United States
Department of
Agriculture

Forest
Service

Pacific
Northwest
Region

2005

Fisheries Program Accomplishment Report

Mt. Hood National Forest

FY 2004

Mt. Hood National Forest Vicinity Map

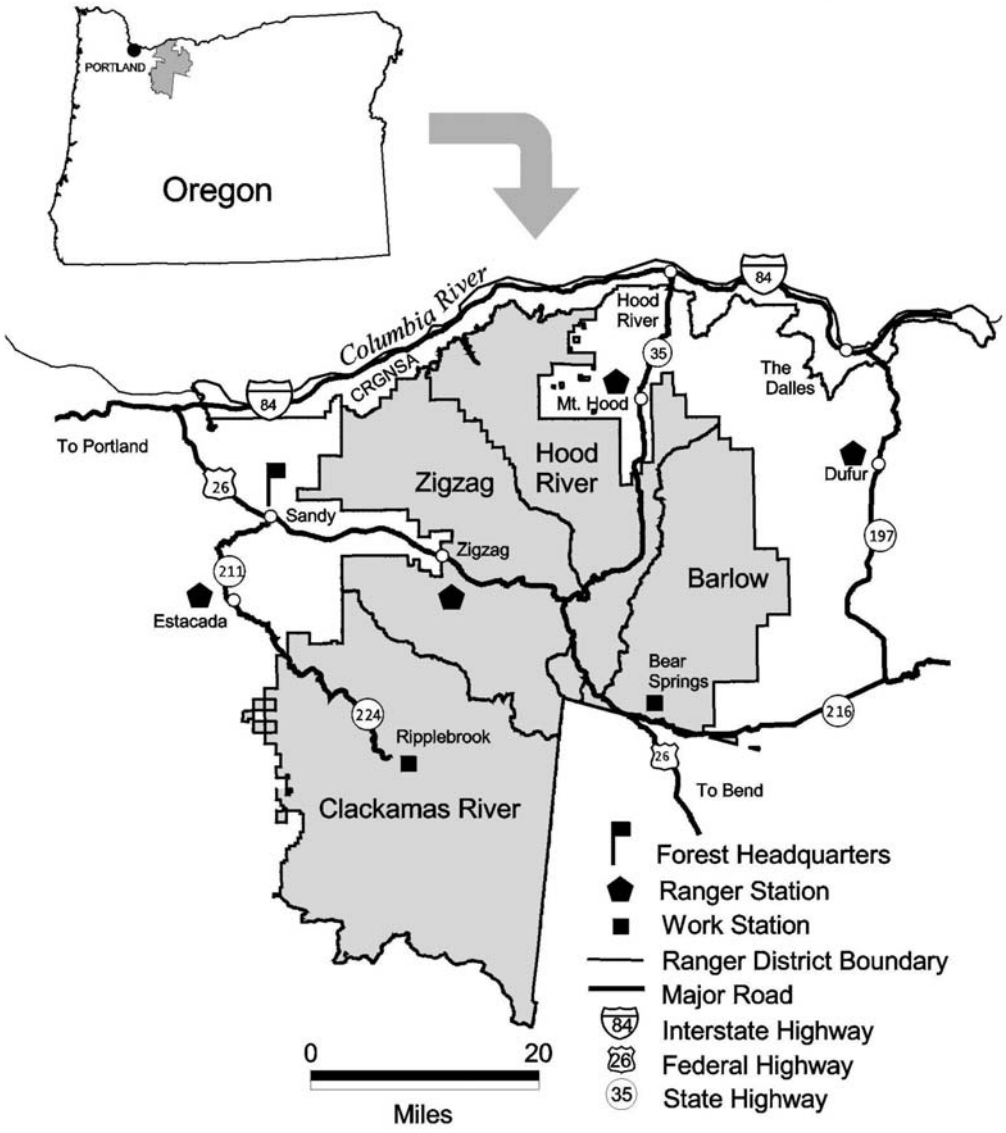

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Photo on the cover: Forest Service mascots, Frank and Francis Salmon, entertaining the crowd at the 2004 Oxbow Salmon Festival on the Sandy River.
Employees on the Mt. Hood National Forest took all photos in this report.

