html.

Page 24, Mitigation Measures, Fish 13: Monitoring should continue for at least 10 years to ensure success of mitigation and the project.

Page 24, Mitigation Measures, Fish 14: State and local agencies and jurisdictions should be included in the pre-construction conferences.

Page 81, Wetlands: The draft EIS has insufficient information regarding wetlands. The final EIS should include a delineation and functional assessment of wetlands associated with the Lake; an analysis of the impacts of the various alternatives to these functions and values; and the mitigation proposed for any lost functions and values. These studies and plans should conform to the guidance in the following publications: *Washington State Wetlands Identification and Delineation Manual; Washington State Wetland Rating System for Western Washington – Revised, August 2004.* These documents and other wetland information are available on the Ecology Web page at http://www.ecy.wa.gov/programs/sea/wetlan.html.

Pages 122 – 126, Turbidity/Suspended Sediment: Be aware that WAC 173-201A-120(3) allows temporary exceedance of water quality standards for turbidity under the following conditions:

The turbidity criteria established under WAC 173-201A-030 shall be modified to allow a temporary mixing zone during and immediately after necessary in-water or shoreline construction activities that result in the disturbance of in-place sediments. A temporary turbidity mixing zone is subject to the constraints of WAC 173-201A-100 (4) and (6) and is authorized only after the activity has received all other necessary local and state permits and approvals, and after the implementation of appropriate best management practices to avoid or minimize disturbance of in-place sediments and exceedances of the turbidity criteria. A temporary turbidity mixing zone shall be as follows:

(a) For waters up to 10 cfs flow at the time of construction, the point of compliance shall be one hundred feet downstream from activity causing the turbidity exceedance.
(b) For waters above 10 cfs up to 100 cfs flow at the time of construction, the point of compliance shall be two hundred feet downstream of activity causing the turbidity exceedance.
(c) For waters above 100 cfs flow at the time of construction, the point of compliance shall be three hundred feet downstream of activity causing the turbidity exceedance.
See http://www.ecy.wa.gov/programs/wq/swqs/wac173201a-1997.pdf

Permits, General Comment: The draft EIS does not mention local and state permitting requirements. State permits include a General Construction Stormwater Permit, a 401 water quality certification, and Dam Safety approval. Local permits may include shoreline, clearing and grading, and demolition permits. The final EIS should include descriptions of the local, state and federal permits that will be needed for this project.

Water Quality, General Information: All of the alternatives should be evaluated to determine whether they meet the Washington State Water Quality Standards in Chapter 201A WAC both during activities associated with removal of the dam and after the dam has been removed. Trout Creek is Class AA water of the state. Criteria for Class AA streams are found at WAC 173-201A-030(1) and include:

- Fecal coliform less than 50 colonies/100 mL
- Dissolved oxygen exceeding 9.5 mg/L
- Total dissolved gas less than 110% of saturation
- Temperature less than 16.0 degrees C, or where natural temperature exceeds, no more than 0.3 degree C increase
- pH between 6.5 and 8.5
- Turbidity less than 5 NTU over background when background is 50 NTU or less and no more than 10% increase when background is more than 50 NTU
- Toxic material concentrations below potential to adversely affect characteristic uses (see WAC 173-201A-040 and 050)
- Protection of aesthetic values

If you have any questions or would like to respond to these comments please contact the appropriate reviewing staff listed above or I can be reached at (360) 407-6957

Sincerely,

Sally Toteff

Sally Toteff
Regulatory Assistance Coordinator
Department of Ecology
Southwest Regional Office

(AW: 04-6693)
Enclosure

cc: Michael Dexel, WR
Russ McMillan, TCP
Iloba Odum, Vancouver Field Office
Jo Sohneronne, SEA

McMillan, Russ

From: McMillan, Russ
Sent: Tuesday, June 25, 2002 8:23 AM
To: Bengt Coffin/R6/USDAFS
Subject: FW: Sediment study

