

Decision Memo

USGS Watershed Nutrient Enhancement Research Project

USDA Forest Service
Mt. Adams Ranger District
Gifford Pinchot National Forest
Skamania County, Washington

T 4 N, R 7 and 7.5 E, W.M.

Background

The Gifford Pinchot National Forest is considering whether or not to authorize a Nutrient Enhancement Research Project, which would be located on the Mount Adams Ranger District, Wind River Watershed, Skamania County, Washington (Figure 1). The study sites are located on Cedar Creek (T 4 N, R 7.5..E, Section 34) and Martha Creek (T 4 N, R 7 E Section 30). The latitude and longitude of the sites are N 45 48.130' W 121 51.516' and N 45 47.652' W 121 55.507', respectively. A complete study plan is available in the project file.

This project proposal was awarded funding through the Title II Payments to County Program for implementation during 2005. The project proponent is the U.S. Geological Survey (USGS), Columbia River Research Laboratory. This research project is a follow-up to a Resource Advisory Group (RAC)-funded USGS low level water chemistry assessment of the Washougal, Lewis, and Wind River watersheds, conducted during spring through fall 2003 and 2004. Study sites (stream sections) were selected following analysis of this data.

Nutrients would be introduced using “carcass analogs”, which are essentially dried and compressed fish that are pressed into “briquettes”. Carcass analogs are intended to mimic true fish carcasses, and are easier to handle and transport.

Nutrient enhancement helps to restore, at least temporarily, the nutrient cycle in stream ecosystems that are experiencing declines in productivity due to a variety of factors such as diminished adult salmon returns, watershed disturbances, and loss of stream channel complexity. When done at the proper time of year, nutrient enhancement helps to stimulate primary and secondary productivity in streams, and leads to increased growth and condition of juvenile fish. After continuing this cycle for a number of years, the need for nutrient enhancement efforts are expected to decrease as salmon runs become self-sustaining and the ecosystem begins to function naturally.

Project description

Biological productivity data were collected during 2003 and 2004 to establish baseline parameters and to determine where the proposed nutrient enhancement activities would occur. Data were collected including an assessment of periphyton, macroinvertebrates, and fish production (e.g., species composition, biomass, and growth). Low level water chemistry and physical characteristics of each site

were also collected. This effort produced baseline information that was necessary to determine the final Nutrient Enhancement Project location. Martha Creek and Cedar Creek were selected for the implementation of the proposed project. Both streams are located within the Wind River Watershed on the Mt. Adams Ranger District, Gifford Pinchot National Forest.

The Nutrient Enhancement Project involves the placement of nutrient media in the form of carcass analogs into the selected stream sections, beginning spring 2005. The responses of the biological community and water chemistry to the addition of carcass analogs would be monitored. The maximum number of analogs placed within a section would be based on current or historic anadromous fish escapement. Basically, the current or historical number of carcasses that would naturally occur in a stream section would be estimated and converted to an equivalent number of analogs.

The goal of the project is to demonstrate the effectiveness of stream nutrient enhancement to restore juvenile salmonid production in watersheds previously identified as nutrient deficient. Periphyton, macroinvertebrates, fish, and water chemistry will continue to be monitored to measure the response of the aquatic community to the addition of carcass analogs. Fish populations will be monitored via single pass electrofishing surveys of study sites. Summer growth of previously tagged salmonids would be measured by recapture via electroshocking. Water quality would continue to be monitored to determine treatment effects. The activity would occur beginning April 2005 through October 2005; water quality monitoring would continue into 2006. The study would continue annually for up to five years if funding is available.

Aquatic Resources

The study streams are located in the Wind River Watershed (17007010512), which flows into the Mid-Columbia-Hood River Sub-Basin. Martha Creek flows into the Trout Creek sub-watershed (1700701051205) and Cedar Creek flows into the Panther Creek Sub-Watershed (1700701051206).

