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## PART I - ADMINISTRATIVE

### Section 1. General administrative information

Title of project

White Salmon River Watershed Enhancement Project

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BPA project number: 20004

Contract renewal date (mm/yyyy):

Multiple actions?

Business name of agency, institution or organization requesting funding

White Salmon River Watershed Management Committee c/o Underwood Conservation District

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Business acronym (if appropriate)

UCD

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Proposal contact person or principal investigator:

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NPPC Program Measure Number(s) which this project addresses

2.2A, 2.2C, 3.3D, 4.1A, 7.6C, 7.8B, 7.8I, 7.10A, 7.10B, 10.2C, 10.5A

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FWS/NMFS Biological Opinion Number(s) which this project addresses

NA

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Other planning document references

White Salmon River Watershed Enhancement Plan (1994), Panakanic (Rattlesnake Creek) Watershed Assessment (1994), UCD Water Quality Investigation Report (1994), Northwest Forest Plan Record of Decision (1994), Endangered Species Act, Joint Agency/Tribal Plan for the Ecosystem Restoration of the White Salmon River (1995), Trout Lake Creek Watershed Assessment (1996), Wy Kan Ush Me Wa Kush, Cave/Bear Creeks Watershed Assessment (1997), Upper White Salmon River Watershed Assessment (1998)

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Short description

A comprehensive, five-year plan aimed to improve fish habitat, riparian and upslope watershed conditions, and land stewardship through direct restorative actions, cooperative work with stakeholders, and promoting education and citizen involvement.

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Target species

Spring chinook, tule fall chinook, coho salmon, sea run cutthroat, winter and summer steelhead, resident rainbow and cutthroat trout, and bull trout.

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### Section 2. Sorting and evaluation

Subbasin

**Evaluation Process Sort**

<b>CBFWA caucus</b>	<b>Special evaluation process</b>	<b>ISRP project type</b>
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
<input checked="" type="checkbox"/> Anadromous fish <input checked="" type="checkbox"/> Resident fish <input type="checkbox"/> Wildlife	<input type="checkbox"/> Multi-year (milestone-based evaluation) <input checked="" type="checkbox"/> Watershed project evaluation	<input checked="" type="checkbox"/> Watershed councils/model watersheds <input checked="" type="checkbox"/> Information dissemination <input type="checkbox"/> Operation & maintenance <input type="checkbox"/> New construction <input type="checkbox"/> Research & monitoring <input checked="" type="checkbox"/> Implementation & management <input type="checkbox"/> Wildlife habitat acquisitions

**Section 3. Relationships to other Bonneville projects**

***Umbrella / sub-proposal relationships.*** List umbrella project first.

<b>Project #</b>	<b>Project title/description</b>

***Other dependent or critically-related projects***

<b>Project #</b>	<b>Project title/description</b>	<b>Nature of relationship</b>

**Section 4. Objectives, tasks and schedules**

***Past accomplishments***

<b>Year</b>	<b>Accomplishment</b>	<b>Met biological objectives?</b>
98	White Salmon River Watershed Enhancement Project -- Phase II Implementation completion	Yes, water quality and habitat improvement projects
98	Upper White Salmon River Watershed Assessment (USFS) completion	NA
97	White Salmon River Watershed Enhancement Project -- Phase I (DOE funded) Implementation completion.	Yes, completed comprehensive list of habitat projects, environmental education tasks, community projects, and environmental monitoring.
97	Panakanic (Upper RSC) Watershed Analysis (DNR) completion	NA
97	Cave/Bear Watershed Analysis (USFS) completion	NA
96	Trout Lake Creek Watershed Analysis (USFS) completion	NA
94	White Salmon River Watershed Land- Use	NA

	Evaluation Report completion	
94	White Salmon River Watershed Water Quality Investigation Report completion	NA
94	White Salmon River Watershed Enhancement Plan completion	NA
94	White Salmon River Watershed Assessment Project (DOE funded) completion	Yes, accomplished baseline monitoring objectives
93	Formation of watershed council (WMC) in White Salmon River watershed	NA

### **Objectives and tasks**

<b>Obj 1,2,3</b>	<b>Objective</b>	<b>Task a,b,c</b>	<b>Task</b>
1	(Coordination) Coordinate, guide, and monitor accomplishment of watershed assessment and restoration activities by continuing to support the White Salmon Watershed Management and Technical Advisory Committees.	a	Facilitate quarterly meetings of the Watershed Management committee (WMC) to conduct planning and track progress (2000-2004).
		b	Coordinate quarterly Technical Advisory Committee (TAC) workshops to develop and review technical project designs and conduct interagency work (2000-2004).
		c	Draft 5-year update of the White Salmon River Watershed Management Plan (2000).
		d	Develop a Plan of Work each year to clarify and refine annual program objectives (2000-2004).
2	(Assessment) Identify and document water quality and anadromous and resident fish habitat conditions, fish bearing stream reaches, diversion features, and watershed restoration projects.	a	Conduct stream surveys on 40 miles of private and public lands to access: channel condition, fish habitat and populations, riparian condition, and restoration needs (2000-2002).
		b	Inventory all potential fish passage problems in the watershed (including irrigation diversions) in cooperation with landowners and irrigation companies (2000-2002)
		c	Combine existing and new information in a common database that is linked to GIS maintained by the USFS. This work would be done under a MOU to be developed between the USFS and UCD (2000-2002)
3	(Restoration) Implement actions to restore riparian and upland hydrologic functions, reduce sediment, increase shade and LWD recruitment in riparian areas, and protect fish from entrapment in irrigation ditches. All projects will be monitored.	a	Decommission 10 miles of road and close an additional 35 miles. Roads are on private, state, and federal land in the Rattlesnake, Trout Lake, Buck Creek, and the Upper White Salmon River subwatersheds (2000-2004).
		b	Install 5 miles of riparian protection fence in Rattlesnake, Gilmer, and other priority