-----Original Message-----
From: McMillan, Russ
Sent: Monday, June 24, 2002 12:35 PM
To: 'Bengt Coffin/R6/USDAFS'
Subject: RE: Sediment study

Mr. Bengt Coffin,
Hydrologist
Mt Adams Ranger District
2455 Highway 141
Trout Lake, WA 98650

June 24, 2002

Dear Mr. Coffin

I have reviewed the Sediment Sampling and Analysis Report, Hemlock Dam Site Investigation, Skamania County, Washington by Northwest Geotech, Inc., dated January 9, 2002. I reviewed the report from the perspective of determining whether the final dosposition of the sediments would be constrained due to the quality of those sediments. From my review of this report, I would characterize these sediments as not warranting special consideration regarding in-water or uplands uses.

The State of Washington has narrative (but not numeric) standards for freshwater sediments that protect environmental and human health. The quality of freshwater sediments are determined on a case-by-case basis using best professional judgement. Ecology has developed guidance for assessing freshwater sediments that was used in conjunction with other sediment quality guidelines to determine the overall quality of sediments retained within the reservoir and whether they pose a threat. Where freshwater guidelines were available these were used for comparison to results, otherwise sediment guidelines developed for other systems were used.

The reported concentrations of conventionals appeared to be consistent with expected ranges for a freshwater system.

Metals did not appear to be elevated above crustal concentrations.

Fuel ID & Quantitation Hydrocarbon Scan results were noted to have very low to moderate concentrations but these were flagged since chromatograms did not resemble petroleum fingerprints. Upon acid & silica gel cleanup (to remove hydrocarbons from plant or animal origins), the highest reported sample concentrations were reduced as much as seven-fold with only Gasoline Range Organics exhibiting a fingerprint of petroleum-like results in the chromatogram and this was at a low concentration of 10 mg/Kg (compared to 30 mg/Kg for MTCA Method A soil levels for unrestricted land uses).

Butyltins were not detected except for two samples in Area 1 where estimated values were less than 1 ug/Kg (for one sample, surrogate recovery was very low, indicating low bias, however the overall low or non-detected values for the site indicate there is little to no reason for concern regarding butyltins).

Organochlorine pesticides (Method 8081) were undetected except for 4,4'-DDD which was reported at one Area 1 station (Area 1 1a/1f 0-5' and 5' - 9' core segments, 7.4JD and 5.3JD ug/Kg) although it was flagged as estimated and at levels below the 1988 marine LAET, and Commencement Bay SQOs for this analyte.

Chlorinated herbicides (Method 8151A) were detected in only three Area 1 samples, (Area 1 1e/1b 5'-8.7' had 2,4-D at 9.0JP, Area 1 1a/1f 0'-5' had 2,4-D at 7.8JP, and Area 1 1a/1f 5'-9.1 had 2,4-D at 14JP and 2,4,5-T at 51JP, all concentrations in ug/Kg). Toxicity of 2,4-D to fish is quite variable in reported studies and probably is a result of the different formulations which vary significantly in solubility and volatility. Reported LC50 for trout range from 1 mg/L to 377 mg/L for bluegill 263 mg/L and for fathead minnow eggs 1.5 mg/L. All reported LC50s are at least 2 orders of magnitude

greater than what was reported in the sediments and animals tend to excrete residues when exposure is discontinued. In aquatic environments microorganisms readily degrade 2,4-D and rates of breakdown increase with increased nutrients, sediment load and dissolved organic carbon. Half life in soils is 1 to 16 days, and in aquatic environments, under oxygenated conditions the half-life can be short, in the order of one week to several weeks depending on the microbial community. Toxicity of 2,4,5-T is reported as LC50s of 350 mg/L for rainbow trout and 355 mg/L for carp which is about seven times the concentration reported in sediments at the Hemlock Dam site. Half life in soils is 21-24 days and in water it can be hydrolyzed within a few days. There is no significant bioaccumulation, but 2,4,5-T has been banned since 1983 due to contamination in the manufacturing process by dioxins. The single detection within the Hemlock Dam sediments suggests that 2,4,5-T is not prevalent or widespread. For these reasons, the presence and relatively low concentrations of chlorinated herbicides do not represent a threat to the environment and should not constrain the options for how sediments are handled in conjunction with decisions on the fate of the dam.

