

General Information

**Project Title**

White Salmon River Watershed Water Quality Implementation

**Project Short Description**

UCD will conduct riparian planting, exclusion fencing, livestock best management practices (BMPs), streambank protection water quality monitoring, education, and technical assistance work in the White Salmon River watershed. Implementation work is focused on improving or restoring riparian function and addressing water quality concerns along streams and ditches. While this proposal includes the entire watershed, focus will be on streamside agricultural areas of the Trout Lake Valley.

**Project Long Description**

This project includes riparian restoration, livestock BMP implementation, water quality monitoring, education and outreach, planning, and technical assistance to address water quality impairments and concerns in the White Salmon River watershed. UCD will implement projects already identified in the Trout Lake valley that focus on restoring riparian function and reducing contaminated runoff in the White Salmon River basin.

Impairments are anthropogenically caused by a lack of riparian vegetation, channel widening, and reduced summertime base flows. Additionally, agricultural use of the Trout Lake Valley introduces vegetation trampling along riparian areas by livestock, potential contaminants such as soil amendments and livestock manure, and flood irrigation practices which can transport contaminants into waterways. Several water quality concerns are known and documented in the Trout Lake Valley. Stream temperature, dissolved oxygen and fecal coliform bacteria are Category 5 303d listings along the White Salmon River, Trout Lake Creek, and other nearby ditches and tributaries. Other watershed assessments and plans document the need for riparian buffer restoration, streambank protection, livestock exclusion and other water quality best management practices (BMPs).

Trout Lake Valley demographics show that new landowners are managing many of the streamside properties, and while they are enthusiastic about agricultural use of the land and watershed health, many have moved from urban areas and are interested in hands-on learning opportunities to best understand proper land management. Common agricultural practices, such as amending the soil, managing livestock waste, providing livestock water, and irrigating crops, must be well-informed and well-implemented to prevent water quality contamination.

The Trout Lake Valley hosts a productive trout fishery, and the White Salmon River and its

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**General Information**

tributaries downstream host re-colonizing salmon and steelhead, since the breaching of Condit Dam in 2011. The water quality of the White Salmon River and its tributaries is a human health concern since they are increasingly popular for whitewater rafters, kayakers, anglers, and other recreationists. Approximately 50,000 boaters are on the river each year (USFS-CRNGSA 2018).

The water quality monitoring task consists of two components: 1) keep up an existing network of temperature loggers and submit the hourly temperature data to Ecology's EIM database and the end of the grant, 2) conduct quarterly water quality monitoring within three areas of primary concern that have been identified as being impacted by upstream land uses. The existence of the stream temperature network allows for affordable data collection and submission to the EIM database, allowing Ecology to update impairment listings to reflect current conditions. UCD will conduct quarterly water quality monitoring in the Trout Lake, Gilmer and Rattlesnake Creek areas within the White Salmon River watershed, measuring temperature, dissolved oxygen, total suspended solids, total nitrogen, total phosphorous and fecal coliform. This data will guide and support future project development and document changes resulting from BMP implementation.

Education and outreach activities will target landowners managing streamside properties and promote understanding of stream dynamics, anthropogenic affects on stream health and water quality, proper riparian stewardship and enhancement, and related livestock and agricultural BMPs. This effort will lead to continued future participation in UCD's clean water programs.

UCD will provide technical expertise and project planning assistance to empower landowners in understanding their land management in the larger context of watershed health, streambank stability, riparian function, and water quality. This technical assistance will directly lead toward BMP implementation projects planned and funded by this grant.

**Total Cost** **Total Eligible Cost \$333,302**

**Effective Date** **Expiration Date 7/1/2022**

- Project Category**
- ✓ Nonpoint Source Activity
  - On-Site Sewage System
  - Stormwater Activity0

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General Information

Stormwater Facility  
Wastewater Facility

Yes

**Will Environmental Monitoring Data be collected?**

Water Quality

**Ecology Program**

**Overall Goal**

The goal of this project is to address known water quality concerns and 303d-listed impairments through the implementation of BMPs that restore riparian function and reduce contaminated runoff in the White Salmon River watershed. Outreach, education, technical assistance and BMP projects with private landowners will increase responsible stewardship and management of streams, riparian areas and adjacent agricultural lands. This project will improve water quality and habitat for spawning and rearing of resident rainbow trout and cutthroat trout, as well as federally-listed fish present in the watershed downstream, including steelhead, Chinook, Coho, bull trout and lamprey. This project will also improve water quality for approximately 50,000 visitors who float on and recreate in the White Salmon River each season.

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Organization: Underwood Conservation District

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**Project Characterization**

**Project Themes**

Select a primary and secondary theme that best describes the work to be achieved during this project.

- Primary Theme: Nonpoint Source Pollution
- Secondary Theme(s): Agricultural Best Management Practices BMP
- Education & Outreach
- Riparian/Wetland Restoration
- Site Specific Planning for BMP Implementation
- Other BMPs
- Monitoring and/or Maintenance

**Project Website**

If your project has a website, please enter the web address below.

After entering a website and saving, another blank row will appear. Up to three websites may be provided.

Website Title/Name	Web Address
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Recipient Contacts

**Project Manager**

Carly Lemon

*Contact Information*

Carly Lemon

P.O. Box 96  
White Salmon, Washington  
98672  
(509) 493-1936

carly@ucdwa.org

**Authorized Signatory**

Tova Tillinghast

*Contact Information*

Tova Tillinghast  
Manager  
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**Billing Contact**

ANN GROSS

*Contact Information*

ANN GROSS  
ADMIN/FINANCIAL MANAGER

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Recipient Contacts

PO BOX 96

WHITE SALMON, Washington  
98672  
(509) 493-1936

ann@ucdwa.org

**Other recipient signatures on printed agreement**

**Name**

**Title**

Funding Request- Nonpoint Project

**Total Eligible Cost:** \$333,302

**Grant Request**  
**Will your match be cash-only?** Yes  No

**Grant Request:** \$249,977  
**Match Required:** \$83,326

**IMPORTANT NOTICE.** Grants for nonpoint projects require a 25% match. Projects with cash-only match are eligible for up to \$500,000 in grant. Projects with a mix of funds for match are eligible for up to \$250,000 in grant. Cash match includes any eligible project costs paid for directly by the recipient that are not reimbursed by the Ecology grant or another third party. Donations that become the long-term property of the recipient are considered cash match. Loan money provided through the CWSRF is also considered cash match. In-kind contributions are considered non-cash match. More information on match requirements can be found in the Water Quality Combined Financial Assistance Guidelines which are available for download on the Application Menu.

**Loan Request**  
**Are you requesting or will you accept loan funds for part or all of the eligible project costs or to meet your match requirement?** Yes  No

**What is the loan amount you are requesting or willing to accept?**  
**What loan term do you prefer?** 5 years 20 years 30 Years

**IMPORTANT NOTICE.** Ecology may provide special loan funding for nonpoint projects in the following case: (1)

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Funding Request- Nonpoint Project

projects that meet the criteria for "green project reserve" may receive up to 25% forgivable loan. Ecology will determine eligibility for special funding when developing funding packages.

**Other Funds**

Do you have any secured funds committed to this project?  Yes  No

If Yes, complete the Secured Funds Table, and include any secured matching funds if known.