			subwatersheds (2000-2004).
		c	Conduct site preparation and planning, including thinning, and planting of 60,000 conifers and hardwoods in riparian areas. Planting will occur on Rattlesnake Creek, Trout Lake Creek and other streams. (2000-2004)
		d	Dismantle one 600 foot long rock dike located along the streambank of Trout Lake Creek in order to reactivate the existing floodplain (2000).
		e	Install up to seven irrigation diversion screens throughout the watershed in cooperation with private landowners (2001-2004).
		f	Establish six permanent photo stations and conduct semi-annual photodocumentation of all restoration projects identified in tasks a-e (above) to assess project effectiveness (e.g. via plant community response) (2000-2004).
4	(Education) Expand public involvement and environmental education throughout the watershed through projects that will involve landowners and students in on-the-ground restoration, monitoring activities, and watershed planning processes.	a	Implement "Watershed Conservation Warehouse"(WCW) project to create a shared stockpile of watershed emergency response materials (erosion mat, silt fence, oil booms, etc.) for cooperative use on private, state, and federal lands (2000-2001).
		b	Host bi-annual White Salmon River Whitewater Trash Rodeo designed to involve 70 landowners per event in solid and toxic waste clean-up and innovative clean-up methods (2000-2004).
		c	Assist Columbia High School StreamWalk class (20 students per year) in conducting water quality monitoring, riparian assessments, and restoration project implementation on Rattlesnake Creek (2000-2004).
		d	Sponsor a White Salmon Watershed restoration symposium at project completion to define the current state of the White Salmon, and transfer technical and educational information pertaining to project accomplishments and future restoration needs (2004).
5	(Monitoring)	a	Perform quarterly/discretionary water quality monitoring at 18 sites in the watershed to continue ongoing baseline data collection and to identify trends in water quality conditions (2000-2004).
		b	Review and analyze water quality data annually at TAC workshops, update databases, and document changes in conditions or assumptions (2000-2004).

### Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	10/1999	9/2000			3.60%
2	10/1999	9/2000			13.50%
3	10/1999	9/2000	See Section 8.e. (Proposal Objectives)		78.60%
4	10/1999	9/2000			0.00%
5	10/1999	9/2000			4.30%
				<b>Total</b>	100.00%

#### Schedule constraints

NA

#### Completion date

2004

## Section 5. Budget

FY99 project budget (BPA obligated):

### FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel		%26	54,076
Fringe benefits	=26% of total personnel costs	%9	19,000
Supplies, materials, non- expendable property		%6	13,117
Operations & maintenance	phone, supplies, mailing, rent	%2	3,367
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		%0	0
NEPA costs	included in personnel costs	%0	0
Construction-related support		%0	0
PIT tags	# of tags: 0	%0	0
Travel		%1	2,467
Indirect costs		%3	7,000
Subcontractor	heavy equipment contract	%52	106,500
Other		%0	0
<b>TOTAL BPA FY2000 BUDGET REQUEST</b>			<b>\$205,527</b>

### Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount (\$)
UCD	labor, lab fees, materials	%22	64,901
NRCS	labor	%1	2,100
USFS	labor, map product supplies	%1	3,016

Timber Co.'s	labor, fence and gate mat'ls	%7	22,000
<b>Total project cost (including BPA portion)</b>			\$297,544

### Outyear costs

	<b>FY2001</b>	<b>FY02</b>	<b>FY03</b>	<b>FY04</b>
<b>Total budget</b>	\$136,389	\$81,024	\$51,414	\$48,124

## Section 6. References

<b>Watershed?</b>	<b>Reference</b>
<input checked="" type="checkbox"/>	Champion Pacific Timberlands, Inc. 1997. Panakanic Watershed Analysis. Western Watershed Analysis. Lewiston, ID.
<input checked="" type="checkbox"/>	Coffin, B. 1993. Water quality monitoring results, White Salmon River basin assessment and enhancement project. Memo to district ranger. Mt. Adams Ranger District, Trout Lake, Washington
<input type="checkbox"/>	FERC #2342 Joint Fishery Party Intervenes. 1995. Joint Agency/Tribal Plan for the Ecosystem of the White Salmon River.
<input type="checkbox"/>	Hankin, D.G., and G.H. Reeves. 1988. Estimating total fish abundance and total habitat area in small streams based on visual estimation methods. Canadian Journal of Fisheries and Aquatic Sciences 45:834-844.
<input type="checkbox"/>	Mathews, J.L. 1992. Eastern Washington stream temperatures and variables influencing them. Yakima Indian Nation, TFW program. Toppenish, Washington.
<input type="checkbox"/>	Rosgen D. 1996. Applied Fluvial River Morphology, Printed Media Company, Minneapolis, Minnesota.
<input checked="" type="checkbox"/>	Stampfli, S. M. 1994. White Salmon River Basin Assessment and Watershed Enhancement Project - Water Quality Monitoring and Quality Assurance Plan. Underwood Conservation District. White Salmon WA.
<input checked="" type="checkbox"/>	Stampfli, S. M. 1994. White Salmon River Basin Assessment and Watershed Enhancement Project - Basin Water Quality Investigation Report. Underwood Conservation District. White Salmon, WA.
<input checked="" type="checkbox"/>	Underwood Conservation District. 1994. White Salmon River Basin Assessment and Watershed Enhancement Project - Land-use Inventory Report. Underwood Conservation District. White Salmon WA.
<input type="checkbox"/>	USFS and BLM 1994. Record of Decision for amendments to Forest Service and Bureau of Land Management planning documents within the range of the northern spotted owl.
<input checked="" type="checkbox"/>	USFS 1995. Upper White Salmon River Watershed Analysis. Mt. Adams Ranger District, Trout Lake, Washington.
<input checked="" type="checkbox"/>	USFS 1996. Trout Lake Creek Watershed Analysis. Mt. Adams Ranger District, Trout Lake, Washington.
<input type="checkbox"/>	USFS 1997. Cave/Bear Creeks Watershed Analysis. Mt. Adams Ranger District, Trout Lake, Washington.
<input type="checkbox"/>	WA Department of Ecology, 1989, Nonpoint source pollution assessment and management program. DOE. Olympia, Washington.
<input type="checkbox"/>	WA Department of Wildlife. 1990. White Salmon River subbasin - salmon and steelhead production plan. DOW. Olympia, Washington.
<input type="checkbox"/>	White Salmon River Watershed Management Committee. 1994. White Salmon River Watershed Enhancement Plan. Underwood Conservation District. White Salmon, WA.

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## **PART II - NARRATIVE**

### **Section 7. Abstract**

The White Salmon River is a “wild and scenic” waterway, which was placed on the Washington State’s 303(d) “water quality limited list” in 1994 for exceedance of state standards in temperature and coliform. Anadromous fish passage on the river is blocked by Condit Dam at river mile 3.3. The dam operators are currently being required to provide fish passage within seven years, and dam removal is a viable possibility.

The overall goal of this proposal is to restore fish habitat, including water quality, for resident and anadromous fish in the White Salmon River subbasin. Specific objectives include: restoring processes and functions that will improve fish habitat; coordination and monitoring of watershed assessment and restoration activities by supporting the White Salmon River Watershed Management and Technical Advisory Committees; evaluation and documentation of water quality, fish habitat, and riparian conditions; restoration of hydrologic conditions and elimination of water quality degradation sources; and education of the public on watershed issues. These objectives will be accomplished by the Underwood Conservation District, the White Salmon River Management Committee, the White Salmon River Technical Advisory Committee, the Gifford Pinchot National Forest, the Washington Department of Fish and Wildlife, and the US Fish and Wildlife Service. Immediate high priority restoration needs will be met and all restoration projects will be monitored (some by permanent photo documentation sites).

This five year project will begin in 2000 and end in 2004. The final outcome will be improved water quality and fish habitat conditions in the subbasin, and enactment of a comprehensive management plan for the entire White Salmon River subbasin to protect and improve fish habitat and water quality.

### **Section 8. Project description**

#### **a. Technical and/or scientific background**

The White Salmon River is a federally listed “wild and scenic” waterway which is classified as “water quality limited” by the Washington Department of Ecology (DOE). This classification came after the UCD, USFS, and Yakama Indian Nation documented coliform bacteria levels and water temperature in major tributaries exceeding the Washington class AA limit (WA Department of Ecology, 1989; Mathews, 1992; Coffin, 1993; WA Department of Wildlife, 1990; Stampfli, 1992). The UCD also documented nonpoint pollution concerns in the White Salmon subbasin including sediment; nutrients from livestock; dairies; crop and orchard fertilization; and pesticides from crops, orchards, roadside spraying, and timber productions (UCD, 1989).

The UCD began the White Salmon River Basin Assessment and Enhancement Project in 1991 and guided formation of the White Salmon River Watershed Management Committee (WMC). The Gifford Pinchot National Forest has been a major player in this project. The committee is a community-based partnership that encourages and facilitates sound land management practices to ensure high water quality within the watershed

The objectives of past and present efforts are to: conduct a thorough assessment of basin condition, develop a comprehensive watershed management plan, implement the management plan, and monitor the improvements. An initial assessment of water quality and land use was accomplished in 1994. More recently, detailed watershed analyses have been completed on the Rattlesnake Creek (Champion, 1997), Trout Lake Creek (USFS, 1995); Cave/Bear Creeks (USFS 1997), and the upper White Salmon (USFS, 1998) subwatersheds using Department of Natural Resources (DNR) and the USFS processes. Simultaneous to assessment, the White Salmon Watershed Management Committee (WMC) formed and began implementing a DOE-approved watershed enhancement plan that recognizes priorities of the various assessments and outlines the restoration goals.

Because Condit Dam blocks all fish passage at river mile 3.3 on the White Salmon River, no anadromous fish have inhabited the river above this point since 1913. Prior to that time fall and spring chinook, coho, and summer and winter steelhead inhabited additional areas in the watershed. PacifiCorp Electric Operations recently applied to FERC for a new license to operate Condit Dam, and they are being required to provide for fish passage within seven years (Section 7.10B, NPPC, 1994). A cost analysis on dam removal is currently underway.

Fish passage at the dam will allow re-establishment of anadromous fish populations in the White Salmon watershed, but natural waterfall barriers will probably limit the extent of their range up to river mile 16.2 on the White Salmon River. Major tributary streams that will be accessible to anadromous fish following re-introduction include: Rattlesnake Creek, Buck Creek, Spring Creek, Indian Creek, and Gilmer Creek. Habitat improvements in these streams will benefit anadromous fish in the long term, and resident fish species will benefit in the short term. The White Salmon River above the falls (river mile 16.2 to river mile 42) and its tributaries would likely to continue to support solely resident fish populations in the future. This project is designed to benefit both resident and anadromous fish by focusing on improving function and processes in riparian areas, uplands, and water quality for long term habitat improvement. Maintenance of high water quality and habitat conditions throughout the watershed is a must to support healthy fish assemblages.

**b. Rationale and significance to Regional Programs**

The Northwest Power Planning Council (NPPC, Section 7.6C and Section 10.2C of the Fish and Wildlife Program) and the ISG (1996) have recommended a holistic, watershed approach to be used to identify key physical and biological limitations for the recovery of salmon and steelhead stocks and resident fish. The activities we have proposed for the White Salmon River watershed would meet the FWP goals through interagency cooperation along with public participation. The proposed activities will serve to restore quality resident and anadromous fish habitat to the subbasin, and will provide managers with the data needed to make informed decisions on future restoration projects.

This proposal meets the intent of collaborative restoration efforts described in measures 2.2C, 7.6D and 7.8I of the FWP by stressing the importance of landowner and community participation in restoration activities. The ongoing efforts of the Watershed Management Committee operating within a local watershed has developed a functional avenue through which all stakeholders, including public and private entities, will be able to work in concert toward common restoration goals.

This proposal is consistent with FWP goals described in measures 7.8D, F, G, I serves to directly benefit water quality and fish habitat. Active riparian fencing and evaluation of water diversions are examples of activities targeting water quality and fish habitat for both anadromous and resident fish.

Our proposal seeks to evaluate fish habitat and determine fish species composition and distribution. This information is particularly relevant to the reintroduction of anadromous fish above Condit Dam (FWP measure 7.10B).

White Salmon watershed restoration has garnered much support from a diverse group of stakeholders (see previous section 4, Past Accomplishments). The Underwood Conservation District, USDA Forest Service, US Fish and Wildlife Service, Washington State Dept of Ecology, Klickitat County, Champion timber company and private citizens have a high degree of interest in the long term restoration and conservation of this unique resource.

**c. Relationships to other projects**

1999 BPA project #9095, NPPC program management # 10.5A.6, will develop a protocol for a statistically valid bull trout presence/absence survey methodology and will use it to conduct surveys for bull trout in the Wind, Little White Salmon, White Salmon, and Klickitat rivers. The protocol developed in this project will be utilized to survey for bull trout in additional areas of the White Salmon River, or resurvey as follow-up, as recommended in the 1999 project results.

**d. Project history** (for ongoing projects)

NA

**e. Proposal objectives**

Objective 1. Coordinate, guide and monitor accomplishment of watershed assessment and restoration activities by supporting the White Salmon Watershed Management and Technical Advisory Committees.

Products:

Task a). A stable, broadly represented, and functional watershed management committee (WMC) will continue to function within the basin to guide future restoration, education, cost-sharing programs, technical assistance programs and monitoring. This work will be accomplished through 20-25 regular meetings over the next five years. Specific products to be achieved include yearly work plans and a 5-year update of the White Salmon River Watershed Enhancement Plan document.

Task b). A qualified technical advisory committee (TAC) will continue to provide agency coordination and technical design support to the WMC. This group will meet a minimum of 20 times over the project's life. Specific products produced by the group will include drafting of at least 5 project plans-and-specifications, a yearly review of all basin monitoring data from which next year's restoration goals will be derived, and development of a process intended to provide timely review and input of watershed council recommendations into restoration plans produced by land management agencies (e.g., USFS).

Tasks c) and d). A five-year update of the White Salmon River Watershed Enhancement Plan will be drafted to lay out goals and objectives for the next five year period. Work Plans will be developed annually to refine project objectives, establish schedules, and coordinate the year's work.

Objective 2. Identify and document water quality and resident and anadromous fish habitat conditions, fish bearing stream reaches, diversion features, and watershed restoration projects.

Products:

Task a). A detailed description of habitat and channel conditions will be developed for 40 miles of fish bearing streams in the watershed, with restoration needs prescribed. Surveys will provide information to allow mapping the presence/absence and extent of bull trout, cutthroat, rainbow, and brook trout in the watershed. Grazing management needs will also be identified through surveys of riparian conditions.

Task b). A comprehensive inventory and evaluation of all water diversions and fish passage barriers will be documented for private and public lands.

Task c). A common database linked to GIS will be developed for new and existing data to provide better access and more complete information on water quality, fish habitat, and channel conditions for the entire watershed (federal, state, and private lands). This work will be done under an MOU to be developed between the UCD and USFS.

Objective 3. Implement actions to restore upland hydrologic functions, reduce sediment production, increase shade and LWD recruitment potential in riparian areas, and protect resident fish and re-introduced anadromous fish from entrapment in irrigation ditches. All projects will be monitored for effectiveness.

Products:

Task a). Ten miles of road will be decommissioned in priority subwatersheds. Road decommissions will, at a minimum, include removal of all culverts, ripping of the road surface, stabilization of any cracked or unstable fills, and revegetation of the road surface. Elimination of these roads will reduce sediment production and help restore natural drainage on hillslopes affected by the roads.

Task b). Construct riparian fences in the Rattlesnake Creek, Gilmer Creek, and other priority subwatersheds to protect approximately 5 miles of stream from the impacts of grazing. This will reduce sediment production and introduction to streams, and over time improve shade and bank stability by allowing increased vegetative development on the banks.

Task c). Selective thinning of overstocked or suppressed stands of hardwoods or conifers, and planting of hardwoods and conifers along middle and lower Rattlesnake Creek and lower Trout Lake Creek will result in better growing conditions for the remaining trees and planted seedlings. Long term, this will result in increased shade and more rapid development of large conifers in the riparian areas.

Task d). Removal of a 600 foot long, 8 foot wide, 8 foot high rock dike along Trout Lake Creek will reactivate the existing floodplain which has been inaccessible to high streamflows since 1979 due to dike construction. Dike removal will aid in dissipating stream energy associated with high flows, and improve sediment storage capability, flood water retention, and ground water recharge. Side channel fish rearing habitat will also be increased by dike removal.

Task e). Installation of up to 7 irrigation diversion screens will reduce the number of fish killed by entrapment or stranded in irrigation ditches.

Objective 4. Expand public involvement and environmental education throughout the watershed through projects that will involve landowners and students in on-ground restoration, monitoring activities, and cooperative planning processes.

Products:

Task a). The first phase of the WCW project will result in the creation of a readily accessible stockpile of “watershed emergency” response materials which will be made available to virtually every watershed stakeholder. The centrally located repository will include stockpiles of erosion control mat, silt fence, oil-absorbent booms, toxic waste containers, grass seed, hay bales, sand bags and other materials in amounts deemed adequate for meeting most common local emergencies.

Task b). A total of 2-3 “Whitewater Trash Rodeo” events will be organized during this project. During each such event, an average of 25 tons of waste will be removed from the White Salmon River canyon. Furthermore, 70 participants per event will receive education in various deep-canyon waste removal methods being developed by the UCD, including the use of floating containers, skylines, helicopters and rafts.

Task c). The Columbia High StreamWalk™ class will educate 20 students per year in the science of watershed assessment and restoration. Students will receive extensive training in water quality monitoring techniques, including continuous temperature recorders, fecal coliform analysis and others. Each student will produce a graded monitoring report at the end of the term, from which an assessment of program achievement will be derived.

Task d). A watershed symposium will be hosted in 2004 by the WMC and TAC designed to convey the technical and educational results of this five-year project. The workshop will target the involvement of at least 75 scientists, educators, landowners and others who are interested in the promotion of watershed enhancement in southwestern Washington and northwestern Oregon. The event will provide a forum for sharing the successes and shortcomings of the White Salmon effort in light of other projects occurring in the Mid-Columbia region.

Objective 5. Validate overall effectiveness of restoration work and track water quality conditions over time.

Products:

Task a). Basic water quality data will be available from 18 monitoring stations located throughout the watershed. Data will include: continuously recorded water temperature (collected through summer months), nutrients, bacteria, pH, turbidity, dissolved oxygen and conductivity (collected in grab samples to be taken quarterly and/or during discretionary sampling).

Task b). Annual review and analysis of the data by the Technical Advisory Committee will result in a summary of water quality conditions, identification of potential problem areas in the watershed, and provide the basis for a long term gauge of the effectiveness of enhancement activities.

**f. Methods**

Objective 1 (Tasks a-d). Coordination of the WMC and TAC will continue to utilize methodologies established by the UCD and cooperators during initiation of the White Salmon River Watershed Enhancement Project beginning in 1992. Many design templates were examined by the WMC prior to format adoption, including the Applegate Partnership, Grande Ronde Watershed and Puget Sound processes. A hybrid process was finally adopted which utilizes most of the components of the Puget Sound process (Managing Nonpoint Pollution: An Action Plan for Puget Sound Watersheds, 1991, Puget Sound Water Quality Authority, Seattle).

Objective 2 (Task a). Stream habitat and riparian surveys will be done on 40 miles of USFS and private land streams. Streams to be surveyed on FS land include: Wicky Creek, Morrison Creek, Buck Creek, No-name creek, Cascade Creek, Gotchen Creek, Hole in the Ground Creek, Green Canyon Creek, and Ninefoot Creek. The surveys will follow the USFS Region 6 Stream Inventory Handbook guidelines for Level 2 surveys. This survey will quantify key habitat types (i.e. pools, riffles), key habitat features (i.e. LWD, spawning substrate) and classify channel types according to Rosgen (1994). Riparian surveys will categorize vegetation into major plant association types, and determine seral stage, locations of landslides, mass wasting, other areas of bare ground, and grazing impacts. An emphasis will be placed on locating and assessing restoration needs. Fish population sampling will follow the Hankin and Reeves methodology (1988) Electrofishing and/or daytime snorkeling will be done on all streams with no suitable bull trout habitat. In all streams with suitable bull trout habitat the protocol developed by WDFW in 1999 under BPA grant #9095 will be followed. Streams on USFS land to be surveyed for bull trout include: Cascade Creek, Buck Creek, Wicky Creek, Morrison Creek, and the White Salmon River mainstem.

Task b). Location of all water diversions will be identified and mapped with the assistance of landowners and irrigation companies. All fish passage problems will be documented and recommendations for improvement will be provided. Fish screens will be purchased and placed on unscreened water diversions in fish bearing waters with the cooperation of the landowner and irrigation company.

Task c). Existing and new water quality data throughout the watershed (including UCD, USFS, and Yakama Indian Nation) will be combined in an Access database that is spatially linked to monitoring locations through the Forest Service Geographic Information System (GIS). Watershed-wide stream survey data will similarly be consolidated in the stream survey SMART database which is spatially linked through the GIS system. Existing coverage in the USFS GIS will be expanded to include all ownership in the watershed. This work will occur under an MOU to be developed between the USFS and UCD.

Objective 3. Task a). Ten miles of road will be decommissioned within the watershed to reduce sediment inputs and restore upslope hydrologic function. Roads on USFS land will be decommissioned using BMP's and in accordance with the USFS Technology and Development Manual (1996) after appropriate NEPA work is completed. Decommissions occurring on state and private land will meet state prescribed standards. Work will be conducted using best management practices, and in accordance with the Washington Hydraulic Permit Approval process. All culverts will be removed, and these sites will be treated with a combination of native or non-invasive grass seed, erosion control matting, mulch, and hardwood plantings to stabilize and control surface erosion, and to promote bank stability. Road surfaces

will be ripped through the rooting zone, and treated with native (or non-invasive) grasses, shrubs and/or trees. Unstable portions of fill will be removed and stabilized. Effectiveness of the stabilization and revegetation of the road will be assessed using permanent photo points established at selected project sites. Candidate roads are listed in the Trout Lake Creek, Cave/Bear Creeks, Upper White Salmon River, and Rattlesnake Creek (Panakanic) watershed analyses. Accomplishment of road restoration activities proposed under this project is broadly supported. In addition to the 10 miles of road decommission proposed funded under this application, private timber companies have committed to closing an additional 35 miles of road to public access

Task b). Five miles of riparian protection fence will be installed in areas with identified needs. Exact locations of the proposed fencing will be determined from the stream and riparian surveys identified under objective 2. Fences will be constructed of 4-strand barbed wire, and will be designed in accordance with NRCS specifications. Total in-kind commitment for this task is \$27,850 from NRCS, Champion, USFS, and USF&WS.

Tasks c). Proposed thinning of riparian vegetation would entail removal of some of the excessively dense and suppressed conifers, hardwoods or shrubs in the riparian area to reduce competition for nutrients and sunlight. The objective is to accelerate growth of the remaining trees, to promote shade and faster development of large trees in the riparian area. Existing trees that are providing critical shade or bank stability will not be removed. These tasks are well-leveraged with in-kind contributions from the WA DOE, private landowners, and USF&WS. Total contributions are \$27,131.

Task d). Removal of a 600 foot long dike along the streambank of Trout Lake Creek will reactivate the floodplain which has been inaccessible to high streamflows since 1979 due to dike construction. The dike will be dismantled using a tractor mounted excavator and a dozer. Existing trees displaced during project work and/or new seedlings will be planted along streambanks.

Task e). Up to seven irrigation diversion screens will be installed under this task to protect fish from getting stranded in irrigation ditches. UCD will work with landowners to help educate them on the values of screening. Technical design assistance will be offered, as well as cost share options for the landowner. In-kind support for this task will be contributed by NRCS and private landowners in the amount of \$14,410.

Task f). Permanent photo stations will be established at selected restoration projects to assess the effectiveness of treatments. Photo stations will consist of a permanently fixed support upon which a rotating platform is attached. A camera is placed on the platform and can take a panoramic series of photos at specified intervals. Comparison of these photos provides an excellent monitoring tool. This method has proven effective on restoration projects previously completed in the White Salmon watershed.

#### Objective 4.

Task a). The first phase of the Watershed Conservation Warehouse (WCW) project will be a cooperative effort involving watershed agencies and businesses in the establishment of a functional, centrally accessible stockpile of watershed emergency response materials. Cooperators will include county emergency response departments, USFS, adjacent watershed groups, public works departments, sheriff offices, and businesses. Access to stockpiles will be coordinated and publicized. Stockpile space will be provided as an in-kind donation. Materials will be made available on request, with the understanding of reimbursable cost. The Technical Advisory Committee, UCD and other cooperators will accomplish oversight of the project.

Task b). The White Salmon River Whitewater Trash Rodeo event will seek to involve local landowners and volunteers in river stewardship via the clean up of several solid waste sites along the river. Volunteers will be involved in the application of several innovative river clean-up methods developed and successfully applied under the project during the past three years. Two very visible means will be utilized to accomplish debris removal from the canyon. First, local kayakers will be involved in the “herding” of watertight trash filled containers down a 5-mile stretch of the “wild and scenic” designated section near BZ Corners.

Containers will then be off-loaded at Northwestern Lake for disposal. The second anticipated removal method would utilize helicopters for lifting and transporting auto bodies/other large debris, which had been dumped on the river shore decades ago. Volunteers will help with filling cargo nets, rigging, and unloading trash from the nets at the disposal site. The third method for removing trash will involve the use of volunteer rafts, river outfitters and individuals to clean-up dispersed debris along the river. A primary in-kind contributor to the event will be the NorthWest Service Academy (AmeriCorp program) who will assist in event coordination and community education. Local and regional newspapers and television stations will report the events. The Whitewater Rodeo will be supported through in-kind donations from the Northwest Service Academy, rafting outfitters, Klickitat County, and BPA Aircraft Services. Total contributions expected from these organizations amount to \$12,100.