Welcome to the 2004 annual report for the Mt. Hood National Forest Fisheries Program. This document highlights the excellent work and accomplishments of many components of the Fisheries Program in fiscal year 2004 on the Mt. Hood National Forest (the Forest).

Monitoring continues to be a critical component of our program of work. In this report you will read updated findings of some of our monitoring programs such as the salmon carcass nutrient project in the Sandy and Clackamas rivers, results of extensive spawning surveys in the Fifteenmile Creek Basin, and smolt trapping results in the Clackamas River and Sandy River basins. In addition, summaries of restoration projects, such as the Clear Creek Campground and Mirror Lake projects in the Sandy River Basin, are presented.

As an urban forest, nearby cities and their inhabitants have a profound influence on management of the Forest. Dedicated citizens, conservation groups, schools, and local governments and agencies all play important roles as partners. In two sections of this report, Partnership Projects and Conservation Education, there are summaries of on-going projects such as Cascade Streamwatch, and new efforts such as the Sandy River Basin Anchor Habitats Project. The success of these projects and programs is dependent on the involvement of our many partners.

This report concludes with a listing of fisheries personnel, a summary of the 2004 budget, and a list of our many partners critical to accomplishing work and managing the fisheries resources on the Forest.

If you are interested in additional information about a program or activity described in this document, please contact the appropriate individual listed at the end of the document, or the office listed inside the front cover.

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Monitoring Aquatic Resources

The Forest provides an important role for the conservation and restoration of aquatic species. Our aquatic resources monitoring program is the starting point for us to track our role in fish species and aquatic conservation. Changes in the status of populations of concern, such as Endangered Species Act listed fish, are evaluated through the monitoring program. Long term data sets (i.e., trend monitoring) on the Clackamas and Sandy rivers track out-migration of smolt populations. Fifteenmile Creek and its tributaries are home to the eastern-most run of wild winter steelhead in the Columbia River Basin, and monitoring provides information on population trends. Project effectiveness monitoring is another critical component of our aquatic resources monitoring program, and it allows us to adaptively manage and make necessary adjustments to future activities. Monitoring the salmon carcass nutrient restoration project provides information on how and where changes in aquatic ecosystems are occurring, and it further allows us to identify appropriate application rates and types of streams where this treatment may be most effective.

Short summaries of several monitoring projects are described below. More information may be obtained from local Ranger District offices.

Clackamas River Smolt Production Monitoring

Since 1993, a consortium of fish biologists from federal, state and private organizations has partnered together to address fish management issues on the Clackamas River. Fish biologists from the Clackamas River Ranger District continued their participation in this technical working group, locally known as “OBOBs.” The primary focus for the working group in 2004 was to continue its long term monitoring of out-migrating smolt populations throughout the Clackamas River Basin. A network of seven rotary, screw traps was operated throughout the basin, four of which are on-Forest and three off-Forest. All fish caught are enumerated, and population estimates are made for coho salmon and steelhead smolts. In 2004, a new trap site was added at Roaring River. Figures 1 and 2 display smolt population estimates for steelhead and coho from 2002 through 2004, respectively.

As indicated in Figures 1 and 2, most major tributaries of the Clackamas River are monitored for smolt production. Distribution of steelhead production appears to be widespread throughout the basin. Clear Creek, a major lower tributary, highlights as an obvious important producer of steelhead and coho in the basin (Figure 1). The habitat provided by Clear Creek is largely in private ownership, and underscores the importance of the efforts led by the Clackamas River Basin Watershed Council in protecting and restoring aquatic habitat conditions on private lands. Coho were recently listed as threatened under the Federal Endangered Species Act and had previously been listed as endangered on the State of Oregon’s Endangered Species List. Coho smolt production is extremely low in some tributaries as seen in Figure 2.

