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Department of  
Agriculture

Forest  
Service

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File Code: 1950-3

Date: December 5, 2005

Dear Interested Citizen:

Enclosed is the Record of Decision for Fish Passage and Aquatic Habitat Restoration at Hemlock Dam, located in Skamania County, Washington. I have decided to implement Alternative C including required mitigation measures. Implementation of Alternative C will dredge and dispose of most of the sediments from behind the dam (approximately 35,000 to 60,000 cubic yards), construct a channel, mechanically remove and dispose of the dam and fish ladder, and make minor alterations to the Hemlock recreational site. A copy of the Record of Decision may be obtained from the Mount Adams District office or from the internet:

<http://www.fs.fed.us/gpnf/04projects/pinchotprojects/index.shtml>.

This decision is subject to appeal, pursuant to 36 CFR part 215. Individuals or organizations who submitted substantive comments during the comment period may appeal. Appeals must be filed with the Appeal Deciding Officer within 45 days of the date of publication of the legal notice in the newspaper of record (*The Columbian*). Appeals may be filed by mail, express delivery, messenger service, or hand-delivered to the following address:

Appeal Deciding Officer  
Gifford Pinchot National Forest  
10600 NE 51<sup>st</sup> Circle  
Vancouver, WA 98682

Appeals may also be filed by facsimile: (360) 891-5045 or by e-mail: [appeals-pacificnorthwest-giffordpinchot@fs.fed.us](mailto:appeals-pacificnorthwest-giffordpinchot@fs.fed.us). If filed by e-mail, acceptable formats are: Microsoft Word (.DOC), Rich Text Format (.RTF), or Portable Document File (.PDF).

Implementation of this project may begin no sooner than 5 business days following the close of the appeal filing period if no appeal is filed. If an appeal is filed, implementation may begin no sooner than 15 business days following appeal disposition.

Thank you for your interest in projects on the Mount Adams District.

Sincerely,

/s/ *Nancy Ryke*  
NANCY RYKE  
District Ranger

Enclosure



# **Record of Decision**

## **Fish Passage and Aquatic Habitat Restoration at Hemlock Dam**

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

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

### **Introduction**

The Forest Service (USFS) prepared an Environmental Impact Statement (EIS) that analyzed the proposal to remove Hemlock Dam to improve upstream and downstream fish passage at the dam site for all life stages of fish, including threatened Lower Columbia River steelhead. This proposal would also improve aquatic habitat and water quality in Trout Creek. Four alternatives to the proposed action were analyzed along with the proposed action. The preferred alternative identified in the final EIS (FEIS) would also remove and dispose of the accumulated sediments and would design and construct a channel behind the dam before removing the dam.

Hemlock Dam is located at river mile 1.8 of Trout Creek, a major tributary of the Wind River. It was constructed in 1935 to provide power for the Wind River District and Civilian Conservation Corps (CCC) camp. An attached fish ladder was completed in 1936 and in the same year the CCC began development of a picnic area on the north shore of the reservoir (Hemlock Lake) that included a boat launch, boat dock, swimming float, and picnic and beach facilities. In the 1950's the dam was converted from a power generating facility to a facility to provide irrigation water to the Wind River Nursery. The Nursery was closed in 1996 and most of the site formerly occupied by the Nursery was conveyed to Skamania County, including both withdrawal and storage water rights for surface water impounded by Hemlock Dam. The dam and recreation site were not part of the land and water rights conveyance. A subsequent offer to transfer ownership of the dam from the USFS to Skamania County was declined by the County in 2004. The USFS continues to maintain the dam and to operate the recreational site as a day use area.

Since construction of the dam, Trout Creek has continued to produce steelhead. However, the Trout Creek steelhead run declined dramatically during the mid-1990's when fewer than 10 fish returned to upper Trout Creek. The low number of returning Trout Creek steelhead highlighted the tenuous nature of this run and the importance of taking action to remedy known problems. Listing of the Lower Columbia River steelhead as Threatened under the Endangered Species Act occurred in 1998, further emphasizing the need to improve conditions for these fish. Since the mid-1990's the USFS and partner agencies including U.S. Fish and Wildlife Service, Bonneville Power Administration, Underwood Conservation District and others have undertaken a significant restoration effort within the Trout Creek watershed to improve fish habitat conditions. Projects have included: instream enhancements, woody debris placement, riparian planting, road decommissioning, culvert upgrades, and incremental improvements in attraction flow to the fish ladder at Hemlock Dam. In spite of the improvements to the fish ladder, Hemlock Dam has continued to present a bottleneck to fish and other aquatic elements, increasing water temperatures to lethal levels in Hemlock Lake, contributing to poor habitat conditions in the lower reaches of Trout Creek, and causing direct mortality to migrating fish (Orsborn 1987 and Barber and Perkins 1999).

The steelhead decline in Trout Creek can be attributed to many factors including ocean conditions and a range of in-watershed and out-of-watershed factors, however the presence of Hemlock Dam continues to affect steelhead migration and habitat conditions in Trout Creek, and in that way influences the recovery of these fish.

Summer water temperatures in Trout Creek, both upstream and downstream of the dam, exceed state water quality standards and for that reason Trout Creek was listed on the Washington State Department of Ecology's 303(d) list of impaired water bodies. Sediments moving downstream through Trout Creek are trapped by the dam causing water levels to become increasingly shallow in the reservoir and exacerbating the already high temperatures. During the summer months water temperatures in the reservoir reach levels that are lethal to steelhead (USDA 1996).