**Secured Funds Table**

**Source\*** **Type\*** **Amount Committed\***

State/Federal agency:

State/Federal agency:

State/Federal agency:

Interlocal contributions: Cascade

Mountain School, Trout Unlimited and

Yakama Nation staff/volunteers

Interlocal contributions:

Local agency:

In-kind contributions: landowner time, materials, equipment for BMP projects

Other landowner monetary contribution to BMP projects

In-kind \$55,000.00

In-kind \$23,325.00

Cash \$5,000.00



Scope of Work - Task 1 Project Admin: 1

<b>Task Number</b>	1
<b>Task Title</b>	Project Administration/Management <b>Task Cost</b> \$27,975.00
<b>Task Description</b>	<p>A. The RECIPIENT shall carry out all work necessary to meet ECOLOGY grant or loan administration requirements. Responsibilities include, but are not limited to: maintenance of project records; submittal of requests for reimbursement and corresponding backup documentation; progress reports; and a recipient closeout report (including photos).</p> <p>B. The RECIPIENT shall maintain documentation demonstrating compliance with applicable procurement, contracting, and interlocal agreement requirements; application for, receipt of, and compliance with all required permits, licenses, easements, or property rights necessary for the project; and submittal of required performance items.</p> <p>C. The RECIPIENT shall manage the project. Efforts include, but are not limited to: conducting, coordinating, and scheduling project activities and assuring quality control. Every effort will be made to maintain effective communication with the RECIPIENT's designees; ECOLOGY; all affected local, state, or federal jurisdictions; and any interested individuals or groups. The RECIPIENT shall carry out this project in accordance with any completion dates outlined in this agreement.</p>

**Task Goal Statement**  
 Properly managed and fully documented project that meets ECOLOGY's grant or loan administrative requirements.

**Task Expected Outcomes**  
 \* Timely and complete submittal of requests for reimbursement, quarterly progress reports, and RECIPIENT closeout report.  
 \* Properly maintained project documentation

**Recipient Task Coordinator**  
 Carly Lemon

Deliverables	Deliverable #	Description	Due Date	Received?	EIM Study ID	Latitude	Longitude	Location Address
	1.1	Quarterly Progress	10/1/2019					

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Scope of Work - Task 1 Project Admin: 1

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1.2	Reports	
	Recipient Closeout Report	7/1/2022
1.3	Project Outcome Summary Report	7/1/2022

Scope of Work - Additional Tasks: 2 - Water Quality BMPs

Task Number	Task Title	Water Quality BMPs	Task Cost
2	Task Description	<p>UCD will target 7,000 linear feet of stream corridor to implement best management practices for the primary purpose of reducing temperatures and bacteria, but also to provide bank stability, buffering of other agricultural run-off inputs, and habitat complexity. Specific BMPs include riparian buffer enhancement and livestock exclusion, but may also address nearby agricultural/livestock inputs such as manure, soil, or fertilizer using other eligible BMPs. The following projects, some of which involve more than one BMP, are identified:</p> <ul style="list-style-type: none"> <li>~1 mile of 35' wide riparian planting and livestock exclusion fencing along an irrigation ditch adjacent to flood-irrigated pastureland carrying surface water to the White Salmon River (landowners: Hyde and Childs; see Landowner Acknowledgement Forms).</li> <li>520 linear feet of 50' wide riparian planting along the White Salmon River adjacent to a dairy and its pastureland (landowner: Schmid; see Landowner Acknowledgement Form).</li> <li>350 linear feet of 50' wide riparian planting along the White Salmon River adjacent to farmland (landowner: Beeler; see Landowner Acknowledgement Form).</li> <li>125 linear feet of 50' wide riparian planting and streambank protection along severely eroding streambank of Trout Lake Creek adjacent to crop and pastureland (landowner: Pearson; see Landowner Acknowledgement Form).</li> <li>125 linear feet of reed canary grass suppression and 50' wide riparian planting along Trout Lake Creek (landowner: Farnham; see Landowner Acknowledgement Form).</li> </ul> <p>During Tasks 4, Outreach and Education, and Task 5, Technical Assistance, UCD will identify additional Stream Corridor BMP projects impacting an additional 600 linear feet of stream.</p> <p>UCD staff will attend training on riparian buffer planting, as available, in order to increase successful implementation.</p>	\$197,160.00*

Scope of Work - Additional Tasks: 2 - Water Quality BMPs

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UCD will do the following for each BMP installed as a result of this project:

- prepare post project inspection reports with before and after photos;
- complete an ECOLOGY BMP Approval Form for each site and submit it to ECOLOGY's Project Manager for review and approval prior to implementation;
- complete a Section 319 Load Reduction Report form in EAGL for BMPs installed;
- obtain a signed landowner agreement or conservation easement for each property and UCD; submit a copy to ECOLOGY's Project Manager prior to implementation;
- meet all cultural resource review process requirements and will develop and upload an inadvertent discovery plan to EAGL;
- install riparian buffers that comply with the requirements found in Appendix G of the Funding Guidelines State Fiscal Year 2020. UCD will develop a Riparian Planting Plan for each site and submit it to ECOLOGY's Project Manager for review and approval prior to implementation;
- develop a vegetation maintenance plan that covers the establishment and maintenance of the BMPs or riparian buffers for at least the first three years. This plan will detail responsibilities for both the landowner and UCD. The maintenance plan must be submitted to ECOLOGY's Project Manager;
- track the costs by landowner in payment requests submitted to ECOLOGY in order to ensure that the entire eligible cost of that BMP is reimbursed in full and does not exceed the financial assistance limit established in the funding guidance.

Task Goal Statement

The goal is the establishment of stream corridor best management practices along at least 7,000 linear feet of stream, that will decrease temperature and bacteria levels and improve water quality and riparian function in streams in the White Salmon River watershed in efforts to meet water quality standards for beneficial and recreational uses.

Task Expected Outcomes

7,000 linear feet of native riparian plantings, associated livestock exclusion fencing or other related eligible

Scope of Work - Additional Tasks: 2 - Water Quality BMPs

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BMPs, installed along riparian areas.

Improved stream health, riparian function and water quality by reducing stream temperature, bacteria levels, erosion, sediment and agricultural run-off to streams and ditches.

Site specific planting plans targeted at riparian buffer installation and long-term maintenance.

Recipient Task Coordinator Carly Lemon

Deliverables

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
2.1	Obtain a signed landowner agreement or conservation easement for each property and upload to EAGL prior to implementation. Provide a template agreement to the ECOLOGY Project Manager for approval before obtaining landowner signature.							

Scope of Work - Additional Tasks: 2 - Water Quality BMPs

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- 2.2 Upload to EAGL post project inspection reports with before and after photos.
- 2.3 Complete and submit the Section 319 Annual Load Reduction Reporting form in EAGL for BMPs installed by January 15th of each year and at project closeout.
- 2.4 Complete and submit a BMP Approval Form for each site and Riparian Planting and Maintenance Plan for planting sites to ECOLOGY's Project Manager for review and approval and upload to EAGL prior to implementation.
- 2.5 Complete and

Scope of Work - Additional Tasks: 2 - Water Quality BMPs

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submit a Riparian Planting plan for each site to ECOLOGY's Project Manager for review and approval prior to implementation.

2.6 Complete and submit all permitting and cultural resources review requirements for all project sites to ECOLOGY's Project Manager prior to implementation. Upload an Inadvertent Discovery Plan to EAGL.