Figure 1. Estimated steelhead smolt production from watersheds of the Clackamas River, 2002-2004.

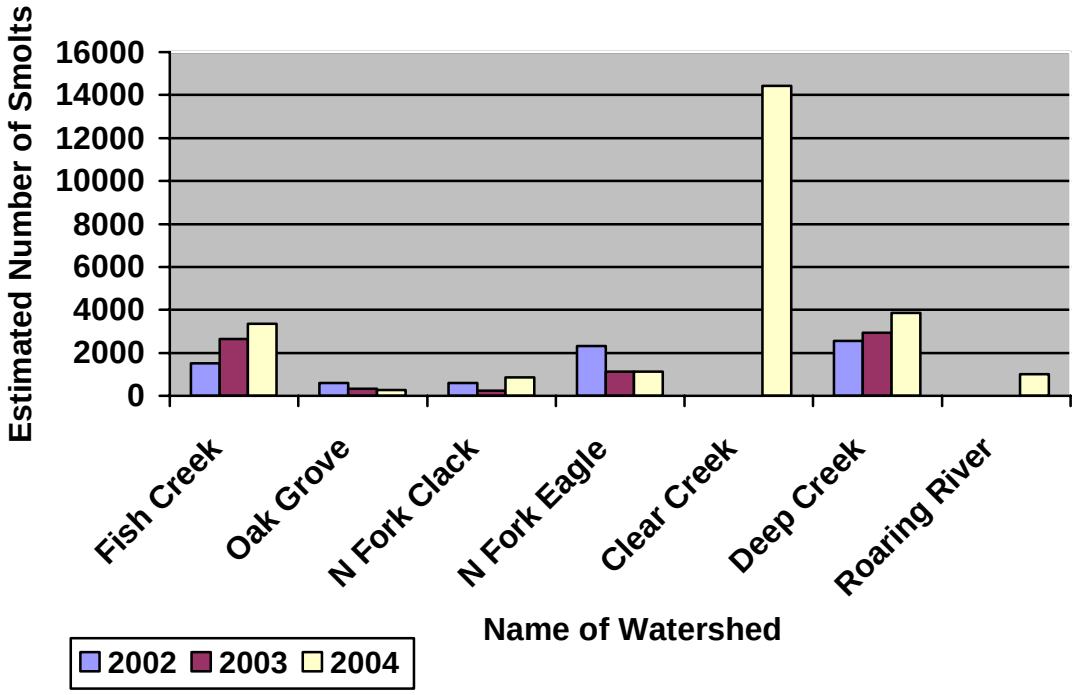
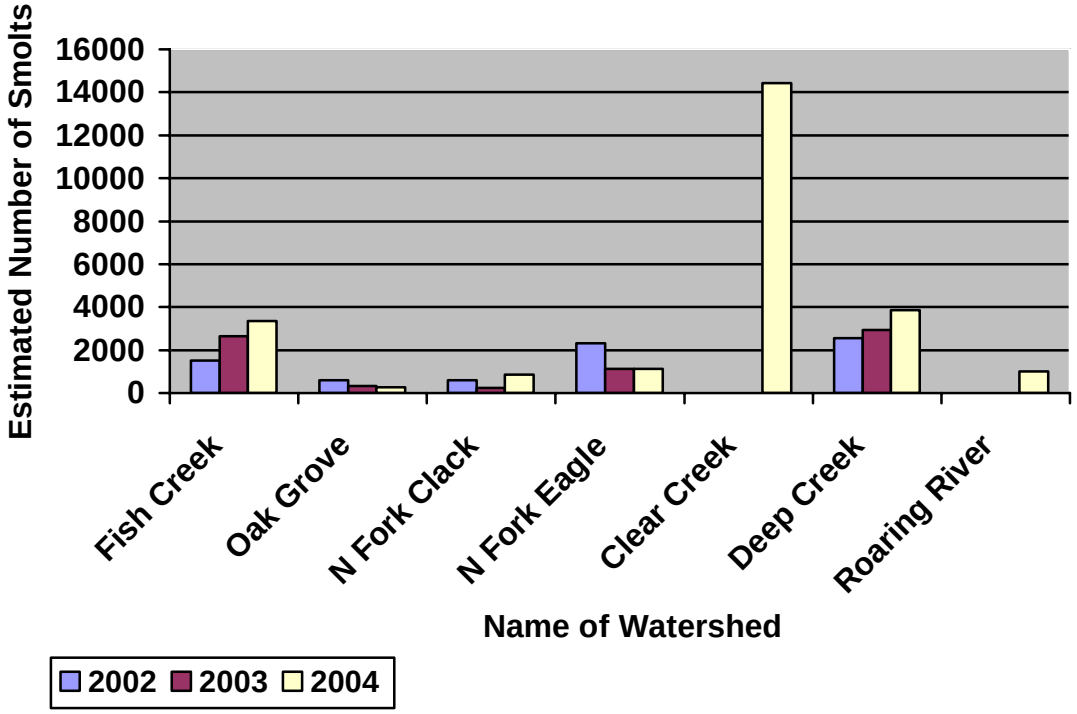