Since 1935, a majority of the spawning gravel and larger sediments in this reach of Trout Creek have been trapped behind the dam. Once trapped, this material is not available to be moved downstream to replenish sediments and debris in lower Trout Creek. Consequently the lower reaches of Trout Creek are largely devoid of the valuable aquatic habitat formed by these coarse sediments and organic debris.

The primary purpose of and need for the action is to improve upstream and downstream passage for all life stages of fish at the Hemlock Dam site and to improve water quality in Trout Creek in the vicinity of Hemlock Dam. Secondary objectives are to manage the Hemlock site in a cost effective manner and to continue to support recreational opportunities at the Hemlock site.

The proposed action (Alternative B) was to construct a pilot channel through the reservoir, mechanically remove the dam and fish ladder and let the river erode most of the sediments. This action included removing and disposing of an estimated 2,500 cubic yards of excess sediment from the construction of the pilot channel to an unused portion of the former Wind River Nursery (approximately 1 mile from the dam site). It also included shaping and stabilizing the channel one to two years following dam removal, and after most of the sediment had been eroded from the reservoir. Alterations to the Hemlock recreational site would have been made to accommodate the new stream channel and rehabilitate the former lakeshore. The proposed action also included disposal of approximately 440 cubic yards of concrete from dam structure at the Carson-Guler quarry (approximately 6 miles from the dam site).

The Environmental Impact Statement (EIS) also documented the analysis of three other alternatives that were designed to meet the purpose of and need for action:

- Alternative C: Dredge and dispose of the most of sediments from behind the dam (approximately 35,000 to 60,000 cubic yards), construct a channel, and mechanically remove and dispose of the dam and fish ladder, and make alterations to the Hemlock recreational site.
- Alternative D: Retain the dam, improve the deficiencies in the dam, and replace the fish ladder. This alternative includes dredging approximately 25,000 cubic yards of sediment from the reservoir and repeating dredging approximately every eight years. It also includes operating the sluice gates three to five times per year to route sediments through the reservoir.
- Alternative E: Retain the dam, improve deficiencies, and repair the existing fish ladder. This alternative is the same as the previous alternative, except that instead of replacing the fish ladder, it would be repaired.

A "no action" alternative (Alternative A) was also considered as a baseline for comparison.

These alternatives are described in detail in Chapter 2 of the final EIS (FEIS). The FEIS also documents an alternative that was not evaluated in detail. This alternative would have notched the dam, constructed a new fish ladder, and created an off-channel pond for recreation. The alternative was eliminated from detailed study. Instead, it was recognized that notching the dam did not eliminate issues with fish passage nor did it improve the feasibility of creating or maintaining a recreational pond. I have determined that the analysis of an off-channel pond could be considered under a separate and subsequent analysis and decision.

### **Public Involvement**

A Notice of Intent (NOI) was published in the *Federal Register* on August 16, 2001. Through 2001 various public meetings were held in the local community and with a broader representation of interests including the Southwest Washington Provincial Advisory Committee, the Wind River Watershed Council, and members of the Yakama Indian Nation. These meetings presented and discussed the proposed action, associated issues, and collected comments and additional issues from the public.

The project was suspended until 2004. A second scoping notice was issued on May 24, 2004 to inform the public that the USFS was still considering the proposed action. Any previously received comments would be retained and considered along with any new comments.

From these comments, the interdisciplinary team developed issues that would be used in the analysis. As presented in the FEIS (pages I-12 to I-15), I determined the following eight issues to be significant issues:

- Water temperature and effects to fish
- Sediment release into Trout Creek and Wind River and effects to fish
- Barriers to fish migration
- Loss of recreation opportunities at Hemlock Lake
- Direct impact to an historic structure
- Direct impacts to archaeological sites
- Impacts to the local economy from expenditures by recreation visitors
- Economic impacts to the USFS

These issues were addressed by the alternatives, as described in detail on pages II-1 through II-7 of the FEIS.

A Notice of Availability of the draft EIS (DEIS) was published in the *Federal Register* on October 1, 2004 which initiated the formal 45-day public comment period. The DEIS was mailed to 82 individuals, organizations, agencies, and tribes. It was also made available for download from the Internet at the Gifford Pinchot National Forest web site. An informational public meeting was held on October 14, 2004 at which attendees were invited to submit written comments. Similar informational briefings were held at the WRIA 29 Watershed Planning Unit meeting on October 13, 2004 and at the Trout Unlimited meeting on November 10, 2004. By the close of the comment period on November 15, 2004, approximately 65 individuals, representatives of organizations, tribes, and agencies submitted comments. The substantive comments are summarized and the USFS responses are found in Appendix A of the FEIS. Copies of the comment letters are available in the project file at the Mount Adams District office.

## **Decision**

Based on my review of the analysis of the alternatives, I have decided to implement Alternative C, the alternative which will dredge and dispose of most of the sediments from behind the dam (approximately 35,000 to 60,000 cubic yards), construct a channel, mechanically remove and dispose of the dam and fish ladder, and make minor alterations to the Hemlock recreational site. A complete description of Alternative C is found on pages II-4 and II-5 of the FEIS.

The selected alternative will directly address fish passage by completely removing the dam and fish ladder and restoring Trout Creek to a free-flowing condition. Migration delays resulting from the presence of the dam and reservoir will be eliminated and adult steelhead returns are projected to increase by 20% to 66% as a result of this action. In addition, water quality will be improved by eliminating the temperature increase associated with the reservoir. This alternative would also result in increased movement of coarse sediment through this reach and into lower Trout Creek, which would improve habitat conditions there for steelhead and other aquatic organisms. Removal of the dam meets my objective for long-term cost effective management of the site. Recreational opportunities would be maintained at the site, though no longer oriented to slack-water wading and swimming.