2.7 Complete and submit a maintenance plan for each site to ECOLOGY's Project Manager and upload to EAGL.

Scope of Work - Additional Tasks: 3 - Water Quality Monitoring

Task Number	3
Task Title	Water Quality Monitoring
Task Cost	\$38,760.00*
Task Description	<p>The water quality monitoring task will consist of two components: 1) UCD will maintain an existing network of temperature loggers and submit the hourly temperature data to Ecology's EIM database and the end of the grant, 2) UCD will conduct quarterly water quality assessment monitoring within three areas of primary concern that have been identified during previous phases of water quality monitoring as being impacted by upstream land uses.</p> <p>UCD has an existing network of temperature loggers in the White Salmon River basin. UCD will update the existing Quality Assurance Project Plan for this work and continue to collect temperature data from this network of loggers. The existence of this network makes data collection very affordable and submission to the EIM database will allow Ecology to update water quality impairment listings to reflect current conditions.</p> <p>UCD will conduct quarterly water quality assessment monitoring in the Trout Lake, Gilmer and Rattlesnake Creek areas within the White Salmon River watershed. Six monitoring sites have been selected to monitor within the three areas of concern. The parameters to be measured are fecal coliform bacteria, conductivity, dissolved oxygen, pH, temperature and turbidity. These are a subset of watershed health parameters selected based on upstream land uses and BMP implementations planned under this scope of work. UCD will develop a Quality Assurance Project Plan for this monitoring and will use published Department of Ecology protocols and methods to conduct the sampling and analysis. UCD will upload all collected data to Ecology's EIM database. Much of the data that is being used by Ecology as a basis for water quality impairment listings in these areas is over ten years old, submitting more recent data for these areas of concern will allow Ecology to update water quality impairment listings to reflect current conditions.</p> <p>UCD has secured funding from the US Forest Service Columbia Gorge National Scenic Area and the Washington State Department of Agriculture Dairy Nutrient Management Program to do additional fecal coliform sampling and molecular source tracking analysis to further identify locations and sources of bacterial contamination in the watershed. Where possible, UCD will use results from that effort to further inform the monitoring effort and target BMP practices and implementation locations.</p> <p>Due to normal attrition and needed maintenance of existing equipment, UCD will repair, replace, or purchase additional monitoring equipment, as necessary, to facilitate monitoring and provide accurate</p>



**WATER QUALITY COMBINED FINANCIAL ASSISTANCE**

**Scope of Work - Additional Tasks: 3 - Water Quality Monitoring**

data. The following equipment will be eligible for purchase or service through this project: Hobo data loggers, sampling tools, meter calibration, data processing software, miscellaneous deployment hardware including rock bolts, drill bits and tools. The total cost of all equipment purchased under this project will not exceed \$5,000. Changes in equipment type or any additional equipment purchases must have prior approval from ECOLOGY's Project Manager to be eligible for reimbursement.

**Task Goal Statement**

Water quality parameters that will be the target of this monitoring effort have been selected based on either documented historic issues or known upstream land uses that may be negatively effecting water quality. These land uses (dairy farming, open cattle range, row crop farming, small scale poultry farming) are also the focus of our BMP implementation task. The focus of this monitoring effort in the Trout Lake, Gilmer and Rattlesnake areas is guided by results obtained from previous monitoring efforts by Department of Ecology and UCD.

A list of 303d water quality listings within the Trout Lake, Gilmer and Rattlesnake Creek areas is included in the uploads section. UCD has three primary goals of the monitoring effort: 1) provide updated data to Ecology to be used to update water quality impairment listings 2) continue data collection from existing network of temperature loggers to complete a 5 year data record 3) use monitoring data to evaluate the effectiveness of BMP implementation and guide future project development.

**Task Expected Outcomes**

High quality hourly temperature data following an approved QAPP will be successfully loaded into EIM. High quality fecal coliform bacteria, conductivity, dissolved oxygen, pH, temperature and turbidity data collected quarterly and submitted successfully to the EIM database.

1. UCD will collect hourly temperature data at eight long-term monitoring stations in the White Salmon basin. Collect quarterly fecal coliform bacteria, conductivity, dissolved oxygen, pH, and turbidity at six monitoring stations in the White Salmon basin.
2. UCD will develop and submit a Quality Assurance Project Plan (QAPP) to ECOLOGY's Project Manager for review and approval prior to conducting any water quality sampling.
3. UCD will submit all water quality monitoring data collected into ECOLOGY's Environmental Information

Scope of Work - Additional Tasks: 3 - Water Quality Monitoring

Management database (EIM) at the end of the grant period.

4. UCD will develop and submit a final water quality monitoring report, due by the project expiration date, to Ecology's Project Manager for review and approval.
5. UCD will develop a water year summary reports by January 1st each year. The water year reports will include a summary of water quality data collected and a comparison to previously collected data and water quality criteria. UCD will also post the water year summary reports on its website.
6. UCD will repair, replace, or purchase additional monitoring equipment, as necessary, to facilitate monitoring and provide accurate data.

Recipient Task Coordinator Carly Lemon

Deliverables	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
3.1	Submit a Quality Assurance Project Plan (QAPP) to ECOLOGY's Project Manager for review and approval prior to conducting any water quality sampling.	9/1/2019						
3.2	Collect hourly temperature data at eight long-term	7/1/2022						

Scope of Work - Additional Tasks: 3 - Water Quality Monitoring

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monitoring stations in the White Salmon basin. Collect quarterly fecal coliform bacteria, conductivity, dissolved oxygen, pH, and turbidity at six monitoring stations in the White Salmon basin.

7/1/2022

3.3

Develop and submit a final water quality monitoring report, due by the project expiration date.

1/1/2020

3.4

Develop a water year summary reports by January 1st each year. The water year reports will include a summary of water quality data collected and a comparison to previously collected data and water quality criteria. UCD will also post the water year

**Scope of Work - Additional Tasks: 3 - Water Quality Monitoring**

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summary reports  
on its website.

Scope of Work - Additional Tasks: 4 - Water Quality Education and Outreach

Task Number	Task Title	Task Cost
4	<p>Water Quality Education and Outreach</p> <p>UCD will conduct education and outreach about proper riparian function, streambank stewardship, water quality protection, and livestock/agricultural BMPs related to water quality. UCD has several avenues for distributing resources and information, and will provide a variety of ways for landowners to understand their role in stream function and water quality protection.</p> <p>UCD will conduct or participate in at least five community workshops and outreach events such as the White Salmon Riverfest to promote water quality awareness, riparian buffer stewardship, and participation in UCD's water quality programs. UCD will provide existing educational information and brochures related to water quality to those in attendance. Light refreshments may be provided at events, following ECOLOGY's rules. UCD will report the number of attendees and success of these events in its quarterly progress reports. UCD will provide at least 30 days advance notice via email to ECOLOGY's Project Manager prior to workshops to accommodate her attendance.</p>	\$20,391.00*
	<p>While 303d listed impairments in the watershed include temperature and bacteria, other known water quality concerns exist in the Trout Lake Valley. UCD has been contacted by at least seven concerned property owners with steep, eroding banks that are potentially threatening structures, depleting riparian vegetation, and creating turbidity and sedimentation in the streams. UCD has also identified five additional properties with severe streambank erosion. Several of these sites are adjacent to pastures, paddocks and cropland. ESA-listed fish inhabit the White Slamon River downstream of Trout Lake, and severe sedimentation can have a significant effect on habitat such as spawning. Riparian vegetation cannot get a foothold or gain any level of maturity and function without a stable streambank in which to grow. UCD will contract with a geomorphologist to participate in at least two public workshops for landowners. These workshops will provide much needed educational outreach to the public regarding the proper function of riparian buffers, livestock BMPs and subbasin stream dynamics affecting streambank erosion.</p> <p>UCD will make available to the public its "Landowner Handbook: A Guide to Best Management Practices in Skamania and Klickitat Counties" that provides educational information about livestock BMPs, streamside management, and on-site septic system maintenance. UCD will distribute the handbook to at least 200 residents and landowners in the White Salmon River watershed via workshops and outreach events.</p> <p>UCD will coordinate riparian buffer education learning with Cascade Mountain School's Trout Lake-based</p>	

Scope of Work - Additional Tasks: 4 - Water Quality Education and Outreach

STEM youth camp. UCD has already arranged with one of the riparian planting sites (from Task 2) for students to assist with riparian buffer site prep and learn about the value of properly functioning riparian areas and their connection to water quality. At least 30 youth will participate in hands-on learning about riparian buffers and water quality. UCD will report the number of students reached in its quarterly progress reports.

**Task Goal Statement**  
 Educated local landowners, streamside owners, livestock owners and youth who understand land use impacts on water quality and proper on-site septic system maintenance are more likely to properly manage land and water and participate in UCD's water quality BMP projects. UCD will also have increased visibility in the community as a resource for local landowners, enabling further recruitment for water quality BMP projects.

**Task Expected Outcomes**  
 Provide local education and promote water quality programs through various outreach avenues throughout the White Salmon River watershed.

**Recipient Task Coordinator**  
 Carly Lemon

**Deliverables**

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
4.1	Notify ECY project manager 30 days in advance of workshop.							
4.2	Conduct or participate in least five community outreach events to promote water quality BMPs and	7/1/2022						

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Scope of Work - Additional Tasks: 4 - Water Quality Education and Outreach

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4.3	stream stewardship. Distribute at least 200 landowner handbooks.	7/1/2022
4.4	At least 30 youth participate in hands-on riparian buffer and water quality lessons.	7/1/2022

Scope of Work - Additional Tasks: 5 - Water Quality BMP Technical Assistance

Task Number	Task Title	Task Cost
5	<p>Water Quality BMP Technical Assistance</p> <p>UCD's technical staff will provide technical assistance to at least 25 streamside and livestock landowners. Technical assistance can involve landowner meetings, consultations, site visits, and sharing of informational resources. UCD will develop project plans with landowners for Task 2, Water Quality BMP implementation. UCD's technical staff will recruit expertise for site-specific needs, such as streambank protection, and will consult with local NRCS staff, the district engineer, and a geomorphologist. Technical assistance will be focused on the connection between livestock BMPs, irrigation water management, streambank protection and water quality improvement. Through these landowner visits, additional stream corridor BMP projects will be developed and planned for implementation via Task 2 under this proposal or, if needed, in a future grant proposal.</p> <p>UCD will conduct at least five technical assistance visits with a focus on geomorphological processes, systemic watershed dynamics, and the importance of a healthy riparian buffer. UCD will contract with a professional geomorphologist and streambank protection engineer to conduct the five geomorphology site visits and necessary follow-up planning and design. One streambank protection project is already identified for treatment via Task 2, the Pearson property along Trout Lake Creek, however UCD will utilize expertise from the geomorphologist and/or engineer to develop the appropriate plan for streambank protection treatment. At least two additional streambank protection projects will be planned to be shovel-ready for implementation under a future grant proposal.</p> <p>As described above, changing demographics of the Trout Lake Valley indicate that new landowners are managing many of the streamside properties, and while they are enthusiastic about agricultural use of the land and watershed health, many have moved from urban areas and are in need of hands-on learning opportunities to best understand proper land management. One common agricultural practice, amending the soil for optimum fertility, must be well-informed and well-implemented to prevent water quality contamination. UCD will conduct soil testing related to proper nutrient and irrigation water management for at least 10 and up to 25 landowners not previously offered assistance. The soil test results will inform the landowners about nutrient availability in the soil. This information will help the landowners to make more conservative decisions about nutrient and fertilization requirements as well as irrigation timing in order to prevent excessive nutrient run-off from fields. Soil testing is a technical assistance offering rather than an</p>	\$49,016.00*



Scope of Work - Additional Tasks: 5 - Water Quality BMP Technical Assistance

environmental monitoring component of the project. UCD will not pay for soil testing at dairies.

**Task Goal Statement** At least 25 landowners will be informed about specific improvements that can be implemented on their properties, leading to increased participation in UCD's water quality BMP projects, under this proposal and in future proposals, as well as long-term stewardship of the land and water.

**Task Expected Outcomes** Technical assistance provided to at least 25 livestock owners. Technical assistance will include expertise on riparian buffers, streambank protection, livestock waste collection and storage techniques and irrigation water management.

**Recipient Task Coordinator** Carly Lemon

**Deliverables**

Deliverable #	Description	Due Date	Received? (ECY Use Only)	EIM Study ID	EIM System Link	Latitude	Longitude	Location Address
5.1	Provide water quality BMP technical assistance to at least 25 landowners.							
5.2	Provide geomorphology and riparian buffer technical Assistance site visits and follow-up project planning to at least 5							

Scope of Work - Additional Tasks: 5 - Water Quality BMP Technical Assistance

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landowners.

5.3 Summarize technical assistance services provided with details as to what work was provided and to whom in progress reports.

5.4 Provide soil testing to at least 10 landowners.

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**Scope of Work Summary**

<b>Task Title</b>	<b>Task Cost</b>
Project Administration/Management	\$27,975.00
Water Quality BMPs	\$197,160.00
Water Quality Monitoring	\$38,760.00
Water Quality Education and Outreach	\$20,391.00
Water Quality BMP Technical Assistance	\$49,016.00
<b>Total</b>	<b>\$333,302.00</b>

**Total Eligible Costs**  
(from the General Information Form)  
\$333,302.00

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Subcategory

**\*Are you applying to refinance debt for a wastewater facility project that has been completed (i.e., standard refinance)?**

Yes  No

**\*Do you want your project to be considered for GPR subsidy under the CWSRF program? (NOTE: Projects are only eligible if they meet EPA's GPR criteria, and applicants accept a CWSRF loan.)**

Yes  No

**\*Is this a wastewater facility project that includes Construction tasks for which you are seeking funding and is the population of the community that will pay for the project less than 25,000 and do you want to be considered for Financial Hardship subsidy?**

Yes  No

## Task Costs and Budget

**Describe the process used to estimate the cost of the project. If your process included reviewing****similar projects, describe how this review affected your estimate.**

UCD used our internal planning budget template to determine the total cost of the project by task. Staff costs were calculated based on UCD composite wage rates and estimated time needed to complete each task component based on other similar project work and tasks. UCD has managed several grants similar to this, including a recent Centennial Clean Water Grant in 2013 (grant agreement number G1300102) and in 2016 (grant agreement number WQC-2017-UnderCD-00095). We are experienced in estimating project costs and staff time for the various tasks involved in this proposal.

Task 2 implementation project costs were estimated based on the planned areas to be protected and planted and linear feet of fencing, using fiscal year 2015 NRCS payment rates and recent similar project costs. Additional costs that require a cultural resource survey would add to each project, and are not included in our proposed budget.

Task 3 water quality monitoring costs were calculated based on current vendor rates for data logger replacement and other associated hardware (Onset Company) and current lab fees (BSK lab, Vancouver, WA). UCD has experience conducting this work and understands the time and travel costs required for conducting sampling.

Task 4 outreach costs were estimated based on current printing rates at our local print shop. The cost to have a geomorphologist partner on a community workshop are based on current consultant rates. The light refreshment costs are based on the rate that is allowed by Ecology.

Task 5 technical assistance costs are based on staff time to provide eight hours of assistance to at least 25 landowners and 20 hours of assistance to five landowners for more time-consuming streambank protection project planning. Included is the cost of 20 hours of a consulting geomorphologist and 80 hours of engineering for five landowners involved in streambank protection and subsequent riparian planting projects. Also included here is the cost of providing up to 25 basic nutrient management soil tests to up to 25 recipients. The soil test costs are based on the lowest rate available from A & L Western Lab (Portland, OR).

**Describe the process used to determine that this project is the lowest cost solution to the problem.**

*If the proposed project is not the lowest cost, describe the other benefits or considerations such as feasibility, community acceptance, or coordination with other projects that influenced the decision making process.*

Underwood Conservation District takes pride in being accountable, efficient and effective in the work we do. Because of our non-regulatory role we are able to work openly with landowners to efficiently solve natural resource issues. The BMP projects proposed in Task 2 are low-impact, cost-effective solutions that will have lasting positive impacts on riparian health and

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**Task Costs and Budget**

water quality. The proposed projects are all based on approved and widely accepted NRCS best management practices and the estimated costs are based on fiscal year 2015 NRCS practice payment rates.

The temperature monitoring work proposed in Task 3 is extremely cost effective based on the existence of a temperature monitoring network that is already in place. The temperature monitoring equipment is already purchased and deployed; only staff time is needed to download this data, summarize and review the results and submit it to EIM. The additional water quality assessment monitoring for fecal coliform bacteria, conductivity, dissolved oxygen, pH, temperature and turbidity will also be cost effective. UCD is located in White Salmon, WA relatively nearby to all of the sampling locations. UCD staff has previous experience with this type of sampling and much of the equipment needed is already on hand.

The education and technical assistance proposed in Tasks 4 and 5 are also cost effective. With a small amount of education and guidance from UCD, landowners will be empowered to solve natural resource solutions on their property without further financial assistance. In many cases all it takes is awareness to get people involved in solving problems. UCD also provides an annual native plant sale with low-cost seedlings (not part of this grant proposal), which can serve as a resource for landowners capable of developing their own riparian buffer solutions. By increasing awareness of water quality issues in the White Salmon River watershed, UCD will encourage landowners to take personal ownership of the problem.

**Upload a detailed budget for the project and any supporting documentation, including engineers estimates, cost analysis, etc.**

**Attachment Description**

Detailed Budget

**Attachment**[\\_Upload/97460\\_906585-EcologyPlanningBudgetFY20.pdf](#)

**WATER QUALITY COMBINED FINANCIAL ASSISTANCE**

Organization: Underwood Conservation District

WQC-2020-UndeCD-00163

**Project Information**

**Project Length in months:** 36

*(The difference between the effective date and the expiration date on the General Information Page)*

**Project Start Date** 7/1/2019

*(The date the actual work will start, or if interim refinance, the date the work started)*

**Please identify all 12 digit HUCs in which the project work will be done.**

<b>HUC</b>	<b>Percentage</b>
170701050807	25%
170701050806	25%
170701050805	25%
17070105080	25%

**WATER QUALITY COMBINED FINANCIAL ASSISTANCE**

Organization: Underwood Conservation District

WQC-2020-UndeCD-00163

**Water Body and Water Quality Needs Addressed**

**Check all type(s) of water bodies that this project targets: \***

- Freshwater rivers
- Freshwater lakes
- Freshwater wetlands
- Ground water
- Direct marine water
- Saltwater estuary
- Other (specify):

**Check all the resource protection and regulatory requirements that this project addresses: \***

- Endangered or threatened salmonids
- Other Endangered Species Act protected species (specify):
- Protection of shellfish habitat
- National Pollutant Discharge Elimination System (NPDES) permit requirements
- State Waste Discharge Permit
- Other (specify):

**Check all the water quality parameters that this project targets: \***

- Dissolved oxygen
- Sediment
- Nitrogen
- Fecal coliform
- Phosphorus
- Temperature
- pH
- Other (specify):

**Identify the water bodies, any impairments (Category 4A, 4B, and 5 waters), and listing parameters that your project will address.**

**Water Body Name**

Rattlesnake Creek  
Indian Creek  
Gilmer Creek  
White Salmon River  
Trout Lake Creek  
Trout Lake Ditch

**Are you addressing a TMDL? Yes  No**



**WATER QUALITY COMBINED FINANCIAL ASSISTANCE**

Organization: Underwood Conservation District

WQC-2020-UndeCD-00163

**Water Body and Water Quality Needs Addressed**

**TMDL Name**

# WATER QUALITY COMBINED FINANCIAL ASSISTANCE

Organization: Underwood Conservation District

WQC-2020-UndeCD-00163

## Nonpoint Source Activity Project Information

### Check all the type(s) of project that apply:

- ✓ Agricultural best management practices (BMP)
- ✓ Other BMPs (**specify**): streambank protection and riparian planting
- ✓ Site specific planning for BMP implementation
- Groundwater/aquifer/wellhead protection and/or planning
- Lake restoration planning and/or implementation
- ✓ Public outreach and education
- ✓ Riparian/wetland restoration
- TMDL support
- ✓ Water Quality monitoring
- Other (**specify**):

### Is the project planning, implementation or a combination of both? \*

Planning    Implementation    ✓ Planning/Implementation

### Implementation Action

### Reference the plan(s) that describe this action, including page numbers and where a copy can be obtained

Work with dairy operators to identify and mitigate sources of fecal coliform	The White Salmon River Watershed Action Plan is available through the UCD website at - <a href="http://ucdwa.org/wp-content/uploads/2017/07/FINAL-ADOPTED-WS-Watershed-Action-Plan-Jan2014.pdf">http://ucdwa.org/wp-content/uploads/2017/07/FINAL-ADOPTED-WS-Watershed-Action-Plan-Jan2014.pdf</a> - page 16
Work with landowners to improve livestock management and reduce potential contaminants....	The White Salmon River Watershed Action Plan is available through the UCD website at - <a href="http://ucdwa.org/wp-content/uploads/2017/07/FINAL-ADOPTED-WS-Watershed-Action-Plan-Jan2014.pdf">http://ucdwa.org/wp-content/uploads/2017/07/FINAL-ADOPTED-WS-Watershed-Action-Plan-Jan2014.pdf</a> - page 16
Understand present conditions and identify data gaps in water quality data assessments	The White Salmon River Watershed Action Plan is available through the UCD website at - <a href="http://ucdwa.org/wp-content/uploads/2017/07/FINAL-ADOPTED-WS-Watershed-Action-Plan-Jan2014.pdf">http://ucdwa.org/wp-content/uploads/2017/07/FINAL-ADOPTED-WS-Watershed-Action-Plan-Jan2014.pdf</a> - page 16
Action Recommendation: eliminate unrestricted access to the river and riparian areas	The Washington State Conservation Commission's 2003 Limiting Factors Analysis for the White Salmon River Watershed, pages 48 and 71, is located in the uploads section or in hard copy at UCD office.
Action Recommendations: restore riparian function	The Washington State Conservation Commission's 2003 Limiting Factors Analysis for the White Salmon River Watershed, pages 48 and 71, is located in the uploads section or in hard copy at UCD office.
Restore riparian buffers and perform streambank protection	USDA-NRCS' 2000 White Salmon River Geomorphology Evaluation, pages 13-16, is located in the uploads section or in hard copy at UCD office.

Project Team

Fill out the following table to describe your Project Team, including staff, contractors, and partner agencies:

Team Member Name/and or Title	Key Responsibilities	Qualifications/ Experience	Estimated Total Hours Devoted to the Project	Who will take over the person's responsibilities if they are unable to work on the project?
Tova Tillinghast	<p>The District Manager, Tova Tillinghast, will oversee grant management. She will ensure that UCD staff working on projects under this grant do so effectively keeping adequate records and following proper procedures. Tova will review and sign all landowner agreements and the QAPP prior to implementation.</p>	<p>Tova has a BA degree in Politics and Environmental Studies and 17 years of work experience in community environmental education and natural resource management. She has a certification in Conservation Farm Planning and also has a certification in River Restoration from Portland State University.</p>	640.00	<p>The Underwood Conservation District Board of Supervisors is responsible for overseeing the UCD District Manager. If Tova is unable to do work on this project the UCD board will step in to sign landowner agreements and approve purchases. Ann Gross, financial manager would take a larger role in project administration if Tova were unable to work on the project.</p>
Carly Lemon	<p>Carly Lemon, watershed resource technician at UCD, will serve as grant manager for this proposal. Carly will work with landowners to develop landowner agreements for BMP implementation projects and will also conduct water quality monitoring. Technical assistance under this grant will be provided by</p>	<p>Carly has a B.S. in Environmental Science, a graduate certificate in river restoration and a graduate certificate in hydrology. Carly is also an NRCS certified planner. Carly has worked on water quality projects for 9 years. Carly has led the BMP implementation and water quality monitoring aspects of work under</p>	2060.00	<p>The Underwood Conservation District employs three full-time watershed resource technicians. If Carly is unable to work on this project, one or both of the other two watershed resource techs will step into her role.</p>

Project Team

Carly with help from NRCS specialists and conservation district engineers.	UCD's current Clean Water Grant and manages UCD's water quality monitoring program.	The Financial Manager, Ann Gross, has been successfully managing district finances for 15 years with clean audits.	Tova Tillinghast, the UCD District Manager would step into Ann's role if she were unable to complete her role in this project.
Ann Gross	UCD's Financial Manger, Ann Gross, will be responsible for keeping track of budget and submitting vouchers.	364.00	

*To add a team member, fill out a row and SAVE. A blank row will appear. To remove a team member, clear the contents of the entire row and SAVE. One blank row is always visible.*

**Describe similar projects that your project team or organization has completed. Note any deviations from the original proposal in scope, budget, or schedule and briefly describe project success and lessons learned. If the project was funded by Ecology, include the Ecology grant or loan number.**

Underwood Conservation District was awarded a Department of Ecology Centennial Clean Water Grant in 2013 (grant agreement number G1300102) and in 2016 (grant agreement number WQC-2017-UnderCD-00095). The purpose of these projects was to implement best management practices such as livestock exclusion fencing, off-stream watering, heavy use area protection and riparian plantings to reduce fecal coliform bacteria, enhance stream temperature, and improve the water quality of the White Salmon River and the Wind River (WRIRIA 29). The 2013 grant was completed with successful completion of all deliverables. The 2016 grant is underway; UCD anticipates successful completion of all deliverable under the 2016 grant agreement. UCD is a stable organization and has been working in the White Salmon River basin for over 75 years. We have long standing relationships with many of the landowners in the area and a strong reputation for providing landowner assistance and solutions to natural resource issues.

Project Schedule

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**Describe the steps you have taken to be ready to proceed immediately with the project. Provide detailed information and documentation on project elements such as status of designs, permits, interlocal agreements, landowner agreements, easements, other secured funding, staff, or agency approvals.**

*If applicable, describe the environmental review completed such as:*

- \* National Environmental Policy Act (NEPA)
- \* Environmental Review Process (SERP)
- \* State Environmental Policy Act (SEPA)
- \* Cultural Resource Assessment

**Task 2:**

UCD has already assessed current conditions via site visits, landowner meetings, and aerial photos. UCD has received signed landowner acknowledgement forms for the projects planned under Task 2. UCD anticipates having EZ-1 forms and signed landowner agreements in place soon after the start date of this grant and would therefore be able to proceed with projects very soon after the planned start date.

**Task 3:**

UCD already has an approved QAPP for the proposed monitoring work, and there is currently network of temperature loggers that are deployed in the White Salmon basin. Data collection from the existing network of loggers and submittal to EIM will be ready to proceed at the start date of the grant. UCD anticipates of quick turnaround for updating QAPPs and being ready to collect water quality data.

**Task 4:**

UCD has reviewed a geomorphologic study from 2000 by Janine Castro, then of USDA-NRCS, regarding streambank stability in the Trout Lake valley. UCD will enlist Ms. Castro to conduct a reconnaissance visit to the valley, refreshing her understanding of stream dynamics in the area, and provide information for the community of landowners experiencing streambank erosion and loss of property. UCD is already well-connected with partner organizations and local events, such as White Salmon Riverfest, and with several hundred printed copies of the Landowner Handbook, Septic System Maintenance publications and more, is poised to participate in community outreach events. Additionally, UCD has already planned potential educational activities with Cascade Mountain School, and will be ready to partner on youth camps as soon as the start date of the grant.

**Task 5:**

Technical assistance and soil sampling service will be made available to district residents as soon as the start date for this grant. UCD already has technical assistance guidance and project planning templates available and will be able to provide these services with little to no startup

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Project Schedule

time. In addition, expertise from UCD's consulting geomorphologist and engineer will be made available for individual property visits where riparian buffers first require a holistic approach to streambank stabilization and protection. This assistance and planning will be able to begin at the start date of the grant.

**Upload a Project Schedule that includes all tasks necessary to complete the project, including tasks that are not part of the funding request.**

**Attachment Description**  
Project Schedule

**Attachment**  
\_Upload/97696\_906603-ProjectSchedule.pdf

Project Planning and Development

**Describe the process used by your organization to select the project for implementation. In your description please include:**

- (1) All criteria used to evaluate the value, feasibility and site suitability of the proposed project.*
- (2) Alternatives to the proposed project that were considered.*
- (3) A list of project stakeholders, their involvement in the decision-making process, and their level of support for the project.*
- (4) The plan to ensure long term project success and maintenance of the water quality benefits.*

UCD has relied on guidance from the following stakeholders during the selection process for this project:

\*White Salmon River Watershed Management Technical Advisory Committee's prioritized Watershed Action Plan (see prioritized project list attached)

\* Yakama Nation Fisheries Watershed Planner (see letter of support attached)

\* District Landowners (see letters of support attached)

The work that UCD has proposed in this grant application is directly related to the roles that are specified for UCD in the White Salmon River Watershed Action Plan. UCD is seeking funding to carry out those roles.

The project development method for the White Salmon River Watershed Action Plan is as follows: The White Salmon River Watershed Management Committee and the technical advisory committee work collectively to identify and solicit projects and to prioritize these activities for funding and implementation. Top priority projects are submitted by sponsors to various funding sources, primarily state and federal agencies who allocate money for watershed enhancement, habitat restoration, or other priorities. To ensure that available funds flow toward the most important projects, proposed projects are put through a basin-wide prioritization process. Review of proposals and project prioritization is initiated by the TAC as needed, for technical merit. Proposals then may go through review by the Watershed Management Committee for community, socioeconomic and other considerations.

Once projects are developed under this method, they are put through a technical review process and ranked by the Watershed Management Committee and the Technical Advisory Committee. The projects are broken into four project groups by type. The groups are Habitat

Restoration Projects, Fish & Aquatic Passage Projects, Water Quality, Quantity & Monitoring/Assessment Projects and Education, Outreach & Technical Assistance Projects. The scope of work proposed in this grant is directly related to the top three priorities in the Water Quality, Quantity & Monitoring/Assessment Project group. The top three priorities are described as follows:

- 1. Work with dairy operators to identify and mitigate sources of fecal coliform. Steps may include improving waste and wastewater transfer, manure storage and composting to improve water quality (will be completed under Task 4 and Task 5).
- 2. Understand present conditions and identify data gaps in water quality assessments (will be completed under Task 3).
- 3. Work with landowners to improve livestock management and reduce potential contaminants, excess nutrients and sources of fecal coliform (will be completed under Task 2).

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Project Planning and Development

Underwood Conservation District is listed as the lead agency for completing this work listed above. The White Salmon River Watershed Action Plan is available online at: <http://ucdwa.org/wp-content/uploads/2017/07/FINAL-ADOPTED-WS-Watershed-Action-Plan-Jan2014.pdf>

UCD is well-known in the Trout Lake Valley and viewed as an ally and partner in conservation and restoration efforts. UCD has supported the four active dairies in the valley over many years through Dairy Nutrient Management Planning and frequent technical assistance. UCD is also limited to working with private landowners on a voluntary basis. This requires that we use outreach, education, and technical assistance to develop BMP projects. The projects identified in this proposal are based on known water quality threats as well as landowner willingness. UCD does not have the ability to do work at all sites experiencing water quality problems, however we are confident we have already and will continue to identify willing landowners with which to implement BMPs during the course of this grant. The opportunities for riparian restoration and livestock BMPs are plentiful, and with targeted outreach and technical assistance (Tasks 4 and 5 of this proposal), high priority projects have developed naturally.

**Attachment Description**

White Salmon River Watershed Action Plan

**Attachment**

\_Upload/97482\_906601-FINALADOPTEDWSWatershedActionPlanJan2014.pdf



## WATER QUALITY COMBINED FINANCIAL ASSISTANCE

## Water Quality and Public Health Improvements

**Name the water body(ies) the project will improve or protect and describe the current regulatory requirements and available planning documents for the water body. Include a description of any NPDES permitting requirements, TMDLs, or local watershed plans.**

Work under this grant will take place in WRIA 29 and will be focused on the White Salmon River watershed. The White Salmon River watershed has a White Salmon River Watershed Action Plan that was approved by the White Salmon River Watershed Management Committee and its technical advisory committee in 2014. . A technical advisory committee had helped identify projects in the watershed and develop a "Watershed Enhancement Project" List. In conjunction with the management committee, a project ranking process and criteria were formulated in order to consider scientific, social and economic factors. The goal of the action plan was to create a list of high-ranking watershed enhancement projects with short descriptions so that potential project sponsors and funding sources can easily identify high-priority work. This grant application seeks to fund the highest ranking projects listed under the water quality, quantity and monitoring project group. These projects aim to improve water quality, quantity and understanding of watershed functions. The following project descriptions are listed under this project group (page 16):

- \*Work with dairy operators to identify and mitigate sources of fecal coliform. Steps may include improving waste and wastewater transfer, manure storage and composting to improve water quality. (Will be accomplished under Task 2, Task 4 and Task 5)
- \*Work with landowners to improve livestock management and reduce potential contaminants, excess nutrients and sources of fecal coliform. (Will be accomplished under Task 2, Task 4 and Task 5)
- \*Understand present conditions and identify data gaps in water quality data assessments. (Will be accomplished under Task 3)

The White Salmon River Watershed Action Plan is available through the UCD website at - <http://ucdwa.org/wp-content/uploads/2017/07/FINAL-ADOPTED-WS-Watershed-Action-Plan-Jan2014.pdf>

The August 2011 White Salmon River Watershed Fecal Coliform Bacteria Attainment Monitoring Study (Ecology Publication No. 11-03-046) identifies potential sources of fecal coliform in the White Salmon River watershed, including, "unrestricted access of animals to streams and ditches [which] leads to manure runoff and direct discharges of manure...trampling and grazing [of] streamside vegetation, thus reducing the filtering and infiltration capacity of the riparian area" (page 23). Later the study recommends that sources of fecal coliform in the Trout Lake area "may best be remediated through a review of existing land-use practices, and by working with the local conservation district and landowners" (page 32). This study can be found at: <http://ucdwa.org/wp-content/uploads/2016/06/MWSR-FC-Report-2011.pdf>

The Washington State Conservation Commission's 2003 Limiting Factors Analysis for the White Salmon River Watershed outlines Action Recommendations for different areas of the watershed. For the Trout Lake Valley, both the White Salmon River and Trout Lake Creek share two Action Recommendations: eliminating unrestricted access to the river and riparian areas and restoring riparian function (Donald Haring, pages 48 and 71).

## WATER QUALITY COMBINED FINANCIAL ASSISTANCE

## Water Quality and Public Health Improvements

The USDA-Natural Resource Conservation Service (NRCS) evaluated the geomorphology of the White Salmon River in Trout Lake in 2000, resulting in a report summarizing conditions and recommendations for better stream health and water quality. The river was described as a “destabilized stream system that has been simplified and now lacks many important physical and biological components” (Janine Castro, page 21). Sections of the Trout Lake Valley have seen 3-7 feet of significant channel incision (vertical cutting), leading to dead and dying riparian vegetation. In addition, lateral channel instability (horizontal movement), has led to severe erosion in places and the loss of mature riparian trees. One observation was that agricultural activities along streams had led to clearing of riparian vegetation. Of the stream corridor management recommendations, the most relevant for this proposal involves establishing vegetation to reduce erosion: “Restoring a wide riparian buffer helps to maintain natural stream functions and good water quality (through the entrapment of excess nutrients and pesticides)” (Castro, page 13). A number of streambank protection measures were recommended, including vegetative plantings, grading and shaping, as well as tree and rock revetments (Castro, pages 14-16). While restoring riparian vegetation is vital, it cannot be successful when the streambank is unstable. This proposal includes strategic streambank protection planning, technical assistance, and implementation (at one site via Task 2) as a means to re-establish long-term, stable, riparian vegetation. Streambank protection is a necessary step in restoring riparian function and vegetative buffers, which in turn will protect and improve water quality, including stream temperature and bacteria levels documented in the 303d list.

**Describe how the project area is connected to this water body and how implementation of the project will meet regulatory requirements or support the water quality planning efforts listed above. Reference the specific requirements or recommendations that the project will address and discuss how the project will reduce or prevent the pollutants listed from entering the waterbody. All projects in the Puget Sound Region must include the elements of the Puget Sound Action Agenda that will be supported by the proposed project.**

All five of the proposed riparian buffer projects under Task 2 will take place along riparian areas, following Ecology’s required buffer widths for each water body. Projects are tied to work listed under the White Salmon River Watershed Action Plan, “Work with landowners to improve livestock management and reduce potential contaminants, excess nutrients and sources of fecal coliform.” Strategic streambank protection planning and implementation will provide stable banks for riparian buffers to become established over the long-term, and in turn provide the water quality benefits needed to address stream temperature and bacteria.

Task 3 involves collecting temperature data from an existing network of temperature loggers located in the White Salmon River basin. The purpose of this work is to monitor trends in water temperature in response to project implementation work done by UCD, and to provide department of Ecology with up-to-date data from which to amend or upgrade category 4A/5 temperature listings. This project work is tied to work listed under the White Salmon River Watershed Action Plan, specifically “Understand present conditions and identify data gaps in water quality data assessments.”

Task 4 involves at least five outreach events or workshops focused on best management practices and clean water. This education is a

## WATER QUALITY COMBINED FINANCIAL ASSISTANCE

## Water Quality and Public Health Improvements

necessary step for sound BMP implementation.

Task 5, the technical assistance task, involves providing assistance and soil testing focused on riparian buffer planting, streambank protection, livestock BMPs, nutrient management and irrigation water management. Both Task 4 and Task 5 are tied to work listed under the White Salmon River Watershed Action Plan, "Work with landowners to improve livestock management and reduce potential contaminants, excess nutrients and sources of fecal coliform." and "Work with dairy operators to identify and mitigate sources of fecal coliform. Steps may include improving waste and wastewater transfer, manure storage and composting to improve water quality."

**Describe the measure and method that will be used to determine the water quality benefit and overall success of the project.**

Water quality standards for temperature are based on a 7-day average of the daily maximum temperatures (7-DADMax). UCD will collect hourly temperature data and compare the 7-DADMax to the past record and water quality criteria. The goal is to see a downward trend in 7-DADMax over time. Temperature data is heavily influenced by low flow, high temperature drought.

Implementation projects planned under this grant will have positive benefits on temperature, fecal coliform bacteria, conductivity, dissolved oxygen, pH, temperature and turbidity in the White Salmon River basin. UCD will use before and after project photos and implementation metrics to estimate the water quality benefits.

**Using the method described above, estimate the water quality and public health benefits that will be achieved through implementing of the proposed project.**

A 2015 study completed by the University of Arizona ([http://cals.arizona.edu/~gimblett/White\\_Salmon\\_Final\\_Report.pdf](http://cals.arizona.edu/~gimblett/White_Salmon_Final_Report.pdf)) recorded nearly 30,000 rafters in the White Salmon River from June through October. Rafters on the White Salmon River come into a high level of contact with water and are frequently splashed in the face and mouth with water while on a rafting trip. A reduction in fecal coliform bacteria levels will decrease the risk of waterborne pathogenic diseases that can coincide with fecal coliform contamination and increase public health for the large number of locals and visitors who recreate on the White Salmon River.

Water temperature 7-DADMax will be compared to the historic record and any differences or changes in trends will be quantified over time. For example: Rattlesnake Creek has an aquatic life designated use as char spawning and rearing with a 7-DADMax of 12C. In years past the Rattlesnake Creek temperature logger has recorded a 7-DADMax of 15C and higher, which is the reason that Rattlesnake Creek has a category 5 listing. Temperature records collected during the life of this grant will be compared to historical results and the records will be submitted to Ecology's EIM Database. The goal of this grant is to show measurable improvements in temperature records over the long-term.

## Water Quality and Public Health Improvements

After BMP implementation upstream we may see a 7-DADMax of only 12C, for example, which would be a 3C improvement over historical results. Even small reductions 7-DADMax will benefit water quality and aquatic life because warm water holds less dissolved oxygen, making it more difficult for fish to breathe. This method will be completed for all monitoring locations, the results of the analysis will be compiled in Water Year summary reports and data will be submitted to department of Ecology through the EIM database.

**How long will the project provide a water quality benefit after the funding assistance ends? Who will be responsible for maintaining this benefit during its useful life?**

BMP implementation projects require that the landowner sign an operation and maintenance agreement requiring the landowner to maintain the project throughout its design life. These projects will all be maintained for a minimum of 10 years from implementation. Riparian planting projects are especially beneficial because as plants grow they become more effective in filtering and shading, therefore protecting and improving water quality, over time.

**Will any measures be taken to reduce greenhouse gases as part of the project? What policies or measures has your organization put in place to reduce greenhouse gas emissions apart from this project?**

Part of UCD's mission is to protect and enhance renewable natural resources. One of UCD's natural resource priorities in its long-term strategic plan is Climate Change Resiliency. Native plant riparian buffers installed during this project will serve as afforestation along waterways, protecting soil and increasing carbon sequestration. Increased shading and riparian function will protect stream flow and temperature so as to maintain better aquatic habitat under a changing climate. Where opportunities arise, UCD will encourage the use of renewable energy such as solar-powered off-stream watering stations, which produce no greenhouse gas emissions. UCD is centrally located in White Salmon. This location minimizes required travel time for education/outreach events, site visits, project implementation, and monitoring work. We are also frequently able to walk to larger inter-agency meetings.

**Upload a map or maps that show an aerial view of the project area, an estimated direction of flow for the project area, potential locations for the proposed facility or activity, and how the project connects to the water body named above.**

*These maps do not need to be precise but they should help the reviewer with a general understanding of the area. If access to GIS software is not available, screen shots or snips from Google Maps with arrows and text added using a paint program may be used.*

**Attachment Description**

White Salmon River Watershed Action Plan

**Attachment**

\_Upload/97484\_906599-FINALADOPTEDWSWatershedActionPlanJan2014.pdf

USDA-NRCS Geomorphology Evaluation

\_Upload/97484\_906599\_2-Castro2000.WhiteSalmonRiverGeomor

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Water Quality and Public Health Improvements

White Salmon River Limiting Factors Analysis  
Ecology WSR Watershed Fecal Coliform Bacteria Attainment Monitoring  
Study

rphicEvaluation.pdf  
\_Upload/97484\_906599\_3-LFA\_29a\_Report.pdf  
\_Upload/97484\_906599\_4-WSRFCReport2011.pdf

Environmental and Cultural Review

Instructions:

Please upload the appropriate documents. The type of project and the funding source you're applying for or have received determines the Environmental and Cultural Review documents that you must upload.

When done, click the SAVE button. If you have a wastewater or stormwater facility project, and you are applying for or have received a loan from the CWSRF, when applicable upload the following documents.

- SEPA Checklist
- SEPA Threshold Determination Affidavit of Publication of SEPA Threshold Determination
- Public Meeting Documents
- SERP Coversheet
- SERP Checklist
- SERP Determination
- Other SERP/SEPA Documentation
- Ecology 05-05/106 Review Form
- EZ-1 Form (If Ecology is the lead agency, an Ecology 05/05-106 Form is required)
- Cultural Review Final Determination
- DAHPC Letter of

Environmental and Cultural Review

Concurrence Completed activity/location specific Inadvertent Discovery Plan (IDP).

An IDP is not associated with consultation and is required in the event of a discovery during ground disturbance.

In addition to the above documents, if you are required to prepare a federal cross cutter report, when applicable upload the following documents.

- Cross Cutter Report
- Cross Cutter Checklist
- Cross Cutter Final Determination

If you have a stormwater facility project, and you are applying for or have received funding via SFAP but not CWSRF, when applicable upload the following documents.

- SEPA Checklist
- SEPA Threshold Determination Affidavit of Publication of SEPA Threshold Determination Ecology 05-05/106 Review Form
- EZ-1 Form (If Ecology is the lead agency, an Ecology 05/05-106 Form is required)
- Cultural Review Final Determination (No sensitive information

Environmental and Cultural Review

allowed)  
DAHPC Letter of  
Concurrence  
Completed  
activity/location specific  
Inadvertent Discovery  
Plan (IDP).

An IDP is not associated with consultation and is required in the event of a discovery during ground disturbance.

If you have a nonpoint activity, an onsite sewage system, or a stormwater activity project, regardless of the funding source, when applicable upload the following documents.

Ecology 05-05/106  
Review Form  
EZ-1 Form (If Ecology is  
the lead agency, an  
Ecology 05/05-106 Form  
is required)  
Cultural Review Final  
Determination (No  
sensitive information  
allowed)  
DAHPC Letter of  
Concurrence  
Completed  
activity/location specific  
Inadvertent Discovery  
Plan (IDP).

An IDP is not associated with consultation and is required in the event of a discovery during ground disturbance.

Upload Documents



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Environmental and Cultural Review

Description

Attachments