Figure 2. Estimated coho smolt production from watersheds of the Clackamas River, 2002-2004.



Upper Sandy River Basin Smolt Trapping

Beginning in the spring of 1992, employees from the Zigzag Ranger District Fisheries Department began a multi-year steelhead and coho salmon smolt monitoring study on Still Creek in the Upper Sandy River Basin. Using a six-foot diameter rotary screw trap, out-migrating smolts are enumerated, weighed, and measured during the spring. A mark-recapture study is also conducted to determine capture efficiencies of the trap so that annual population estimates of outmigrating smolts can be attained. The annual fish production of Still Creek is the longest running data set for smolt monitoring in the Sandy River Basin.

Beginning in 2002, the smolt-monitoring program was expanded with the addition of a second rotary trap on the Clear Fork of the Sandy River. And in 2004, a third trap was installed on the Salmon River bringing the total trap monitoring to three streams in the Upper Sandy River Basin.

Photo above: Salmon River smolt trap located in BLM's Wildwood Park.

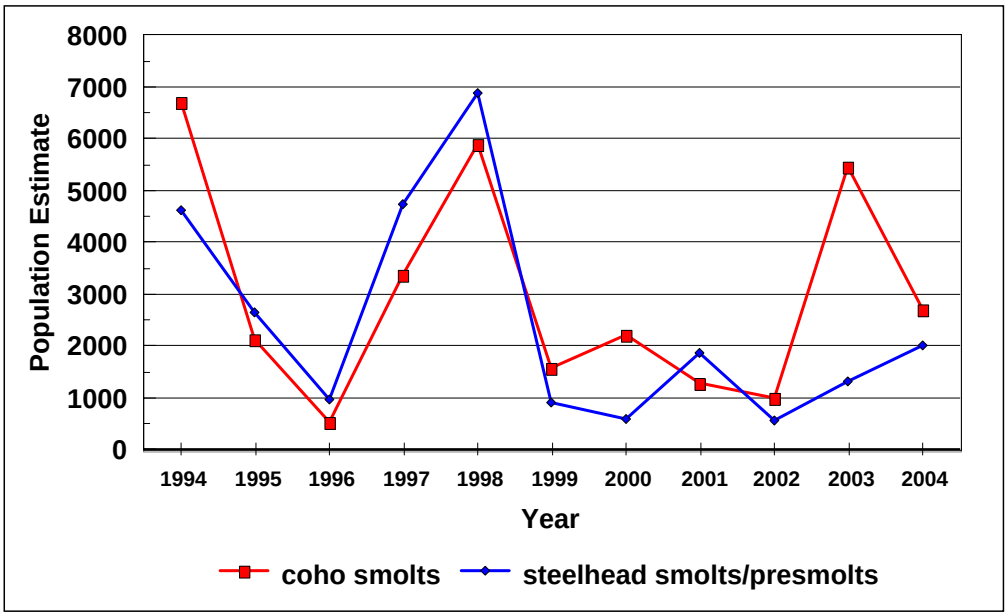
Smolt population estimates derived from the Still Creek trap are presented in Figure 3, below. Annual steelhead and coho smolt population estimates show fairly similar trends since 1994. The majority of steelhead smolts are two years in age and the remainder three years. Outmigrating steelhead smolts caught at the traps are primarily two years old, whereas coho salmon smolts are primarily one year old.