## **Mitigation and Monitoring**

All practical means to avoid or minimize environmental harm from the decision have been adopted, including a monitoring program to determine the immediate effects of implementation and prevent unforeseen adverse impacts. My decision includes monitoring to assure compliance with mitigation measures and required plans (FEIS, page V-7). All mitigation measures from Chapter 5 of the FEIS are adopted with the following exceptions: mitigation measures Hydrology-5, Hydrology-6, and Wildlife-3 do not apply to the selected alternative (Alternative C) and are therefore dropped. All project design criteria, terms and conditions from the National Marine Fisheries Service (NMFS) Biological Opinion (dated June 1, 2005) are a part of this decision as are terms and conditions from required permits, as listed in the FEIS on pages I-19 to I-21.

Monitoring will also be conducted to determine if the action resulted in the desired outcome for fish and fish habitat and met the objectives for the project (FEIS, page V-7). In cooperation with other interested agencies (including, but not limited to NMFS, Bonneville Power Administration, Washington Department of Ecology, and Bureau of Reclamation) an effectiveness monitoring plan will be developed prior to implementation. Baseline data will be collected one year before and the effects of the project will be monitored for at least five years following implementation. The extent and duration of monitoring will be dependent on available funding, however it is my intention to monitor conditions following implementation to the degree that any unexpected environmental harm will be detected and avoided or remedied.

## **Changes between DEIS and FEIS**

As a result of environmental effects analysis and in response to comments received to the DEIS, the proposed action was not identified as the preferred alternative in the FEIS. The original proposed action (Alternative B) would have permitted the sediments impounded by the dam to be flushed downstream by river erosion following dam removal. I have determined that this would result in unacceptable harm to Threatened steelhead and other aquatic species from the sharp increase in turbidity, far in excess of State water quality standards, which could last for up to several weeks. Instead, Alternative C was identified as the USFS preferred alternative in the FEIS. Impounded sediments would be dredged from the drained reservoir prior to removing the dam. A channel would be constructed and the streambanks stabilized. Subsequent streamflows would move finer sediments into lower Trout Creek and the Wind River, but the volume would be much less than Alternative B and would pose far less impact to aquatic organisms (FEIS, pages IV-14 to IV-22).

An alternative that would have created a notched dam to provide for fish passage while retaining opportunities for slack-water recreation was proposed during early project scoping. This alternative was dropped from detailed analysis because of concern about preserving the structural integrity of the notched dam and because the notched dam did not eliminate issues with fish passage, nor did it facilitate the option of retaining a slackwater recreational facility. The concept of creating an off-channel pond (without a dam structure) was then raised as a possible alternative in comments to the DEIS. Under such an alternative the structural integrity of the notched dam would not be an issue. This alternative was not evaluated in detail because the location, design, installation, annual maintenance costs for an off-channel pond would require additional analysis and would be informed by evaluation of ground conditions that are currently obscured by sediments in the reservoir. Were Alternative B or C selected (removing the dam), further consideration of the off-channel pond could occur along with consideration of all other amenities at the Hemlock site, including trails, interpretive signing, and water related facilities (FEIS, page II-8).

The scope of the Final EIS was refined such that the consideration of specific actions associated with development of recreational amenities at the Hemlock site, including trails, interpretive signing, and water-related facilities will be considered under separate analysis and decision. Selection of any of the alternatives would therefore not preclude development of additional recreational improvements at the site. (FEIS, page II-5).

### **Rationale for the Decision**

I have based my decision on the need to improve conditions for federally listed fish species. Alternative C (the selected alternative) best meets the provisions of the National Forest Management Act (1976) to “[e]nsure that viable populations will be maintained” and “habitat must be provided to support, at least, a minimum number of reproductive individuals and that habitat must be well distributed so that those individuals can interact with others in the planning area.”

In addition, it is my intent to move the project area toward the desired future condition as described in the *Gifford Pinchot National Forest Land and Resource Management Plan* (1990), as amended (LRMP), and in the second iteration of the *Wind River Watershed Analysis* (2002) by improving habitat and water quality to support increases in resident and anadromous fish populations. The selected alternative does the most to achieve that objective while avoiding or minimizing environmental harm.

The selected alternative meets my objective for a cost-effective approach to managing the Hemlock site. There will be high initial costs associated with dredging sediments from behind the dam and for removal of the dam, however the long-term operations and maintenance costs associated with the dam are entirely eliminated. I consider the additional cost to remove and dispose of accumulated sediments to be an acceptable tradeoff to avoid substantial harm to the species and habitat conditions that I am obligated to protect.

Though not the primary purpose of this action, it is my objective to continue to support recreational opportunities at the Hemlock site. Dam removal will remove the slack-water recreation opportunities associated with Hemlock Lake, but this action does not eliminate other day-use activities at the site.

Comments to the DEIS noted that dam removal would eliminate the fish trap and counting facility associated with the fish ladder. This could affect one of six long term steelhead datasets found along the Pacific Rim (FEIS Appendix A, comment number 1.01). The selected alternative would not exclude the ability to monitor fish in this portion of Trout Creek although methodology or means may change. Any proposals for new facilities would be analyzed separately once site-specific information is obtained.