PCBs were undetected at low concentrations below Ecology's LAET for Freshwater Sediments (21 ug/Kg).

Semivolatile Organics Analysis (Method 8270) indicated presence of PAHs, reported as estimated at very low concentrations below FSQVs. Phenol and Benzoic Acid were detected, though reported as estimated values. Phenol was reported at estimated concentrations above the FSLAET of 48 ug/Kg at four locations (98J, 49J, 50J, & 55J at Area 2 5'-8', Area 1 1e/1b 5'-8.7', Area 1 1a/1f 0'-5' & Area 1 1a/1f 5'-9.1', respectively). Benzoic Acid was also detected, although reported at estimated concentrations which were well below current marine sediment criteria (650 ug/Kg is the current SQS, although new data suggests that ther may be adverse effects at 65 ug/Kg in marine sediments). The samples that exceeded 65 ug/Kg were Area 2 5'-8', Area 1 1c/1d 0'-5', Area 1 1c/1d 5'-8.7', Area 1 1e/1b 5'-8.7', Area 1 1a/1f 0'-5' and Area 1 1a/1f 5'-9.1' (170J, 71J, 86J, 140J, 190J and, 250J ug/Kg estimated, respectively).

The presence of Phenol and Benzoic Acid is not unexpected as these occur from natural sources in the environment and are sustained in anearobic conditions. Both are subject to biodegradation when exposed to aerobic conditions. Phenol is expected to have a half-life in soil of 1 to 10 days, in water, 10 to 30 days and in air, less than one day due to its volatility and enhanced biodegradation when exposed to light. Phenol has a low potential for bioaccumulation . Benzoic Acid in soil or water is expected to readily biodegrade and has a reported half life in both media of 1 to 10 days. Benzoic Acid has a log octanol-water partition coefficient of less than 3.0 indicating a low potential to bioaccumulate. For these reasons, the sediments represented by these samples are not likely to pose a significant threat to aquatic or terrestrial biota if the sediments were left in place or allowed to be resuspended and carried downstream or if removed and deposited at an upland site. The in situ surface sediments in the reservoir are subject to oxidation from diffusion and bioturbation and would be expected to have much lower concentrations than the vertical cores that go much below the few centimeters of oxidized sediments. If resuspended or disposed upland, the anaerobic sediments would be oxidized and Phenol and Benzoic Acid would be readily biodegraded resulting in only a very limited concentrations and a brief period of exposure.

If you have any questions regarding this review of your document, please do not hesitate to contact me.

Sincerely

Russ McMillan
Sediment Specialist
SWRO, Department of Ecology
P.O. Box 47775
Olympia, WA 98504-7775
Ph. 360-407-6254
rmcm461@ecy.wa.gov

FSLAET - **Freshwater Sediment LAET** from "Creation and Analysis of Freshwater Sediment Quality Values in Washington State, Ecology, 1997" - This document was used for screening purposes to determine if the reported contaminant concentrations were within ranges known to have caused adverse effects to biota at other freshwater sites.
FSQV - **Freshwater Sediment Quality Values** from "Creation and Analysis of Freshwater Sediment Quality Values in Washington State, Ecology, 1997" - This document was used for screening purposes to determine if the reported contaminant concentrations were within ranges known to have caused adverse effects to biota at other freshwater sites.
J - Analytical result is estimated concentration that is less than the Method Reporting Limit but greater than the Method Detection Limit
D - Analytical result from a sample dilution
P - Analytical result is flagged since Relative Percent Difference between duplicates exceeded criteria
LAET - **Lowest Apparent Effects Threshold**
MTCA - **Model Toxics Control Act**