The smolt population estimates for Still Creek in 2004 are 2,013 for steelhead and 2,696 for coho salmon. The 2004 Revision of the Zigzag Watershed Analysis Report estimates the smolt-to-adult survival rates of 6% and 3% for winter steelhead and coho salmon, respectively. It should be noted these estimates are largely based on published values for steelhead and coho in other nearby basins, as there are no empirical data for the Sandy River Basin. Estimated average adult escapement for Still Creek based on this data is 121 winter steelhead and 93 coho salmon. Correlations of smolt production from the Still Creek trap, adult spawning surveys in the upper basin, and Marmot Dam adult fish counts are inconclusive at this time as there are only two years of consistent adult escapement data that have been collected.

During the past four years, over 175 volunteers from Grant High School, Reynolds High School, David Douglas High School, Mt. Hood Community College, and individuals from the local and greater-Portland areas participated in the smolt trapping program in the Sandy River Basin. Participants learn about Forest Service fisheries and aquatics programs, and assist in data collection and monitoring efforts.

Volunteers led by Forest personnel staffed one of the traps five days per week for three months while the traps were operating. The continuing partnership with Portland Public High Schools provides students with the unique opportunity to work in small groups with a fisheries biologist in the field. This successful program will continue in 2005.

Figure 3. Still Creek steelhead and coho smolt population estimates 1994-2004.



Fifteenmile Creek Spawning Surveys

Fifteenmile Creek is home to the eastern-most run of winter steelhead in the Columbia River Basin. The Oregon Department of Fish and Wildlife (ODFW) and Mt. Hood National Forest consider this steelhead stock to be unique and worthy of special attention. The basin has been targeted for aggressive habitat protection and restoration by these two agencies and other local agencies and partners.

ODFW and the Forest have cooperated since the late 1980's to complete spawning surveys in the Fifteenmile Creek Basin. However, until 2003, surveys were somewhat sporadic in terms of stream reaches surveyed as well as survey timing. Beginning in 2003, both agencies agreed to a new survey protocol designed to assess the entire basin. This new methodology is based on the ODFW coastal survey protocol. The goal is to evaluate conditions across the entire basin with results that can be used to better estimate adult escapement and run timing. With this information both agencies will be better able to monitor the adult population in the long-term, and use this information to frame future land and fisheries management decisions. More detail on survey methodology and design may be found in the Fifteenmile Creek Basin Winter Steelhead Spawning Survey 2003 Accomplishment Report, available at the Barlow Ranger District.

In 2004, all of the streams within the Fifteenmile Creek Basin were divided into five-mile long stream segments, with each stream segment further sub-divided into individual one-mile long reaches for surveying. All reaches were intended to be surveyed three times over a six-week period starting the week of April 26 and ending the week of May 31, 2004. Redd locations in index reaches were recorded with a GPS unit when possible, although poor satellite reception often prevented this. Although steelhead was the target species for these surveys, surveyors also counted Pacific lamprey redds and adults.

There were a total of 212 steelhead redds counted throughout the Fifteenmile Creek Basin in 2004. Most redds were found in Eightmile and Fifteenmile creeks, followed by Ramsey and Fivemile creeks. This pattern is very similar to that seen in 2003. Table 1, below, displays survey results for those reaches in Eightmile and Fifteenmile creeks found to contain a higher proportion of spawning activity within the basin. Surveyors refer to these areas as "hot spots."