## **Alternatives Considered but Not Selected**

In addition to the selected alternative, I considered four other alternatives which are discussed below. A summary comparison of alternatives from the FEIS can be found in Table 1, attached to this Record of Decision.

### ***Alternative A - No Action***

Under the No Action alternative, the dam and surrounding area would not be changed from the present condition or management. The dam and fish ladder structures would be maintained to approximately the same standard.

I did not select this alternative because it would not improve fish passage or aquatic habitat in Trout Creek. An impediment to fish migration would continue to exist. Delays in both upstream and downstream migration would continue to expose fish to increased predation and potentially to harmful water temperatures (FEIS, pages IV-47 to IV-52). The dam would also continue to be a source of mortality to juvenile steelhead from impingement on the flashboards or falls over the crest of the dam (FEIS, pages IV-49 to IV-50). Peak water temperatures would continue to exceed levels that are lethal to steelhead (FEIS, pages IV-3 to IV-5). There would be comparatively no effect to downstream turbidity, however continued impoundment and accumulation of sediments behind the dam would continue to negatively impact conditions in downstream reaches of Trout Creek (FEIS, pages IV-26 to IV-28). In addition, this structure would require extensive modification to meet current NMFS guidelines for fish passage. Alternative E addresses the effects of retaining the dam and modifying the existing structures to meet current standards.

Alternative A would retain the existing recreation site and access to Hemlock Lake. Visitor use of the Hemlock site is expected to be higher under this alternative than for either of the dam removal alternatives (Alternative B or Alternative C) because of the attraction of the lake (FEIS, pages IV-61 to IV-62). Correspondingly, expenditures by visitors would be highest for Alternative A and the other dam retention alternatives (Alternatives D and E) (FEIS, pages IV-92 to IV-93).

Compared to any of the other alternatives, Alternative A would not affect historic or archaeological features associated with the dam and immediate vicinity (FEIS, pages IV-66 and IV-69).

Alternative A would cost the least of any of the alternatives over a 20-year period. However, long term operations and maintenance costs associated with the dam would continue to accrue. Based on the conditions of the fish passage facilities at the dam, I fully expect that the ladder and associated structures would need to be upgraded to comply with the Endangered Species Act. As a result, the “no action” alternative was not selected. I have determined that Alternative A does not meet the overall purpose of and need for the action.

### ***Alternative B – Remove the dam and let the river erode the sediments in the reservoir***

This alternative would construct a pilot channel through the reservoir and dispose of the excavated sediments (estimated 2,500 cubic yards) in an unused portion of Wind River Nursery; dismantle the dam and fish ladder, and associated structures; allow the river to erode the sediments to fully establish the channel; stabilize and rehabilitate the channel bank; and alter the Hemlock recreational site to accommodate the new configuration.

This alternative would directly improve fish passage and habitat conditions as described under the selected Alternative (Alt C). Adult steelhead returns would be projected to increase over time as a result of this action, however the initial erosion of sediment from the reservoir would have significant short term effects to steelhead in Trout Creek and lower Wind River, and potentially to chinook salmon and other fish using the mouth of the Wind River.

As with Alternative C (the selected alternative), Alternative B would not retain the lake. Visitor use would be lower for both of these alternatives than for any of the dam retention alternatives and expenditures by visitors would be correspondingly lower (FEIS, pages IV-62 to IV-63).

In addition, like the selected alternative, there would be adverse affects to historic and archaeological features. The adverse affects would be greater than for any of the dam retention alternatives (FEIS, pages IV-67 to 71).

I did not select this alternative because although this alternative would meet the purpose and need in the long-term, I have determined that the short-term impacts to federally listed fish species are unacceptable.

***Alternative D – Retain the dam, improve deficiencies, and replace the fish ladder***

Alternative D would make improvements to the fish passage facilities at the dam in an attempt to bring it up to current NMFS standards. This alternative would replace the fish ladder with a new ladder designed to permit efficient, safe fish passage. The sluice gate would be operated annually during high flow periods to permit sediments to be routed past the dam and to potentially create or maintain some depth in the lower reservoir. Temperature maximums in the reservoir would be reduced by dredging the accumulated sediments and deepening the reservoir. This would be repeated at 5 to 10 year intervals to maintain depth and cooler temperatures within the reservoir and in downstream reaches of Trout Creek.

This alternative meets the purpose and need and my objective for continued recreational opportunities at the site. However, I did not select this alternative because the beneficial effects to fish and aquatic habitat under this alternative would not be as great as those identified for the selected alternative. The dam and reservoir would continue to affect both passage and habitat for steelhead. Increases in adult steelhead returns under this alternative are estimated to be less than half of that predicted for Alternatives B or C (FEIS, page IV-55).

In addition, this alternative would not meet my objective for cost-effective management of the site. It is the highest cost alternative including capital costs to upgrade the existing facility and operations and maintenance costs for the life of the project (FEIS, page IV-97 to IV-98). Also, by keeping the dam in place, the USFS continues to bear any future and unforeseen costs for repair or liability associated with the structure.

***Alternative E – Retain the dam, improve deficiencies, and repair the existing fish ladder***

Actions under this alternative are identical to Alternative D except the fish ladder would be retained and repaired under Alternative E.

I did not select this alternative for the same reasons stated for Alternative D. Though it would meet the purpose and need, this alternative would be even more limited in beneficial effects because the fish ladder would not fully meet NMFS standards (FEIS, page IV-56).

My objective for continued recreation opportunities at this site would be met. Visitor expenditures would be the same as for the No Action alternative (FEIS, pages IV-63 and IV-92 to IV-93).