Task c). The Columbia High School StreamWalk™ project is now in its fourth year of operation. It targets water quality monitoring of Rattlesnake Creek using a curriculum modified from both Project Green and EPA Region 10's StreamWalk™ methods. Future improvements to the class will include adoption of restoration projects designed to reduce above-standard temperatures in Rattlesnake Creek. In-kind commitments include \$3,040 from the White Salmon High School and Washington State Department of Fish and Wildlife.

Task d). A watershed symposium will be hosted in 2004 by the WMC and TAC designed to convey the technical and educational results of this five-year project. The workshop will target the involvement of at least 75 scientists, educators, landowners and others who are interested in the promotion of watershed enhancement in southwestern Washington and northwestern Oregon. The event will provide a forum for sharing the successes and shortcomings of the White Salmon effort in light of other projects occurring in the Mid-Columbia region.

Objective 5. Task a). This task proposes to conduct water quality monitoring at 18 stations across the watershed to assess overall effectiveness of watershed treatments on water quality. These stations are not set up to monitor individual projects, but will allow for identification of changes in water quality at the subwatershed scale. Currently, there is approximately three years of baseline data from these stations. Sampling and analysis procedures will follow standard methods under a Department of Ecology approved Quality Control and Quality Assurance plan developed by the UCD and USFS. Regularly scheduled sampling will occur quarterly to assess seasonal variation in water quality parameters, and discretionary monitoring will be done to identify changes in water quality during particular flow conditions.

Task b). The TAC will conduct annual review and analysis of water quality data. The purpose is to identify changes in overall water quality from each of the major subwatersheds within the White Salmon sub-basin. The data will be used diagnostically as an indicator of upstream and upslope watershed conditions, and will allow for long term monitoring of changes in water quality. Determination of background (current) conditions for most general water quality parameters has been under way in the watershed for the past five years through work by the UCD and USFS. Data analysis will entail identification of change in individual parameters from the current levels. Long term changes in water temperature will be assessed using a degree-day approach to account for the strong annual variations in ambient temperature. Analysis of all data will include indexing samples to season of collection and discharge levels obtained from the USGS gauging station on the lower White Salmon River.

#### **g. Facilities and equipment**

All major facilities and equipment needed to complete the proposed work plan are presently secured. The UCD and USFS will donate field and monitoring equipment (including spectrophotometer for nitrate/nitrite analysis) for use. The UCD, NRCS and

USFS will provide transportation including trucks. Furthermore, all laboratory space, offices, computers, workshops will be supplied by the USFS, UCD, USF&WS and NRCS.

**h. Budget**

Project personnel rates are based upon standard wage tables utilized by the respective agencies. The calculation of benefit costs is likewise a product of standard percentages charged for medical insurance, retirement, vacation, sick leave and holidays. Supply costs include reforestation supplies, fish screens, survey equipment, fencing, and educational items. Operations and maintenance costs are intended solely to cover the costs of UCD office rent, telephone, mailing and phone. Travel amounts are intended to cover actual costs accrued from the use of agency vehicles. Standard agency cost re-imbusement tables will be utilized for calculation of voucherable expenses.

Note that financing of the White Salmon River Watershed Enhancement Project is well distributed among a number of supporters. This important fact is evidenced by the high level of cost-sharing partners. This level of support is due to several, long-standing, stable partnerships that have grown within the basin during the past five years.

**Section 9. Key personnel**

Steve Stampfli	UCD	Watershed Coordinator	616 hrs.
Duties: Project Management, Watershed Committee and TAC leader, community education, restoration planner, and water quality monitoring			
Betsy Scott	USFS	Fish Biologist	440 hrs.
Duties: Riparian, fish habitat and population surveys, restoration, TAC member			
Bengt Coffin	USFS	Hydrologist	216 hrs.
Duties: Water quality monitoring, restoration, TAC member			
J.Gardner Johnston	UCD	Watershed Technician	984 hrs.
Duties: Watershed committee involvement, education,			

Resume for **Steve Stampfli**

Experience

- 1988-Present      Manager, Underwood Conservation District, White Salmon, WA.  
Current responsibilities: Guide functions of the district including office management, technical assistance to private landowners and governments on natural resource topics, grant writing and administration, and managing on-ground projects.
- 1984-1987      Environmental Coordinator, Wharf Resources Inc. Annie Creek Mine, Lead, SD.
- 1981-1984      Director, SD Department of Water and Natural Resources – Exploration and Mining Program, Pierre, SD.
- 1980-1981      Mine Reclamation Specialist, SD Department of Water and Natural Resources, Pierre, SD.

<u>Education:</u>	<u>School</u>	<u>Degree Received</u>
	Duke University, Durham, NC	Masters of Environmental Management
	Colorado College, Colorado Springs, CO	B.A., Biology

Expertise: Prime topics of expertise include watershed management methodology, disturbed land restoration, environmental monitoring and coordination of various governments and private interests.