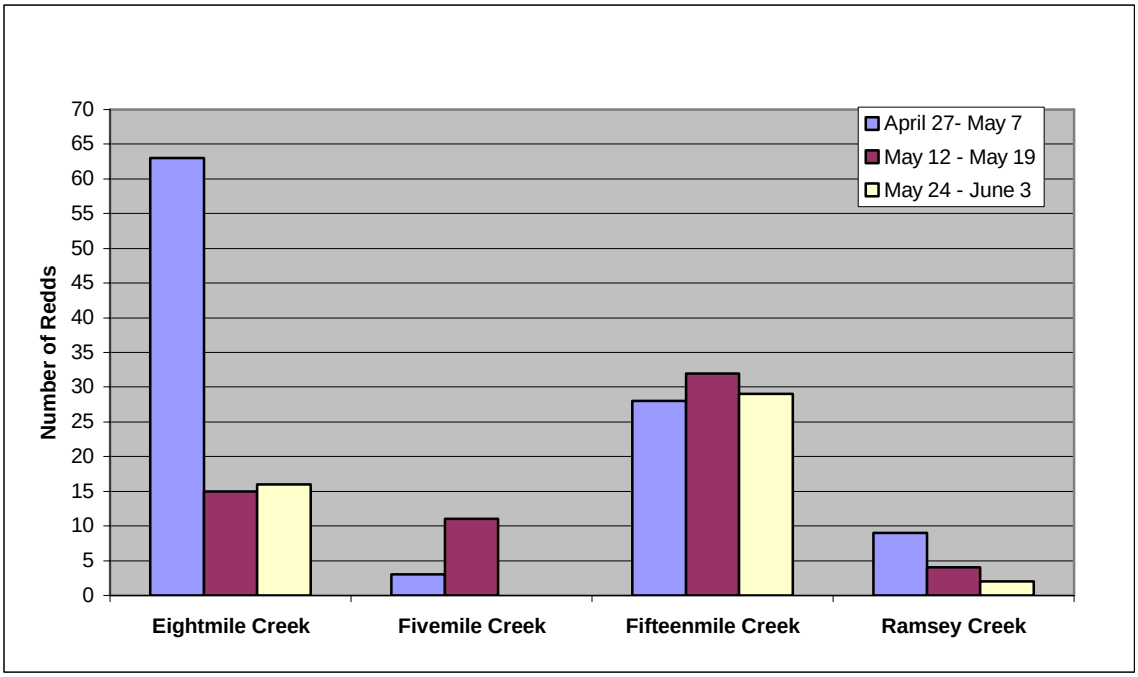
Photo above: Chris Rossel, Assistant District Fish Biologist, at the Barlow Ranger District encounters a beaver dam while conducting a steelhead spawning survey on Ramsey Creek.

In 2004, the majority of steelhead spawning appears to occur in late March to early May (Figure 4). There is substantial variation in this pattern, however. Eightmile and Ramsey creeks show higher levels of early spawning activity, whereas Fifteenmile Creek shows a relatively steady spawning rate throughout the survey period.

Table 1. Spawning areas with a higher percentage of spawning activity.

		Estimated Total Redds		Average Number of Redds/Mile	
Stream Name	**Stream Reaches**	**2003**	**2004**	**2003**	**2004**
Eightmile Creek	8 3-4	16	34	12.3	27.4
Eightmile Creek	8 4-2	13	16	13.7	18.2
Fifteenmile Creek	15 7-3	28	34	28	23.3
Fifteenmile Creek	15 8-4	11	11	11	14.3
Total		68	95		

Figure 4. Timing of steelhead spawning in Fifteenmile Creek Basin.