Electrofishing surveys by USGS found steelhead/rainbow trout (*Oncorhynchus mykiss*) and shorthead sculpins (*Cottus confusus*) in Martha and Cedar Creeks (Connolly et al. 2003). PIT tag data from downstream screw traps have confirmed the anadromous character of some portion of the *O. mykiss* population from these creeks (Connolly et al. 2003). Summer steelhead are known and winter steelhead are presumed to use both Martha and Cedar Creeks (LCFRB 2004). Spawning of summer steelhead occurs from early March through May, and winter steelhead spawning occurs from early March through early June (LCFRB 2004). Natural spawning returns of steelhead to the entire Wind River basin historically have been 2,000 to 5,000 (LCFRB 2004), but have been less than 1,000 in recent decades, sometimes less than 100 (Rawding and Cochran 2001). Coho salmon (*O. kisutch*) and fall Chinook salmon (*O. tshawytscha*) occur in Wind River downstream of Shipherd Falls. Spring Chinook salmon (*O. kisutch*) have been observed in the Wind River upstream and into the upper Wind River Watershed. Neither species occur within the proposed research project stream reaches.

Required Mitigation and Project Design Criteria

As a part of this decision, the following required mitigation measures and design criteria were developed. All applicable state and federal requirements associated with the Clean Water Act (CWA)

will be met through planning, application, and monitoring of project design criteria or elements in conformance with the CWA and Federal guidance and management direction. Activities will comply with provisions described in the Memorandum of Agreement with the Washington State Department of Ecology (MOA), and the Memorandum of Understanding with the Washington State Department of Fish and Wildlife (MOU). Washington Dept. of Fish and Wildlife draft guidelines for placement of carcass analogs will be considered. Additional measures as outlined in the April 10, 1998 “Programmatic Biological Assessment for On-going USDA Forest Service Activities Affecting Lower Columbia River Steelhead within the Southwest Washington Provinces” (2003) will also be applied to this project.

1. Minimize disturbance of existing vegetation along streambanks to the extent possible to minimize the potential for erosion.
2. Limit travel within streams to minimize impacts to spawners, redds and juveniles fish.
3. In addition to reporting requirements to the WDOE, WDFW and other agencies, report of variances or exceedances of water quality criteria in periodic reports to the Forest Service. Obtain a permit, variance or modification from the WDOE if necessary.
4. If water quality levels fall below criteria established by the WDOE, and deleterious effects are observed in biota, terminate the project until a solution or remedy can be provided.

Additional design criteria and monitoring protocols may be found in the DRAFT Nutrient Supplementation Protocol (WDFW, WDOE 2004).

Scoping

An interdisciplinary team was formed for this project, with core members including a hydrologist and a fisheries biologist. A wildlife biologist, archeologist and botanist also participated and provided project reports. The project proposal was published in the quarterly schedule of proposed actions for the Gifford Pinchot National Forest (“*Pinchot Projects*”). In addition, a scoping letter dated January 7, 2005 was sent to the Gifford Pinchot National Forest South Zone public contact list, including interested individuals, special interest groups, government agencies, and eight tribes. Six responses were received, including the following: The Washington State Department of Ecology (February 11 and 17, 2005), the Oregon State Department of Environmental Quality (via phone), Wind River Experimental Forest (email message), and three private citizens (letters of support). One citizen, while providing general support for the research, expressed concern regarding the potential presence of PCB’s and potential transfer to the environment. The state agencies expressed concerns regarding water quality and potential deleterious effects that may be caused by the introduction of nutrients above levels that affect the primary productivity. Concerns were also addressed regarding methodology.

The project proponent responded to comments and addressed concerns conveyed by the public, the WDOE and the WDFW. The project design was modified to address concerns expressed by the WDOE. Responses are available in the project file. The issue regarding the potential transfer of PCB’s (polychlorinated biphenyls) to aquatic and terrestrial biota was highlighted in a non-peer reviewed essay to the journal Fisheries Management. The Forest Service remains to be concerned about these potential effects, and will continue to monitor research related to PCB’s and other persistent organic pollutants

that may bioaccumulate in salmon tissue. An analysis of the potential for contribution of PCB's to the aquatic environment is beyond the scope of this research project.