Publications and Reports (five most relevant)

- Stampfli, S. 1994a. White Salmon River watershed: basin land-use investigation report. Underwood Conservation District White Salmon, WA.
- Stampfli, S. 1994b. White Salmon River watershed: basin water quality investigation report. Underwood Conservation District, White Salmon, WA.
- Stampfli, S. 1992. Restoration of steep slopes adjacent to roadways in south central Washington. Underwood Conservation District, White Salmon, WA.
- Stampfli, S. 1989. Water quality survey of Underwood Conservation District, Skamania and Klickitat Counties, WA. Underwood Conservation District, White Salmon, WA.
- Ring, C., S. Stampfli, and B. Parish. 1986. Broad-winged hawk nesting in the Black Hills of South Dakota. South Dakota Bird Notes. Volume 6, Rapid City, SD.

## Resume for **Betsy Scott**

### Experience

1991 - Present Fisheries Biologist, Gifford Pinchot National Forest, Mt. Adams Ranger District, Trout Lake, Washington.

1986 - 1991 Fisheries Technician, Gifford Pinchot National Forest, Randle Ranger District, Randle, Washington, and Wind River Ranger District, Carson Washington.

1981 - 1985 Forestry Technician, Gifford Pinchot National Forest, Randle Ranger District, Randle, Washington.

Expertise: Primary areas of expertise include: participation on National Environmental Policy Act and watershed analysis teams, fish habitat surveys in streams and lakes, lake water quality sampling, and fish population sampling.

### Education

B.S. in Fisheries Science, Oregon State University, Corvallis, Oregon, 1991

B.S. in Recreation and Park Management, University of Massachusetts, Amherst, Massachusetts, 1981

### Publications and Reports

Scott, B. 1998. Fish habitat and population assessment for the Upper White Salmon River Watershed Analysis. Mt. Adams Ranger District, Gifford Pinchot National Forest.

Scott, B. 1998. Goose Lake Fish Population Monitoring. Mt. Adams Ranger District, Gifford Pinchot National Forest.

Scott, B. 1997. Fish habitat and population assessment for the Cave/Bear Creeks Watershed Analysis. Mt. Adams Ranger District, Gifford Pinchot National Forest.

Scott, B. 1997. Mt. Adams Ranger District High Lakes Survey Report. Mt. Adams Ranger District, Gifford Pinchot National Forest.

Scott, B. 1996. Fish habitat and population assessment for the Trout Lake Creek Watershed Analysis. Mt. Adams Ranger District, Gifford Pinchot National Forest.

## Resume for **Bengt Coffin**

### Experience

- 1991 - Present Hydrologist, Wind River Ranger District, Gifford Pinchot National Forest, Carson, Washington.
- 1990 - 1991 Hydrologist, Mt. St. Helens National Volcanic Monument, Gifford Pinchot National Forest, Amboy, Washington.
- 1988 - 1990 Research Assistant, College of Forestry, University of Washington, Seattle, Washington.
- 1987 - 1988 Assistant Water Quality Planner, Seattle METRO, Seattle, Washington.
- 1986 Water Quality Technician, City of Bellingham, Bellingham, Washington

### Expertise

Primary areas of expertise include: watershed analysis and watershed processes, water quality monitoring and assessment, upland restoration.

### Education

- M.S. in Wildland Hydrology, University of Washington, 1990.  
B.S. in Physical Geography, Oregon State University, Corvallis, Oregon, 1987.  
A.S. in Forestry, Feather River College, Quincy, California, 1980.

### Publications and Reports

- Coffin, Bengt 1997. Hydrology, water quality and stream channel assessment for the Cave/Bear Watershed Analysis. Mt. Adams Ranger District, Gifford Pinchot National Forest.
- Coffin, Bengt 1996. Hydrology, water quality and stream channel assessment for the Trout Lake Creek Watershed Analysis. Mt. Adams Ranger District, Gifford Pinchot National Forest.
- Coffin, Bengt 1993. Water quality monitoring results, White Salmon River basin assessment and enhancement project. Mt. Adams Ranger District, Gifford Pinchot National Forest.
- Coffin, Bengt, and Harr, Dennis 1992. Effects of forest cover on volume of water delivery to soil during rain-on-snow. Final report submitted to Sediment, Hydrology and Mass Wasting Steering Committee.
- Coffin, Bengt 1991. Effects of forest cover on rate of water delivery to the soil during rain-on-snow. Masters Thesis, University of Washington, Seattle, Washington.

## Resume for: **J. Gardner Johnston**

### Experience

- 1995-Present Watershed Coordinator, Underwood Conservation District, White Salmon, WA.  
Current responsibilities: Facilitate Wind River Action Committee. Coordinate and implement water quality restoration projects. Conduct water quality monitoring.



## **Section 10. Information/technology transfer**

How will technology or technical information obtained from the project be distributed or otherwise implemented? Methods can include publication, holding of workshops, incorporation in agency standards or facilities, and commercialization.

## **Section 10. Information/technology transfer**

Given the dynamic nature of a stakeholder-driven watershed restoration project, the communication of results is often best achieved via a local and interactive transfer process. For this reason, the project organizers are proposing to host a White Salmon River watershed restoration symposium at the end of this 5-year workplan (2004). The event will present an overview of watershed condition, project results, summary of future challenges and recognition of significant cooperators and contributors. Targeted participants will include neighboring Washington and Oregon watershed groups, the Gifford Pinchot and Mt. Hood National Forest offices, local educators, landowners, agencies and stakeholder groups. For the sake of economy, a one or two day event is proposed.

**Congratulations!**