Costs associated with this alternative are nearly as high as for Alternative D except that this alternative does not have the capital cost of fish ladder replacement. As with Alternative D, by keeping the dam in place, the USFS continues to bear any future and unforeseen costs for repair or liability associated with the structure.



## **Findings Required by Law, Regulation, and Agency Policy**

I have determined that my decision is consistent with relevant laws, regulations, and agency policy. The following summarizes findings required by major environmental laws.

### ***National Forest Management Act, 1976***

I find that this action is consistent with the National Forest Management Act [16 U.S.C. § 1600 (note), 1976, as amended)]. The FEIS sets forth the direction and the goals from the *Gifford Pinchot National Forest Land and Resources Management Plan* (LRMP, 1990) for each of the land allocations in the Hemlock Dam planning area (FEIS, page I-7 to I-8). I have determined that the selected alternative is consistent with the goals and objectives of the LRMP, as amended.

My decision, including mitigation measures, project design criteria, and terms and conditions from the NMFS Biological Opinion is consistent with Standards and Guidelines established in the LRMP, as amended.

Alternative C is consistent with direction in the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Documents Within the Range of the Northern Spotted Owl* (NFP) and the Standards and Guidelines established in the NFP, as amended. I have reviewed the details of the affected aquatic environment, which thoroughly describes the existing physical and biological conditions of all aspects of the riparian and aquatic environment, and I have reviewed the direct, indirect and cumulative effects of the alternatives (FEIS, pages IV-1 to IV-60). Based on this information and my review of relevant information in the second iteration of the *Wind River Watershed Analysis* (2001), I have determined that the selected alternative is designed to contribute to maintaining and restoring the fifth-field (Wind River) watershed over the long term because the removal of Hemlock Dam and associated actions would restore Trout Creek to a free-flowing stream. Cumulatively, with other restoration actions in the Wind River watershed, this action would specifically address the following Aquatic Conservation Strategy Objectives:

1. Maintain and restore the distribution, diversity, and complexity of watershed and landscape-scale features...
2. Maintain and restore spatial and temporal connectivity within and between watersheds.
3. Maintain and restore the physical integrity of the aquatic system...
4. Maintain and restore water quality...
5. Maintain and restore the sediment regime...
6. Maintain and restore instream flows...

The FEIS complies with the Mediated Agreement and the 1988 *Record of Decision for Managing Competing and Unwanted Vegetation FEIS*. The selected alternative will utilize prevention, early treatment, and correction strategies to manage the competing and unwanted vegetation (FEIS Mitigation Measures: Botany 1 through Botany 7, page V-6).

### ***National Environmental Policy Act***

My decision is consistent with the National Environmental Policy Act [42 U.S.C. § 4321 *et seq.* (1970, as amended)]. The FEIS was completed using the regulations outlined in 40 CFR Part 1500, the USDA Forest Service NEPA Policy and Procedures in Forest Service Manual 1950, and the Forest Service Handbook 1909.15. I believe that the range of alternatives is adequate and that sufficient information was included in the FEIS for me to make a reasoned and informed decision.

### ***Clean Water Act***

This project is consistent with Section 303, 319, and 404 of the Clean Water Act [33 U.S.C. § 1251 *et seq.* (1982)]. The Act requires that bodies of water that appear on the 303(d) list be managed to meet water quality standards. A comprehensive approach for protecting water quality includes developing a total maximum daily load (TMDL) analysis. A TMDL analysis was completed for the Wind River in which removal of Hemlock Dam was recommended as one means of improving water temperatures in Trout Creek (WDOE 2002). This action also responds to the goals and objectives in the *Wind River Water Quality Restoration Plan* (USDA 2002).

My decision to remove Hemlock Dam under the selected alternative will help to reduce water temperatures in lower Trout Creek and thermal conditions will continue to improve in the longer-term as upstream channel and riparian conditions improve (FEIS, page IV-8).

By selecting Alternative C over Alternative B, much lower levels of fine sediment would be generated and the duration of suspended sediment increases would be substantially lower than for Alternative B (FEIS, pages IV-19 to IV-22).

### ***National Historic Preservation Act***

I find this project to be consistent with section 106 of the National Historic Preservation Act [16 U.S.C. § 470 *et seq.* (1966, as amended)]. The dam and fish ladder are eligible for listing on the National Register of Historic Places. As such, these structures must be documented in the Historic American Building Survey/Historic American Engineering Record (HABS/HAER) and submitted to the Washington State Office of Archaeology and Historic Preservation, the Advisory Council on Historic Preservation, and the National Park Service.

Damage to the Trout Creek prehistoric site as a result of heavy equipment use and access would constitute an adverse effect to the site as defined in 36 CFR 800.5. There is also a potential for direct impacts to remains of Wind River Lumber Company's splash dam. My decision includes mitigation measures that were designed to avoid or minimize harm to the prehistoric sites (FEIS, Mitigation Measures Cultural-1 and Cultural-2, page V-5). My decision also includes mitigation measures that prescribe data recovery and documentation of the dam, fish ladder, and the remains of the splash dam, if encountered (FEIS, Mitigation Measures Cultural-1, Cultural-2, Cultural-7, and Cultural-8, page V-5).