Summary of Resource Conditions

Botany. The Regional Forester currently lists 51 species of sensitive plants as potentially occurring on the Gifford Pinchot National Forest. At this time there are no federally listed (proposed, endangered, threatened = TES) plant species known to occur on the Forest; however, one federally *threatened* species (*Howellia aquatilis*) is suspected. Habitat does not exist within the project area for this species. Habitat for the aquatic lichen *Dermatocarpon luridum* may potentially exist within the project area; however, there are no sites for this species known to occur in Cedar Creek or Martha Creek. Since no surveys were performed, it is assumed that there is a limited possibility this species may be found within the study area. The placement of the salmon carcass analogs seek to raise nutrient levels within 500 meter-long reaches of stream. The nutrients released by the analogs will be within the historic range of variation for these streams. As a result, the Nutrient Enhancement Research Project would not result in any direct or substantial indirect impacts to this lichen, if it were present within the project area. For this reason, a “**no impact**” determination was made.

Based upon the above information, the implementation of the proposed project will have *no effect* on TES plant species (Plant, Lichen and Bryophyte Biological Evaluation, March 8, 2005).

Wildlife. The proposed activities would have no effect on any Forest Plan Management Indicator Species including spotted owl, pine martin, pileated woodpecker, cavity excavators, wood duck, goldeneye, deer and elk, and mountain goats. The proposed project would not affect habitat for neotropical migratory birds.

Bald eagle (*Haliaeetus leucocephalus*), the Northern spotted owl (*Strix occidentalis caurina*) and critical habitat for the Northern spotted owl are present within or adjacent to the project area. Carcass analogs will be placed in mesh containers below ordinary high water and within the typical wetted width of the stream study reaches. Eagles have been known to concentrate in areas where salmon carcasses have been placed. It is not known whether they will be attracted to carcass analogs. Because of the location of analogs below the surface of the water and the limited scope of the project, it was determined that this project would have *no effect* on the bald eagle or any federally listed Threatened or Endangered wildlife species (Wildlife Biological Evaluation, Nutrient Enhancement Study, February 24, 2005).

The streams that would be treated are potential habitat for three salamanders listed on the Regional Forester's sensitive species list, including Van Dyke's salamander, Cope's giant salamander and Cascade torrent salamander. Surveys for these species have not been done in the project area; however, these salamanders would not be affected by placement of the carcass analogs, and they may benefit from increased productivity that may occur within the stream habitat. Terrestrial mollusks may be present along these streams, and since the analogs would be placed in the water, they would not be impacted. The project would not likely contribute to a trend towards federal listing or cause a loss of viability to the population or species. For this reason, a “**no impact**” determination was made.

Fisheries. This project *may affect, is likely to adversely affect (LAA)* federally Threatened Columbia River steelhead. This project is short-term in nature, but has the potential to demonstrate benefits to fish by providing marine-derived nutrients to the aquatic ecosystem. Because of the potential beneficial

effect, this project **may affect, is not likely to adversely affect** Chinook salmon or coho salmon, which occur downstream of the project site. The project would have **no effect** on bull trout (*Salvelinus confluentus*) or other listed salmon species. The project is outside of bull trout consultation watersheds.

This project (the activity of nutrient enhancement) is covered programmatically under the *Biological Assessment for USDA Forest Service Fish Passage Restoration Activities Affecting ESA-listed Animal and Plant Species Found in Eastern Oregon and the Whole of Washington, Region 6 USDA Forest Service* (USFS Programmatic BA, April 24, 2003), and the National Marine Fisheries Service (Now known as NOAA Fisheries) July 26, 2004 *Endangered Species Act Section 7 Formal Consultation Biological Opinion and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation for USDA Forest Service Programmatic Activities, Gifford Pinchot National Forest Columbia River Gorge National Scenic Area, Washington*. Electrofishing activities conducted by USGS will be covered by an ESA Section 10(a)(1)(A) permit granted directly to the USGS.

Martha Creek and Cedar Creek are within the Wind River Watershed, which has been designated as essential fish habitat (EFH) for coho salmon (*O. kisutch*) and Chinook salmon (*O. tshawytscha*). Because EFH is present, this document serves as consultation pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600 (pages 45 -47). In this consultation, NOAA Fisheries concluded that the programmatic actions may adversely impact designated EFH. Specific Reasonable and Prudent Measures of the ESA consultation, Terms and Conditions identified therein, would address the negative effects resulting from the proposed actions. Because of this and the limited scale and temporary nature of the proposal, the project will not have an adverse effect on EFH (Fisheries Biological Evaluation, February 7, 2005).