PAH - **Poly-Aromatic Hydrocarbons**
PCB - **Poly-Chlorinated Biphenyl**
SQO - **Sediment Quality Objective** from Commencement Bay Nearshore/Tideflats Superfund Program
SQS - **Sediment Quality Standard** from State of Washington, Sediment Management Standards for marine sediments

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

November 5, 2004

Reply To
Attn Of: ETPA-088

Ref: 01-059-AFS

Bengt Coffin
Mount Adams Ranger District
Gifford Pinchot National Forest
2455 Highway 141
Trout Lake, Washington 98650

Dear Mr. Coffin:

The U.S. Environmental Protection Agency (EPA) has completed its review of the draft Environmental Impact Statement (EIS) for the proposed **Fish Passage and Aquatic Habitat Restoration at Hemlock Dam** (CEQ No. 040455) in accordance with our authorities and responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act. The draft EIS evaluates options for improving upstream and downstream fish passage and to improve water quality and habitat conditions in Trout Creek. The draft EIS does not identify an agency-preferred alternative.

We support the Forest Service's efforts to improve water quality, habitat and fish passage conditions on Trout Creek. Based on the information presented in the draft EIS, the dam removal alternatives (Alternative B and C) would best meet the primary project purpose of enhancing opportunities for viable and healthy fish populations in Trout Creek and to assist in the recovery of Lower Columbia River steelhead (a threatened species under the Endangered Species Act). With dam removal, these alternatives would provide the best opportunities for upstream and downstream passage of steelhead and other aquatic species. They would also provide additional long-term habitat benefits by allowing sediment and large woody debris to be transported to downstream reaches of Trout Creek and the Wind River. We support the selection and implementation of either of these alternatives as they represent long-term sustainable solutions that would best meet the stated purpose and need for the project. Of these alternatives, Alternative C appears to be the environmentally preferable alternative since it would release less sediment immediately following the removal of the Hemlock Dam than Alternative B.

While Alternatives D and E would provide some habitat improvements with the periodic release of some sediments through the sluice gate, the continued existence of the dam would still pose a significant obstacle to upstream and downstream migration of steelhead and other aquatic life and the unimpeded downstream movement of sediment and large woody debris. As stated on page 146 of the draft EIS, the benefits of Alternative D to Trout Creek steelhead would be short-term and dependent on future management and oversight of the facility. We have concerns because this alternative does not appear to represent a sustainable long-term solution and would likely result in the need to revisit the decision (and associated issues) at some undefined future

date. The expected benefits associated with survival and increases in population of steelhead under Alternative E would be minor and more than likely not measurable (page 147), suggesting that the effects of this alternative would not be significantly different from those of the No Action alternative. The No Action alternative would not meet the purpose and need for the project since it would result in no improvements to water quality, habitat or fish passage.

Overall, we believe that the draft EIS does a good job of disclosing information to the public and the decision maker relevant to the decision to be rendered. We do, however, recommend that the following elements receive expanded treatment in the EIS to better align with the NEPA implementing regulations and other existing direction.

Sediment Quality

Page 98 of the draft EIS indicates that sampling and evaluation of the sediment in the reservoir has been conducted and that the results from those efforts suggest that the sediments would be suitable for upland uses. We recommend that information contained in the sediment sampling and analysis report (Northwest Geotech 2002) be summarized and presented in the EIS. Information outlining the sampling and analytical approaches used, the contaminants for which analyses were conducted and the results of those analyses should be included in the EIS to support the conclusions related to their use and to ensure that environmental information is available to the public and the decision maker before decisions are made and actions are taken (see 40 CFR 1500.1(b)).

Revegetation Plan

Page 24 of the draft EIS indicates that a revegetation plan would be developed by the Forest Service for all areas impacted by the project. Because this plan is being proposed to mitigate potential sediment impacts to the stream channel (and it would appear to also reduce the risks of noxious weed infestations), we recommend that the revegetation plan be developed as part of the EIS process and presented in the final EIS. The implementing regulations for NEPA direct Federal agencies to identify mitigation measures to be used in the EIS (see 40 CFR 1502.14(f) and 1502.16(h)).

Monitoring Plan

We fully support the development of a monitoring plan that would be implemented to establish baseline conditions and evaluate project-related effects. We believe that it is needed to determine the success of the project and provide the needed feedback to make any needed changes to management strategies. We are concerned, however, that the draft EIS does not present the monitoring strategy that would be employed as part of the project. We believe that it is essential that the specific details of the monitoring efforts be defined so that consistent and meaningful information is generated related to project success. Consequently, we recommend that the monitoring plan be completed and included as an appendix to the final EIS (and summarized in the EIS and Record of Decision). We believe that appending the plan to the EIS provides the public with an opportunity to assist in developing and refining the elements of the plan which can result in a better plan.

Consultation with Affected Tribes

We were unable to locate information in the EIS that indicates whether the Forest Service has consulted with potentially affected Native American Tribal governments, pursuant to the

direction in Executive Order (EO) 13175 (*Consultation and Coordination with Indian Tribal Governments*). We recommend that the Forest Service engage affected Tribal governments, pursuant to EO 13175, in the further development of the project/EIS to ensure that Federal government meets its obligation to consult with tribes on a government-to-government basis. Results of such consultations should be reported in the EIS.

Based on our review and evaluation, we have assigned the following ratings to the alternatives evaluated in the draft EIS:

Alternative	Rating
No Action	EC-2 (Environmental Concerns-Insufficient Information)
Alternative A (Remove Dam)	LO (Lack of Objections)
Alternative B (Remove Dam and Dredge)	LO (Lack of Objections)
Alternative C (Retain Dam, Replace Fish Ladder)	EC-2 (Environmental Concerns-Insufficient Information)
Alternative D (Retain Dam, Retain Fish Ladder	EC-2 (Environmental Concerns-Insufficient Information)

An overall rating of EC-2 (Environmental Objections-Insufficient Information) along with a summary of our comments will be published in the *Federal Register*. A copy of the rating system used in conducting our review is enclosed for your reference.

Thank you for the opportunity to provide comments on the draft EIS. Please contact Bill Ryan of my staff at (206) 553-8561 at your earliest opportunity to discuss our comments and how they might best be addressed for the project.

Sincerely,

Christine B. Reichgott

Christine B. Reichgott, Manager
NEPA Review Unit

Enclosure

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

Environmental Impact of the Action

LO – Lack of Objections

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

EC – Environmental Concerns

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

EO – Environmental Objections

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

EU – Environmentally Unsatisfactory

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

Adequacy of the Impact Statement

Category 1 – Adequate

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

Category 2 – Insufficient Information

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

Category 3 – Inadequate

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

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

United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
500 NE Multnomah Street, Suite 356
Portland, Oregon 97232-2036

IN REPLY REFER TO:

ER04/0721

November 4, 2004

Ms. Nancy Ryke
District Ranger
Mt. Adams Ranger District
Gifford Pinchot National Forest
2455 Highway 141
Trout Lake, Washington, 98650

Re: COMMENTS – Review of Draft Environmental Impact Statement for the Fish Passage and Aquatic Habitat at Hemlock Dam, Gifford-Pinchot National Forest, Skamania County, Washington

Dear Ms. Ryke:

The Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement for the Fish Passage and Aquatic Habitat at Hemlock Dam, Gifford-Pinchot National Forest, Skamania County, Washington. The Department offers the following comments for use in developing the Final Environmental Impact Statement for this project.

SPECIFIC COMMENTS:

Page 40, Chapter 3 Affected Environment, Section Hydrology, Subsection Water Temperature, figure 3-10: The symbols on the temperature map, which look like National Oceanic and Atmospheric Administration "wind-barbs" symbols, are not defined in the figure legend. What is the purpose of showing these symbols?

Page 93, Chapter 4 Environmental Consequences, Section Geology, Subsection Impacts to groundwater and local wells, first paragraph: The second-to-last sentence contains a blank that should be filled in: "...Trout Creek is about 12 miles in length and the length of the lake above the dam is about ___ mile."

Page 114, Chapter 4 Environmental Consequences, Section Hydrology, Subsection Channels/Sediment, Subsection Alternative B, second paragraph: The third sentence contains a blank that should be filled in: "...approximately ___ of the sediment eroded from behind Hemlock Dam would be deposited...."

Should you have any questions regarding these comments, please contact Mr. James Devine with the U.S. Geological Survey at (703) 648-6832.

We appreciate the opportunity to comment.

Sincerely,

for Preston A. Sleeger
Regional Environmental Officer

State of Washington
Department of Fish and Wildlife
2108 Grand Blvd. Vancouver WA 98661 (360) 696-6211

November 8, 2004

Hemlock Dam DEIS Team
Mount Adams Ranger District
2455 Highway 141
Trout Lake, WA 98650

Subject: **U.S. Forest Service (USFS) Draft Environmental Impact Statement (DEIS), Fish Passage and Aquatic Habitat Restoration at Hemlock Dam**

Hemlock Dam DIES Team:

The Washington Department of Fish and Wildlife (WDFW) has reviewed the above-referenced DEIS for fish passage and aquatic habitat restoration at Hemlock Dam, in the Trout Creek watershed. WDFW strongly supports the U.S. Forest Service's efforts to restore fish passage at this site, and believes that dam removal will provide long-term ecological benefits in the Wind River watershed. We offer the following comments and recommendations for your consideration.

Project Alternatives Analysis

As part of WDFW's review of the DEIS, we have completed an analysis of potential steelhead population increases that would result from the two dam removal alternatives. This analysis is described in the attached report (Attachment-A), entitled "Comparison of Potential Increases in Wind River Summer Steelhead Performance from the Proposed Removal of Hemlock Dam on Trout Creek using the Ecosystem Diagnosis and Treatment Model and an Empirical Approach (Rawding, 2004)". This report also describes ongoing fish population monitoring efforts at Hemlock Dam, documents the importance of this work to long-term fish recovery efforts in the Pacific Northwest, and provides recommendations for continuation of monitoring efforts. Please accept the attached report as part of WDFW's comments on the DEIS.

The attached report confirms that proposed dam removal alternatives would improve steelhead populations. However, in contrast to the USFS estimate that dam removal would increase the wild steelhead run in Trout Creek by 1,000 adults, the WDFW analysis suggests that on average an additional 10 to 23 adult steelhead may return to

Trout Creek if Hemlock Dam were removed. Despite the significant differences between these numbers, WDFW concurs that the overall ecological benefits of dam removal are clear, and supports the removal alternatives described in the DEIS, as modified below.

As noted in the attached report, the fish capture and monitoring activities at the project site have been used to:

1. Determine that status of wild steelhead in the Wind River watershed;

2. Assist with risk assessments;

3. Provide a genetic reserve for wild steelhead; and

4. Monitor effectiveness of habitat restoration efforts.

These monitoring efforts have been conducted in partnership with multiple agencies, including WDFW, USFS, Bonneville Power Administration, and U.S. Fish and Wildlife Service (USFWS). Because of the importance and significance of these monitoring efforts, the State of Washington Governor's Salmon Recovery Office has identified the Wind River basin as an "intensively monitored watershed". Additionally, the draft Lower Columbia River Fish Recovery Plan has identified the Wind River steelhead population as one of the most important populations to consider for recovery of Lower Columbia River wild steelhead.

The DEIS does provide an overview of the ongoing fish monitoring efforts provided by facilities at Hemlock Dam. However, it fails to adequately address mitigation for loss of these facilities through the preferred option of dam removal. The proposed removal of fish monitoring facilities represents adverse impacts to both the natural and built environment, and should therefore be fully discussed in the EIS. In addition, WDFW requests replacement of fish monitoring facilities if the USFS implements dam removal. The attached report identifies two potential monitoring options for consideration and inclusion in the final EIS.

Preferred Alternative

Of the five project alternatives considered in the DEIS, WDFW strongly supports Alternative C as the preferred alternative. Alternative C would result in long-term ecosystem restoration, and would improved fish productivity as a result. This option would also minimize direct and indirect adverse impacts to fish life and habitat since removal of between 40,000 and 60,000 cubic yards of impounded sediments would occur prior to dam removal.

If the USFS preferred Alternative B is selected, accumulated sediment would be allowed to naturally mobilize downstream after a pilot channel is constructed through the lake

bed. This would substantially increase risk of mortality to juvenile fish downstream of dam site, as well as adversely affect habitat for natural spawning tule fall Chinook downstream of Shipherd Falls. According to estimates in the DEIS, approximately 33 adult steelhead could be exposed to extreme turbidity which could kill or harm them by suffocation and gill abrasion, or impede upstream migration. In addition, an estimated 4,200 fry and 2,000 parr occupying Trout Creek below the project areas could be potentially killed by the sedimentation and turbidity. Substantial mitigation would therefore be required if this option is selected. Mitigation should include, but not be limited to, the following measures:

1) A sediment monitoring program needs to be implemented to a) document existing substrate composition in potential spawning areas downstream of the project site, including below Shipherd Falls, and b) document sediment levels post-project to determine short and long-term changes in composition. Monitoring needs to continue until substrate conditions return to pre-project background levels.

2) To protect naturally spawning tule fall Chinook from sedimentation impacts, a broodstock collection program needs to be implemented commensurate with project implementation. The broodstock program needs to continue until substrate monitoring demonstrates habitat conditions are capable of supporting spawning tule fall Chinook and other salmonids.

3) To reduce mortality of listed salmonids, juvenile steelhead should be captured via screw trap above the impact reaches in Trout Creek and the mainstem Wind River, reared, and subsequently released as smolts.

4) Compensatory mitigation should be provided for all unavoidable losses of both adult and juvenile salmonids. Methods for estimating impacts and determining compensatory mitigation values should be mutually agreed upon by WDFW and USFS prior to completion of the final EIS.

Mitigation for Fish Monitoring Facilities

As noted above and in the attached report, if Alternative B or C is selected, mitigation needs to be provided to replace monitoring facilities that will be lost as a result of this project. WDFW therefore recommends that both Alternatives B and C be modified to specifically incorporate fish monitoring facilities. Because of the importance of data continuity, monitoring facilities should be in place and operating before, or commensurate with, dam removal. The USFS should coordinate with WDFW, NOAA Fisheries, USFWS, and other resource agencies on the appropriate design and siting of monitoring facilities.

Thank you for the opportunity to review and comment on the DEIS. The above comments address key resource issues associated with this project, and additional technical comments may be forthcoming. WDFW requests that prior to finalization of the EIS, key staff from both our agencies meet to discuss the various project alternatives and mitigation requirements in more detail. Please feel free to contact me, Regional Habitat Program Manager Steve Manlow, or Regional Fish Program Manager Craig Burley at (360) 696-6211 if you have any questions regarding these comments, or if you need additional information.

Sincerely,

Guy Norman
Regional Director

Swm:swm

Attachment: "Comparison of Potential Increases in Wind River Summer Steelhead Performance from the Proposed Removal of Hemlock Dam on Trout Creek using the Ecosystem Diagnosis and Treatment Model and an Empirical Approach (Rawding, 2004)"

cc: Peter Birch, WDFW
Steve Manlow, WDFW
Craig Burley, WDFW
Carl Dugger, WDFW
Dan Rawding, WDFW
Dan Guy, NOAA Fisheries
Loree Randall, DOE

State of Washington
Department of Fish and Wildlife
2108 Grand Blvd. Vancouver WA 98661 (360) 696-6211

November 8, 2004

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