### ***The Endangered Species Act***

This action is consistent with the Endangered Species Act [16 U.S.C. §§ 1531-1536, 1538-1540 (1973, as amended)]. The project Fish Biologist determined that the selected alternative (Alternative C) is "likely to adversely affect" Lower Columbia River (LCR) steelhead trout (*Onchorychus mykiss*), listed as a Threatened species in 1998; LCR chinook salmon (*Onchorychus tshawytscha*), listed as Threatened in 1999; and LCR coho salmon (*Onchorychus kisutch*), listed as Threatened in 2005. The selected alternative is also "likely to adversely affect" critical habitat for LCR steelhead and critical habitat for chinook salmon (FEIS, IV-59).

Formal consultation has been completed with National Marine Fisheries Service (NMFS) on the project described as the preferred alternative (Alternative C). NMFS issued a Biological Opinion on June 1, 2005. Terms and conditions that were specified in the Biological Opinion have been incorporated in the Mitigation Measures (FEIS, Mitigation Measures Fish-1 through Fish-13, pages V-1 to V-5).

The project Fish Biologist determined that the selected alternative is "not likely to adversely affect" Threatened Middle Columbia River steelhead trout, Threatened Snake River spring/summer chinook salmon, Threatened Snake River fall chinook salmon, Threatened Upper Columbia River spring chinook salmon, Threatened Columbia River chum salmon (*Oncorhynchus keta*), Endangered Snake River

sockeye salmon (*Oncorhynchus nerka*), and critical habitat for Snake River chinook salmon and Snake River sockeye salmon (FEIS, page IV-59). As a part of the Biological Opinion, NMFS concurred with the determination of “not likely to adversely affect” these species. The USDI, Fish and Wildlife Service (USFWS) concurred with the determination of “not likely to adversely affect” Threatened Columbia River bull trout (*Salvelinus confluentus*) in January 2005. The project Biologist also determined that this action is “not likely to jeopardize” Proposed critical habitat for Lower Columbia River coho salmon.

The project Wildlife Biologist determined that the selected alternative is “not likely to adversely affect” Threatened bald eagles (*Haliaeetus leucocephalus*), Threatened northern spotted owls (*Strix occidentalis caurina*), and northern spotted owl critical habitat (FEIS, pages IV-73 to IV-75). The USFWS concurred with this determination in January 2005.

The selected alternative will have no effect to other Threatened, Endangered, or Proposed species that are known or suspected to occur within the project area or to federally listed critical habitat [Biological Evaluation for wildlife species (June 25, 2004), pages 1 – 4; Biological Evaluation for botanical species (July 12, 2004), page 4; and Biological Assessment for aquatic species (December 20, 2004) page 99].

### ***R6 Sensitive Species***

The National Forest Management Act and its implementing regulations [at 36 CFR 219 (1982)] require the Secretary of Agriculture to provide for species viability and diversity of plant and animal communities. The USFS defines Sensitive species as those plant and animal species identified by a regional forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution. I find that the selected alternative will have no impact to Sensitive wildlife or aquatic species. Though surveys were conducted and no Sensitive botanical species were found in the project area, the project Botanist determined that suitable habitat exists for Sensitive fungi species that were not specifically targeted during surveys. The selected Alternative may alter the hydrologic regime of the hillslope, and drain some wetland area, thus the project Botanist determined that this action “may impact individuals or habitat, but will not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species” [Biological Evaluation for botanical species (July 12, 2004), page 10].

### ***Magnuson-Stevens Fishery Conservation and Management Act***

The Sustainable Fisheries Act (Public Law 104-267) amended the Magnuson-Stevens Fishery Conservation and Management Act [(16 U.S.C. § 1801 *et seq.* (1976, as amended))] requires Federal agencies to consult with NMFS on activities that may adversely affect Essential Fish Habitat. The Wind River basin and the Columbia River are designated as Essential Fish Habitat for Chinook and coho salmon. The project Fish Biologist determined that the selected alternative “may affect but would not likely adversely affect” essential fish habitat, however in the long term this action would restore natural sediment and organic deposition (FEIS, page IV-60). In their June 1, 2005 Biological Opinion, NMFS concurred with this determination. Thus, I find that this decision is consistent with the applicable provisions of the Magnuson-Stevens Fishery Conservation and Management Act.

### ***Executive Order 11990, Protection of Wetlands***

Federal Executive Order 11990, titled “Protection of Wetlands”, requires that there be no net loss of wetlands habitat as a result of actions. Thus, any loss of wetlands resulting from this project will be mitigated following Washington State Department of Ecology Wetland Mitigation guidelines, including the development of a Wetlands Mitigation Plan. The selected alternative will result in a loss of 1.9 acres of wetlands of the 5.4 acres of wetlands identified within the project area (FEIS, pages IV-89 to IV-90). Through this decision I am requiring that a Wetlands Mitigation Plan be developed in cooperation with the Washington State Department of Ecology prior to implementation (FEIS, Mitigation Measure

Hydrology-7, page V-1). Thus, I find that implementation of this action will be in compliance with Executive Order 11990.

***Executive Order 11988, Floodplain Management***

Federal Executive Order 11988 requires federal agencies to “take action to reduce the risk of flood loss, to minimize the impact of floods...” The FEIS analyzed the effect of dam removal to the potential for downstream flooding. The dam does not provide flood control capabilities and removal of the dam would not cause appreciable change to the streamflows in lower Trout Creek or in the Wind River (FEIS, pages IV-29 and IV-40). Thus, I find that the selected alternative will comply with Executive Order 11988.