Decision

I have decided to approve the USGS Nutrient Enhancement Project, including mitigation measures listed above. This action falls within a set of actions that may be categorically excluded from documentation in an environmental impact statement or an environmental assessment under FSH 1909.15, Sec. 31.2, para. 6: “Timber stand and/or wildlife habitat improvement activities which do not include the use of herbicides or do not require more than one mile of low standard road construction (Service level D, FSH 7709.56).”

I have determined that there are no extraordinary circumstances potentially having effects that could significantly affect the environment. I considered the potential effects to water quality, listed fish and wildlife species, botanical and cultural resources. The resource specialists’ findings are documented in the project file.

Finding of Consistency with the National Forest Management Act

As required by the National Forest Management Act, this decision is consistent with the *Gifford Pinchot National Forest Land and Resource Management Plan* (LRMP, 1990) as amended by the *Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (1994, amended 2004). This project is located within the Matrix allocation. The Management Area defined by the LRMP is designated as General Forest. This

project is located within Riparian Reserves and Matrix allocations and within the East Fork Lewis River Watershed, Tier 1 Key Watershed.

I find that, as mitigated, this action is consistent with standards and guidelines for both Matrix and Riparian Reserve allocations within a Tier 1 Key Watershed. This action is necessary to create conditions that are closer to the desired future condition for this allocation.

Findings Required by Other Laws

As mitigated, I find that this action would improve aquatic habitat. Essential and critical habitat will be protected. I find the action, as mitigated, will be conducted in accordance with the Endangered Species act of 1973 (16 U.S.C. 1536) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) as amended by the Sustainable Fisheries Act of 1966 (16 U.S.C. 1855).

I find that all applicable state and federal requirements associated with the Clean Water Act (CWA) will be met through planning, application, and monitoring of BMP's in conformance with the CWA and Federal guidance and management direction. Activities will comply with provisions described in the Memorandum of Agreement with the Washington State Department of Ecology (WDOE), and the Memorandum of Understanding with the Washington State Department of Fish and Wildlife (WDFW). The project may require an individual Clean Water Act permit from the WDOE, which will be the responsibility of the project proponent.

I find that this project is consistent with the National Historic Preservation Act. The project area was surveyed and there will be no effect to culturally or historically significant sites. All sites will be protected.

I have determined that this project and its expected effects are consistent with the project proposal that was submitted by USGS through the Secure Rural Schools and Community Self-Determination Act and recommended for funding by the South RAC. My decision to fund this project stands.

Implementation Date

This project will be implemented immediately.

Administrative Review or Appeal Opportunities

This decision is not subject to administrative appeal.

Contact

For additional information concerning this decision or the Forest Service appeal process, contact Karen Thompson, Monument Watershed Resources Manager (phone: (360) 449-7826, or Cynthia Henschell, South Zone Planning Team Leader (phone: (509) 395-3411 or email: chenchell@fs.fed.us).

Recommended by:

Nancy Ryke

Nancy Ryke,
Mt. Adams Ranger District Ranger

March 18, 2005

Date

Approved by:

Claire Lavendel

Claire Lavendel, Forest Supervisor
Gifford Pinchot National Forest

March 18, 2005

Date

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ATTACHEMENT A
Internal Scoping – Resource Checklist

SZ Planning Team Leader Cynthia Henschell Date: 8 Mar 2004
Reviewed and provided comments to draft via email

NA: No effect: Comments/mitigation attached:

Archaeologist: Cheryl Mack (report on file) Date: _____

NA: No effect: Comments/mitigation attached:

Botanist: Andrea Ruchty (report on file) Date: 8 Mar 2004

NA: No effect: Comments/mitigation attached:

Engineer: _____ Date: _____

NA: No effect: Comments/mitigation attached:

Fisheries Biologist: Ken Meyer (BE on file) Date: February 2005

NA: No effect: Comments/mitigation attached:

Hydrologist: Karen Thompson (report on file/BE) Date: _____

NA: No effect: Comments/mitigation attached:

Recreation Specialist: _____ Date: _____

NA: No effect: Comments/mitigation attached:

Soil Scientist: _____ Date: _____

NA: No effect: Comments/mitigation attached:

Wildlife Biologist: Mitch Wainwright (BE on file) Date: 24 Feb 2004

NA: No effect: Comments/mitigation attached:

Silviculture Specialist: _____ Date: _____

NA: No effect: Comments/mitigation attached: