

# GIFFORD PINCHOT NATIONAL FOREST

## AQUATICS PROGRAM HIGHLIGHTS FY10



*North Fork Toutle River, Mount St. Helens NVM*

# 2010 AQUATICS PROGRAM TEAM



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*Fish Program Manager*



**Bengt Coffin**

*Hydrologist, Mount Adams RD*



**Stephanie Caballero**

*Fishery Biologist, Mount Adams RD*



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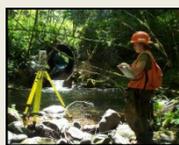
**Paul Smale**

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**Ken Sandusky**

*Public Affairs Specialist*

# 2010 NATIONAL FISHING DAY

## MOUNT ST HELENS NATIONAL VOLCANIC MONUMENT FISH DERBY

On June 12<sup>th</sup>, with the Forest service as the lead entity, WDFW stocked 1500 large catchable rainbow trout in a netted off section of Merwin Lake at the day use area in Ariel Park. 252 Kids enjoyed themselves, learned about fish, fish habitat and environmental ethics, and had a great time. Approximately 15 Forest Service personnel helped at the event along with over 50 volunteers.

*PARTNERS: Corwin Beverage, Washington Department of Fish and Wildlife, City of Vancouver, Washington, Fisherman's Marine Supply, PacifiCorp, Cowlitz County Fire District #1, Trout Unlimited-Clark County, WA, Camas Moose Lodge #1042, Mount St. Helens Institute, Livingston Mountain Alpacas, Broken T Guide Service, Fish First, Watershed Stewards, Woodland High School.11, Vancouver Branch NAACP, USDA Coalition of Minority Employees*



## MOUNT ADAMS RANGER DISTRICT FISH DERBY

The Mt. Adams Ranger District Fish Education Day took place on June 19<sup>th</sup>, 2010 near the Mt. Adams Ranger District's office in Trout Lake, Washington. The Washington Department of Fish and Wildlife-Goldendale Fish Hatchery donates over 1000 rainbow trout to this event every year. There were 300 children aged 12 and under and approximately 300 older youth and adults at this event. There were over 50 volunteers from all levels of governments and from the local community. Most importantly, almost 900 beautiful rainbow trout were caught by young, enthusiastic anglers.

*PARTNERS: Andy's Valley Service, Franz Bakery, Les Schwab Tires, USFWS-Spring Creek Fish Hatchery, Underwood Conservation District, Northwest Service Academy, Washington Department of Fish and Wildlife, White Salmon Steelheaders, Goldendale Fish Hatchery, Klickitat County Parks and Recreation Department, Trout Lake Fire Dept, Trout Lake General Store, Trout Lake Grange, Trout Lake High School, Skamania County*



## COWLITZ VALLEY RANGER DISTRICT FISH DERBY

On June 12<sup>th</sup>, The Cowlitz Valley-Fish Education Day took place at the Cowlitz Falls day-use area near Morton, WA. The Lewis County Public Utility District plants approximately 500 rainbow trout in a two acre pond and the Cowlitz Valley Ranger District and partners hosted about 200 kids ages 5-14 years of age who participate in the event. There is a half day ongoing interactive presentation on fish printing, casting and knot tying and more than 300 fish were taken and more than 25 awards offered to enthusiastic participants.

*PARTNERS: Lewis County Public Utility District, Girl Scout Troop #40337*



# OTHER OUTREACH AND EDUCATION

## 2010 NATIONAL GET OUTDOORS DAY

On June 12th, 2010 the GPNF Aquatics program was proud to partner with GPNF Recreation program and the City of Vancouver's Water Resources Education Center to co-host the second National Get Outdoors Day (GO Day) event in the Portland-Vancouver Area. GO Day is an annual nationwide event co-sponsored by the Forest Service and the American Recreation Coalition. This second annual event was designated to better engage urban and multicultural youth in nature-based activities and to attract first time visitors to public lands. Over 800 people came to participate in this youth-focused event.

*PARTNERS: Vancouver Parks and Recreation, Portland Parks and Recreation, Washington DNR, GPNF Invasive Species, Recreation and Urban Youth Programs, Vancouver Branch NAACP, USDA Coalition of Minority Employees*



## 2010 SURGEON FESTIVAL

On September 18, 2010, GPNF Aquatics again partnered with Washington DFW and the City of Vancouver-Water Resources Education Center for the 14<sup>th</sup> annual Surgeon Festival. This annual free family event brings hundreds to learn about sturgeon and entire Columbia River Ecosystems. Over 400 people participated in this event this year. GPNF Aquatics, Wildlife and Invasive Species Programs teamed up to provide hands-on activities and displays.

*PARTNERS: City of Vancouver, Washington DFW, GPNF Wildlife and Invasive Species Programs*



## 2010 COLUMBIA RIVER GORGE WATER JAM

Approximately 400 4th, 5th, and 6th grade students, along with their 25 teachers and parent chaperones from schools in the mid-Columbia River Gorge area (Washington state side) participated in an indoor/outdoor event in Underwood, Washington. Various federal, state, tribal, county, and non-profit agencies spent a total of two days hosting 10 schools and teaching wildlife behavior and biology, recycling and water quality, macroinvertebrate species and distribution, salmon migration and habitat requirements, Yakama Nation culture, riparian and old-growth dependent plant species, and more that reinforced aquatic, riparian, and healthy forest ecosystem lessons they learned during the past school year.

*PARTNERS: USFWS-Spring Creek Fish Hatchery, US Bureau of Reclamation, Underwood Conservation District, Mid Columbia Regional Fisheries Enhancement Group, Washington Department of Fish and Wildlife, Washington Department of Natural Resources, Yakama Nation, Skamania County, Columbia Gorge Ecology Institute, AmeriCorps, National Marine Fisheries Service*

## MOUNT ST HELENS INSTITUTE YOUTH STREAM TEAM

This ongoing program involves urban youth in aquatic related projects on the forest and for them to provide monitoring of GPNF Aquatic Program restoration projects. This partnership with Mount St. Helens Institute to help implement and monitor our aquatic restoration projects in Clear Creek, East Fork Lewis River, and Muddy River starting in 2008, and the program is building upon its own successes. Approximately 15 urban youth were given the opportunity in 2010 to participate in stream monitoring activities. Three streams were monitored over an 8 week period. Kids learned how to collect macroinvertebrates, take water temperatures and flow data, perform pebble counts, take cross sections, measure water chemistry, and provide photo documentation. They used these skills to monitor new and existing fish habitat restoration projects.

*PARTNERS: Mount St. Helens Institute, Vancouver Police Activities League*



## GIFFORD PINCHOT NF URBAN YOUTH PROGRAM

The GPNF aquatics program is proud to serve our local communities and youth. In particular we are proud to contribute to the GPNF Urban Youth Program by helping to provide unique programs and activities that engage youth from underserved communities, especially for low-income communities, at-risk-youth and people of color. In 2010 the Aquatics program helped to provide classroom and camp presentations, water monitoring activities, forest career events, fishing and camping events, summer employment opportunities and multiple other activities that meaningfully engaged urban youth in our aquatics program activities.

*PARTNERS: Vancouver Branch NAACP, USDA Coalition of Minority Employees, Portland Opportunities Industrialization Center-Rosemary Anderson High School*



## HEMLOCK DAM RESTORATION SITE ENVIRONMENTAL EDUCATION

School fieldtrips to the Hemlock Dam Removal Project site on Trout Creek gave local youth the opportunity to see first-hand an active stream restoration project soon after it has been implemented. These fieldtrips were an opportunity for the students to enter the project site while it was still closed off to the general public, and learn about its importance to the overall recovery of steelhead in the Wind River watershed. Students were taught about stream restoration, fish biology, hydrology, and environmental stewardship. Both pre-dam removal and post-dam removal monitoring data was collected by the students including: macroinvertebrates, redds, LWD, riparian vegetation, water quality, and physical stream parameters such as substrate and cross-sectional profiles.

*PARTNERS: Bonneville Power Administration, USFWS-Spring Creek Fish Hatchery, Underwood Conservation District, US Army Corps of Engineers, Mid Columbia Regional Fisheries Enhancement Group*



# NUTRIENT ENHANCEMENT

## PINE CREEK NUTRIENT ENHANCEMENT

*Mount St. Helens NVM*

The Nutrient Enhancement Project took place in December of 2009 and involved the distribution of 2700 adult coho carcasses from Lewis River Hatchery seeded over six miles of Pine Creek and its major tributary P8 using a helicopter with a bucket to distribute the fish. Several areas along Pine Creek that could be reached by vehicles were also seeded by hand, distributing another 200 carcasses. Three dams on the North fork Lewis River cut off over 170 miles of anadromous fish habitat in the 1930s. As part of a FERC re-licensing agreement, anadromous fish will be reintroduced into this habitat in 2013. The purpose of this project is to improve conditions for bull trout, Chinook, coho, and steelhead. Nutrient enhancement helps to restore the nutrient cycling and associated ecological processes in stream ecosystems that are experiencing declines in productivity due to factors such as watershed disturbances, and loss of stream channel complexity. Macroinvertebrate sampling was also conducted as part of project activities in 2007, 2009, and 2010 to see how carcass seeding improved productivity in the system. Areas seeded with carcasses were found to have a greater macroinvertebrate density than unseeded areas.

*PARTNERS: PacifiCorp, Clark-Skamania Fly Fishers, Washington DFW*

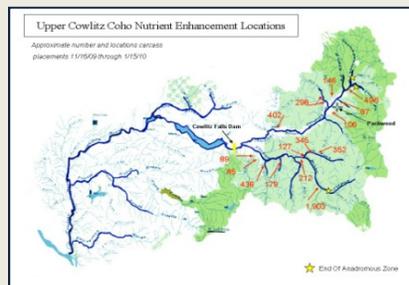


## UPPER COWLITZ RIVER NUTRIENT ENHANCEMENT

*Cowlitz Valley RD*

Cowlitz River dams blocked the annual upstream migration of tens of thousands of wild fish for more than 36 years before the 1998 reintroduction effort made available more than 200 miles of National Forest streams for these fish. National Forest system lands in the Upper Cowlitz River are vital to contributing to the successful recovery of threatened salmon and steelhead in the Lower Columbia River basin. WDFW staff from the Cowlitz Salmon Hatchery began placing coho carcasses in the upper Cowlitz Watershed for nutrient enhancement on November 16, 2009 and through January 15, 2010 placed 5,265 carcasses. Carcasses were placed at the same locations used for the 2008-2009 effort, except that we did not use the Smith Creek location this year due to landowner complaints from the previous effort. Also, we focused our effort on the Cispus River sub-basin because only 1,000 adults were scheduled to be released there.

*PARTNERS: Washington DFW*



# BRIDGES AND AQUATIC ORGANISM PASSAGE

## FR 33-COMPASS CREEK ARRA BRIDGE REPLACEMENT

*Mount Adams RD*

In August, the Gifford Pinchot National Forest replaced an undersized bridge and included riparian and also placed an additional instream wood structure using Federal stimulus and other funding sources. This upgraded bridge provides safer and more reliable passage into the Gifford Pinchot NF for visitors and workers, and allows flow to access its entire bankfull width. This replacement offered a unique opportunity for GPNF Aquatics program to work closely with GPNF engineering to design and implement a quality integrated project to improve watershed conditions and fish habitat for Federally listed Lower Columbia River Steelhead and native trout in Trout Creek, a tributary to the Wind River, WA.

*PARTNERS: ARRA, GPNF Engineering, Federal Highways*



## FR 42-CRATER CREEK ARRA BRIDGE REPLACEMENT

*Mount Adams RD*

The Gifford Pinchot National Forest replaced and setback to bankfull width an undersized and stream-limiting bridge using Federal stimulus and other funding sources. This upgraded structure provides safer and more reliable passage into the Gifford Pinchot NF for visitors and workers, and this replacement offered a unique opportunity for GPNF Aquatics program to work closely with GPNF engineering to design and implement a quality integrated project. Flow-constricting structures were set back on both banks and increased habitat quality in the upper river reaches, restoring natural form and function, and removing constriction of flows for listed and resident fish in the Lower Columbia River Basin.

*PARTNERS: ARRA, GPNF Engineering, Federal Highways*



# FR 2115-JOHNSON CREEK ARRA BRIDGE REMOVAL, FR 4715-WILLAME CREEK & FR 85-SILVER CREEK ARRA BRIDGE REPLACEMENTS

*Cowlitz Valley RD*

Using ARRA funds as a unique opportunity, the Gifford Pinchot National Forest replaced and setback to bankfull-width the FR 2115-Johnson Creek and 4715-Willame Creek bridges in fish bearing streams forest-wide using stimulus and other funding sources. We also completely removed the bridge and footing on the FR85-Silver Creek stream crossing. The replacements offered a unique opportunity to improve watershed conditions for fish habitat enhancement as well. Forest engineers and biologist worked together to design and implement a stream simulation structure which will better withstand winter flooding and provide safe access to Forest visitors while also helping to rectify habitat degradation and passage blockages associated with undersized older obsolete wooden bridges built in the 1940s, '50s and '60s. Flow-constricting structures were set back on both banks and increased habitat quality in the upper river reaches, restoring natural form and function, and removing constriction of flows for listed and resident fish in the Lower Columbia River Basin.

*PARTNERS: GPNF Engineering, Federal Highways*



## FR 42-GREEN FRK TRIB EAST FORK LEWIS CULVERT TO BRIDGE

*Mount St Helens NVM*

In September of 2010 GPNF Aquatics and Engineering programs, worked together to replacing twin culverts that blocked fish migration in a tributary to Green Fork of the East Fork Lewis River. This culvert to bridge eliminated a fish passage barrier for ESA listed summer steelhead in the East Fork Lewis River drainage. The new bridge structure eliminated flow, restoring the stream to its natural form and function. This project increased anadromous fish access to 1 mile of habitat which will increase production of steelhead for East Fork Lewis River and Lower Columbia River fisheries.

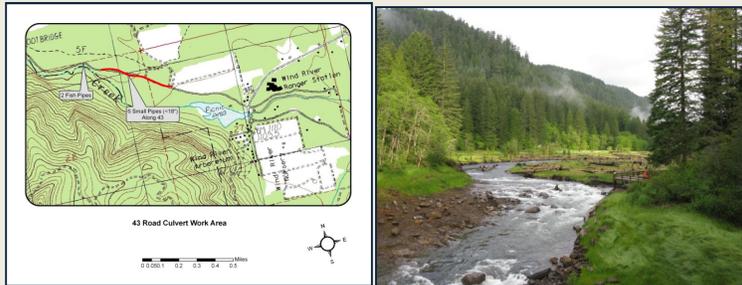
*PARTNERS: This project was funded with Legacy Roads Funding and implemented in partnership with GPNF Engineering*



# FR 43 CULVERT REPLACEMENTS

## Mount Adams RD

The Forest Road 43 Culvert Replacements Project replaced eight undersized, damaged culverts along one mile of road and replace them with adequately sized culverts in order to realize the long-term, beneficial effects of fish passage restoration and the restoration of natural stream channel processes. The stream simulation method was used for the design and implementation of this culvert replacement project, and it was implemented with heavy equipment. Removing fish-passage blockages will restore spatial and temporal connectivity of streams within this area of the Trout Creek 6th field watershed where fish movement is currently obstructed. This, in turn, will permit fish access to areas critical for fulfilling their life history requirements, especially foraging, spawning, and rearing.



Yellowjacket Creek, Cowlitz Valley Ranger District

# OTHER RESTORATION

## *SHEEP BRIDGE DEBRIS REMOVAL, NORTH FORK LEWIS RIVER*

*Mount St Helens NVM*

This project used USFS Region 6 funding to remove hazardous creosote timbers from old abandoned bridge log jam crossing the Lewis River. A contractor cut or otherwise detached timbers and flew them out of the river using a helicopter. Much of the treated wood was attached to each other or to concrete bridge pillars with metal bolts or other metal fasteners abutments so timbers were cut over a tarp so creosote sawdust did not enter the river. Sawdust was removed and taken offsite for proper disposal. The helicopter flew the timbers and metal directly into a 40 cubic yard dumpster rented from Waste Management Inc. and hauled the materials away to a facility that processed hazardous materials. All hazardous materials were removed from the project site.

*PARTNERS: USFS Region 6 Aquatics, Waste Management Inc.*



## *CRATER CREEK CULVERT UPGRADE/REPLACEMENT*

*Mount Adams RD*

This project replaced the blown-out, undersized culvert that had cut off approximately 1.5 river miles of spawning, rearing, migratory, and foraging habitat for threatened Lower Columbia River steelhead trout in the headwaters of the Crater Creek drainage. The road was also sloped in order to accommodate this much larger culvert. Implemented at the same time as the Crater Creek ARRA Bridge Replacement Project, these combined projects will greatly increase the overall hydrologic function and fisheries habitat in the Crater Creek drainage and the larger Trout Creek watershed.



## *MUDDY RIVER RIPARIAN THINNING*

*Mount St Helens NVM*

The purpose of this project was to improve stands of Alder and conifers in riparian areas adjacent to the Muddy River. During the summer of 2010 a contract was executed to thin 30 year old alder stands with chainsaws that had re-sprouted after the lahar event during the 1980 eruption of Mt. St. Helens. Stands were thick with very thin alders and some conifers interspersed. Approximately 606 acres were thinned along the Muddy River. Dominant alders were left standing and so were most conifers.

The goal was to create larger trees that would be healthier and provide shade and a long term source of wood for the Muddy River.

*PARTNERS: PacifiCorp, Stewardship Program*



## HEMLOCK DAM PROJECT: POST DAM REMOVAL RESTORATION

### *Mount Adams RD*

The objective of this post-dam removal phase of the Hemlock Dam Removal Project was to implement some small-scale stream and project site restoration activities. There were several disparate project site restoration activities undertaken in summer 2010, including erosion control, decompacting and rehabilitating a former boat launch area, and placing more large woody material and boulders along the restored stream reach. Expected results include: reduced fine sediment introduction, turbidity, and substrate embeddedness, increased quality and quantity of pools, habitat complexity, and streambank stability, and enabling native vegetation to grow and reducing sediment input to the stream.

*PARTNERS: Bonneville Power Administration, US Fish and Wildlife Service, Yakama Nation, American Rivers, National Marine Fisheries Service, Washington State Salmon Recovery Funding Board*



## UPPER TROUT CREEK STREAM RESTORATION AND RIPARIAN THINNING: RIPARIAN TREE PLANTING AND PROTECTION PHASE

### *Mount Adams RD*

The actions undertaken in this project include the rehabilitation of approximately three miles of Trout Creek, two miles of Crater Creek, two miles of Compass Creek, three miles of Layout Creek, one and a half miles of Planting Creek, as well as riparian planting at restoration sites in the Trapper Creek and Panther Creek drainages in the spring of 2010. Expected result is an improved stream habitat for Lower Columbia River steelhead to spawn, rear, migrate, and forage. A restored riparian zone with larger trees is expected to increase stream shade, lower stream temperature, increase large woody material recruitment, stabilize streambanks, reduce sediment inputs (and turbidity and substrate embeddedness) to streams, and improve the amount and timing of allochthonous inputs to these streams.

*PARTNERS: Bonneville Power Administration*



# ROAD DECOMMISSIONS

## FR 9325000/ FR 9325080 ROAD DECOMMISSION

### Mount St Helens NVM

This road decommission removed culverts, eliminating the risk of sediment delivery from culvert failures, and restoring natural function to three streams. In September 2010 an excavator and skidder were used to remove 20 culverts and block access to a 2 mile long non-maintained road. Native grass seed and wood straw mulch were used to prevent soil erosion. Earthen berms were created to block future vehicular access. The road was successfully decommissioned and re-vegetated. Three culvert removal sites recreated bankfull stream widths of perennial or intermittent streams restoring hydrologic connectivity. Stream banks were contoured to 1.5:1 or to match the existing adjacent steep slopes. Sediment threats to nearby streams with listed fish species from the risk of culvert failures was reduced or eliminated.

*PARTNERS: Gifford Pinchot Task Force, PacifiCorp Lewis River Relicense Aquatic Coordination Committee, and NOAA.*



## FR 9300150 ROAD DECOMMISSION

### Mount St Helens NVM

In September 2010 this road decommission removed culverts, eliminating the risk of sediment delivery from culvert failures, and restored natural function to three streams. An excavator and skidder removed 23 culverts, of a 2.6 mile non-maintained road in several tributaries to Clear Creek and Lower Clear Creek subwatersheds. Native grass seed and wood straw mulch was used to prevent erosion of soil. Earthen berms were created to block access to the decommissioned road. The road was successfully decommissioned and re-vegetated. Three culvert removal sites recreated bankfull stream widths of perennial or intermittent streams restoring hydrologic connectivity. Stream banks were contoured to 1.5:1 or to match the existing adjacent steep slopes. Sediment threats to nearby streams with listed fish species from the risk of culvert failures was reduced or eliminated.

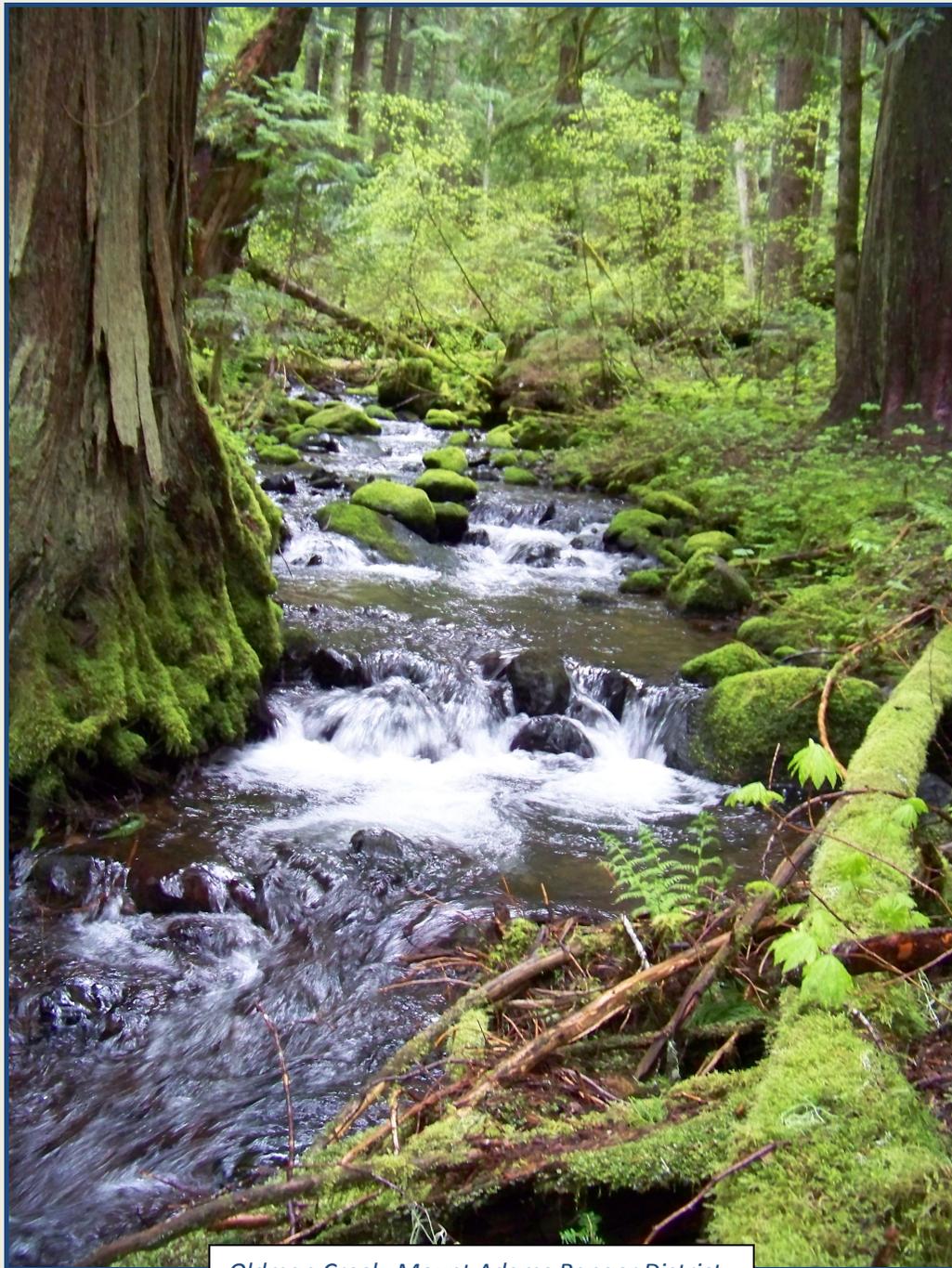


## FR 2575 ROAD DECOMMISSION

### Mount St Helens NVM

This road decommission removed culverts, eliminating the risk of sediment delivery from culvert failures, and restored natural function to seven streams. During September 2010 in several tributaries to Clear and Lower Clear Creek Subwatersheds. Two excavators, a bull dozer and a dump truck were used to remove 10 culverts, decommissioning 2 miles of non-maintained road. Culverts were very deep on this project, several 40' deep and one 55' foot deep culvert at the outlet ends. Native grass seed and wood straw mulch was used to prevent erosion of soil. Earthen berms were created to block access to the decommissioned road. The road was successfully decommissioned and re-vegetated. Seven culvert removal sites recreated bankfull stream

widths of perennial or intermittent streams restoring hydrologic connectivity. Stream banks were contoured to 1.5:1 or to match the existing adjacent steep slopes. Sediment threats to nearby streams with listed fish species from the risk of culvert failures was reduced or eliminated.



*Oldman Creek, Mount Adams Ranger District*

# INVENTORY AND MONITORING

## WHITE SALMON RIVER FISH PASSAGE CULVERT INVENTORY

### Mount Adams RD

In the summer 2010, a culvert inventory was conducted throughout the Mt. Adams Ranger District lands within the White Salmon River 5th field watershed. Each perennial fish-bearing stream/road crossing, as well as most of the perennial non-fish-bearing stream/road crossings was examined using the National USFS protocol. The purpose of this culvert inventory and fish passage barrier assessment was to determine the number and locations of culverts that are blocking fish passage. In total, it is estimated that 45.3 miles of stream habitat (existing and potential) in the Mt. Adams Ranger District portion of the White Salmon River 5th field watershed are blocked by culvert barriers, thus, blocking fish from accessing spawning, rearing, foraging, migration/genetic exchange opportunities. 97 crossings were examined and, of those, 39 met the criteria for full survey. The others did not meet the criteria for full survey for various reasons. A report, GIS map, and complete project file were created for use by Fish Biologists, Hydrologists, GIS Specialists, and Engineers.

PARTNERS: USFS Region 6 Legacy Roads

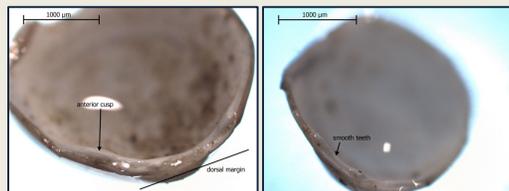


## GOOSE LAKE ZEBRA MUSSEL RECONNAISSANCE

### Mount Adams RD

Following upon a public report of Zebra Mussels observed on the Gifford Pinchot NF, on August 27, 2010, representatives from USFS Region 6 Invasives program and GPNF Aquatics staff made a follow-up visit to Goose Lake, Skamania County to obtain live specimens of the small clams that were reported as potential Zebra Mussel. Portland POIC students also participated and assisted in the survey inventory. District Archeology staff joined the group and provided a historic context of the lake and described local cultural features of the site to the survey team. The team collected and sorted live mussels for preservation and identification and a water sample was also collected and submitted for laboratory analysis for calcium present. Portland State University identified the specimens. The clams appear to be either *Pisidium milium* (Quadrangular pillclam) or *P. fallax* (River peaclam). Both appear to be native to the northern U.S. Addy Lab in Vancouver, WA analyzed the water sample and reported it contained 4.1 mg/L of calcium. Hincks & Mackie (1997) reported 8.5 mg/l calcium is a lower threshold for zebra mussel survival and persistence. Goose Lake appears to have insufficient calcium content to sustain a zebra mussel invasion.

PARTNERS: USFS Region 6 Invasive Species Program, Portland State University, Portland Opportunities Industrialization Center-Rosemary Anderson High School



# HEMLOCK DAM REMOVAL PROJECT- POST PROJECT MONITORING

## Mount Adams RD

The main objective of the Hemlock Dam Removal Project: Post-Dam Removal Monitoring Project is to ensure that restoration activities that were implemented during the 2009 Hemlock Dam Removal Project are having the desired effect of creating and improving stream habitat for threatened Lower Columbia River steelhead. Instream physical parameters that were measured throughout the restored stream reach of Trout Creek in summer 2010 were: instream large woody material, stream shade, stream temperature, instream substrate, longitudinal profiles, cross-sections, and macroinvertebrates. An important realized result was a data set for 2010 showing changes to salmonid spawning, rearing, migrating, and foraging habitat as a result of large-scale stream and riparian restoration actions.

*PARTNERS: Bonneville Power Administration, USFWS*



*Landlocked Spawning Coho, Tributary to the Muddy River, Mount St. Helens NVM*