***Executive Order 12898, Environmental Justice***

Executive Order 12898, titled “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” provides that each Federal agency address disproportionately high and adverse human health or environmental effects of its activities on minority and low-income populations. The Executive Order makes clear that its provisions apply fully to programs involving Native Americans. The FEIS analyzed the effect of the dam removal alternatives to minority and low-income sectors of the local population (FEIS, pages IV-100 to IV-101). It was determined that the selected alternative could have a disproportionate negative impact to low-income households, including the largest minority population grouping in the project area which is classified “American Indian and Alaska Native” because it would eliminate a popular local swimming area. The disproportionate negative economic impact would be only in the context of the greater cost and distance to travel to an alternate site offering similar swimming opportunities in a forest setting, such as Lost Lake on the Mount Hood National Forest (FEIS, page IV-100) or the (as yet undeveloped) Rock Creek Cove site near Stevenson, Washington (FEIS, page 101).

Public meetings were held as a part of the scoping effort for this project, including a meeting with members of the local community and the Yakama Indian Nation (FEIS, page I-11). On the basis of the extent of scoping and the disclosure of the specific effects of implementation of the selected alternative to minority and low-income populations, I find that the analysis contained in the FEIS documents compliance with Executive Order 12989.

**Identification of the Environmentally Preferred Alternative**

The environmentally preferable alternative is defined by the Council on Environmental Quality (CEQ) as the alternative or alternatives that promote national environmental policy as expressed in NEPA Section 101. This section of the law encourages Federal Agencies, “...to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans.”

In accordance with CEQ regulations, I have considered all alternatives in this analysis and have identified Alternative C (the selected alternative) as the environmentally preferred alternative. This alternative will go the farthest to restore the aquatic habitat for Threatened anadromous fish species with the least amount of short-term adverse impact to the environment.

### **Administrative Review or Appeal Opportunities**

This decision is subject to appeal pursuant to Forest Service regulations at 36 CFR 215. Any individual or organization that submitted substantive comments during the comment period may appeal. Appeal of this decision must be in writing and fully consistent with the content requirements described in 36 CFR 215.14. The Appeal Deciding Officer is Claire Lavendel, Gifford Pinchot National Forest Supervisor. An appeal should be addressed to the Forest Supervisor at any of the following addresses: Postal and street location for hand delivery: ATTN.: 1570 APPEALS, 10600 NE 51<sup>st</sup> Circle, Vancouver, WA 98682 (office hours: 8:00 – 4:30 M – F); fax: (360) 891-5010; or email: [appeals-pacificnorthwest-giffordpinchot@fs.fed.us](mailto:appeals-pacificnorthwest-giffordpinchot@fs.fed.us).

The Appeal, including attachments, must be postmarked or received by the Appeal Deciding Officer within 45 days of the date legal notice of this decision was published in the Vancouver *Columbian*.

### **Implementation Date**

In accordance with 40 CFR 215.10, if the decision is appealed, this action will not be implemented before the 16<sup>th</sup> day following appeal disposition. If no appeal is filed, the action may be implemented no sooner than the 5<sup>th</sup> day following the close of the appeal filing period.

### **Contact**

For additional information concerning this decision or the Forest Service appeal process, contact: Cynthia Henschell, South Zone Planning Team Leader by phone: (509) 395-3411 or by email: [chenschell@fs.fed.us](mailto:chenschell@fs.fed.us).

Responsible Official:

/s/ *Nancy Ryke*

NANCY RYKE  
Mount Adams District Ranger

Date: December 5, 2005

## References:

- Barber, M.E., and Perkins, T., 1999. "Hemlock Dam fish passage evaluation and restoration," Washington State University, Pullman, Washington, December 17, 1999.
- Orsborn, J. *et al.* 1987. A preliminary analysis of alternatives for improving fish passage at Trout Creek Dam (preliminary design report). Prepared for: U.S. Forest Service, Wind River Ranger District. By: Fisheries Engineering Class, Department of Civil and Environmental Engineering, Washington State Univ., Pullman.
- USDA and USDI 1994. United States Department of Agriculture, Forest Service, and United States Department of Interior, Bureau of Land Management. Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl and Attachment A: Standards and Guidelines for Management of Habitat for Late-Successional and Old-Growth Forest Related Species Within the Range of the Northern Spotted Owl. 231 p.
- USDA 1990. United States Department of Agriculture, Forest Service. Land and Resource Management Plan. Gifford Pinchot National Forest, Vancouver, Washington.
- USDA 1996. United States Department of Agriculture, Forest Service. Wind River Watershed Analysis, Wind River Ranger District, Gifford Pinchot National Forest, Carson, Washington.
- USDA 2001. United States Department of Agriculture, Forest Service. Wind River Watershed Analysis 2nd Iteration, Mt. Adams Ranger District, Gifford Pinchot National Forest, Carson, Washington. USDA 2002. United States Department of Agriculture, Forest Service. Wind River Water Quality Restoration Plan, by Tracy, R., B. Coffin, J. Forsberg, I. Ward, 2002.
- WDOE 2002. Washington State Department of Ecology, Environmental Assessment Program. Wind River Watershed Temperature Total Maximum Daily Load, Publication No. 02-03-010, March 2002.

**Table 1: Final Environmental Impact Statement Summary of Effects**

<b>Comparison of Effects by Alternative</b>					
<b>Issue</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>	<b>Alt. E</b>
<b>Water temperature and effects to fish</b>					
Predicted peak temperatures	No change.  Peak temperatures in the reservoir exceed levels that are lethal to steelhead.	Temp increases associated with Hemlock Lake are eliminated.	Same as Alt. B.	Temperature increases in Hemlock Lake are reduced following dredging.  Persistence of improved temperatures is dependent on the rate the reservoir refills with sediment.	Same as Alt. D.
Predicted temperature effects to fish	Fish may be harmed or die from exposure levels and duration.	Exposure levels and duration are reduced.	Same as Alt. B.	Exposure levels reduced for same period following dredging; duration of exposure is unchanged.	Same as Alt. D.
<b>Sediment release into Trout Creek and Wind River and effects to fish</b>					
Predicted changes in turbidity	No change.  Dam plays imperceptible role in turbidity levels downstream.	Turbidity levels extremely high during first year of channel incision and expansion.	Short term increase in turbidity during re-watering of the constructed channel and in initial high flow events.	Short term increases during construction, annual sluicing, and recreational use.	Same as Alt. D.
Predicted turbidity effects to fish	Minor effects to fish in reservoir due to recreational uses.	High steelhead mortality downstream during first year of implementation.	Minor, short term effect to fish during construction and during fall freshets.	Minor short-term effect to fish during construction, during annual sluicing, and during recreational use of the reservoir.	Same as Alt. D.
Predicted sediment deposition timing, location, and thicknesses downstream of the dam	Continued sand and silt deposition across the reservoir. No large sediment routed past dam. Continued depletion of isolated spawning gravels and cobble downstream.	Up to 1.5 feet of sand deposits in lower Trout Creek immediately following dam removal. Annual sediment load in the Wind River doubled during first year of project. Long term increase in coarse sediment downstream of dam site.	Minor project-related increase in sediment deposition downstream. Long term increase in coarse sediment deposition downstream of the dam site.	Minor project-related increase in sediment deposition downstream. No increase in coarse sediment deposition downstream.	Same as Alt. D.
Predicted effects of sediment deposition to fish	Continued poor habitat within reservoir due to	Improved substrate within the reservoir area and	Same as Alt. B.	Same as Alt. A.	Same as Alt. A.

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<b>Comparison of Effects by Alternative</b>					
<b>Issue</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>	<b>Alt. E</b>
Measure and fish habitat	sand and silt bottom. Continued lack of coarse sediment downstream, limiting spawning, hiding cover, food production for steelhead.	downstream due to reduction in sand/silt deposits and increased routing and deposition of coarse sediment, which will improve habitat.			
<b>Barriers to fish migration</b>					
Upstream migration success	Continued exposure to delay in upstream migration. Numbers of returning adult steelhead influenced by passage, habitat, harvest pressures.	Migration delays resulting from the dam are eliminated. Short term decline in number of adult steelhead returning to Trout Creek. Over the long term, adult steelhead returns projected to increase by 20% to 66% as a result of dam removal.	Migration delays resulting from the dam are eliminated. Adult steelhead returns projected to increase by 20% to 66% as a result of dam removal.	Continued exposure to upstream delays. Adult steelhead returns are projected to increase slightly.	Similar to Alt. A.
Downstream migration success	Continued delay in the reservoir. Potential for mortality from fall impact over dam.	No delay or mortality associated with the dam.	Same as Alt. B.	Continued delay in the reservoir. Fall mortality is reduced by construction of downstream fish bypass.	Same as Alt. D.
Impingement potential	Continued exposure of smolts to impingement on screen or flashboards.	No exposure to impingement related to the dam.	Same as Alt. B.	Reduced exposure to impingement.	Same as Alt. D.
Predation potential	Predation opportunities are increased by ladder, trap, shallow lake.	Increased predation opportunities are eliminated.	Same as Alt. B.	Some reduction in predation opportunities due to increased lake depth.	Same as Alt. D.
Harassment potential	Harassment of steelhead (intentional or inadvertent) continues due to recreational uses of the reservoir.	Reduced harassment and greater opportunities for fish to avoid recreationists.	Same as Alt. B.	Slightly reduced harassment due to increased depth. Potential long term increase in harassment as recreational use increases.	Same as Alt. D.
<b>Loss of recreation opportunities at Hemlock Lake</b>					
Predicted changes in use (numbers of visitors and types of experiences)	3,173 local parties; 3,330 non-local parties annually.	1,586 – 2,380 local parties; 793 non-local parties annually.	Same as Alt. B.	Same as Alt. A.	Same as Alt. A.



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<b>Comparison of Effects by Alternative</b>					
<b>Issue</b>	<b>Alt. A</b>	<b>Alt. B</b>	<b>Alt. C</b>	<b>Alt. D</b>	<b>Alt. E</b>
<b>Direct impacts to an historic structure</b>					
Historic structures altered or destroyed and degree of alteration	No impact.	Destruction of the historic dam and fish ladder.	Same as Alt. B.	Destruction of a portion of an historic property (fish ladder); modification of an historic property (dam).	Modifications to an historic structure (dam and ladder).
<b>Direct impacts to archaeological sites</b>					
Percentage of archaeological site disturbed	No impact.	Impacts > or = 0.2% of Trout Creek archaeological site.	Same as Alt. B.	Impacts > or = 0.05% of archaeological Trout Creek site.	Same as Alt. D.
<b>Impacts to the local economy from expenditures by recreation visitors</b>					
Predicted change in expenditures by Hemlock Lake visitors	\$17,600 – \$61,400 annually.	Estimated at \$8,400 – \$34,000 annually.	Same as Alt. B.	Same as Alt. A.	Same as Alt. D.
<b>Economic impact to the USFS</b>					
Estimated 20-year cost (present net value)	\$255,764	\$1,142,497	\$1,917,547	\$2,691,512	\$2,393,572