Pacific lamprey are native to the Fifteenmile Creek Basin. Lamprey redd data collected was incidental to this survey. Eleven lamprey redds were counted in Fifteenmile Creek and 24 redds in Eightmile Creek. Lamprey redds were not seen in either Ramsey or Fivemile creeks.

Salmon Carcass Nutrient Response, Sandy and Clackamas Rivers

Fish biologists on the west side of the Forest began a long-term restoration project in 2002 by returning surplus hatchery adult salmon carcasses to streams. Surplus hatchery salmon carcasses are hatchery fish no longer needed to supply eggs, or are not edible. Scientists have found evidence that salmon carcasses provide a critical nutrient component to aquatic ecosystems in the Pacific Northwest. The goal of this restoration project is to supplement streams with carcasses to mimic nutrient loadings of historic adult return levels. The carcasses are delivered to streams at maximum loading densities with a goal of increasing biological productivity and, ultimately, natural fish production.

In 2004, the Forest partnered with the Sandy River Basin Watershed Council, Clackamas River Basin Council, and the Oregon Watershed Enhancement Board to complete the fourth year of carcass treatments in the Sandy River and Clackamas River basins. Salmon carcasses were delivered to streams selected for intensive supplementation and monitoring via helicopter and hand placement by volunteers. A total of 11 stream miles were treated in the Sandy River Basin with 27 tons of salmon carcasses, and 10 stream miles in the Clackamas River Basin with 32 tons.

Several monitoring activities associated with this unique restoration project are tracking changes in the aquatic environment and associated biological responses. Although it is too early in the program to detect a statistically valid response trend, the following findings are presented to display the types of monitoring conducted and the results observed to date. Figure 5 displays the results of bio-film monitoring. Tiles are placed in treatment and control stream reaches, and after colonization by aquatic plants, the tiles are heated, and the weight of the organisms is compared. The aquatic plants that colonize the tiles are primary producers in the aquatic food chain, and are indicators of the productivity of streams systems.

Figure 5. Biofilm accumulation before and after Salmon carcass placement.

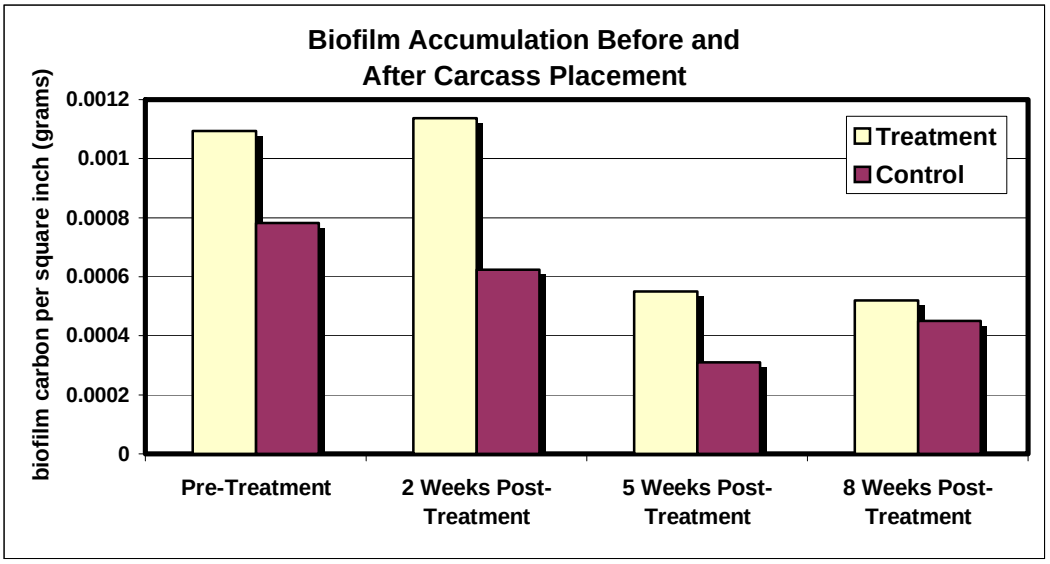
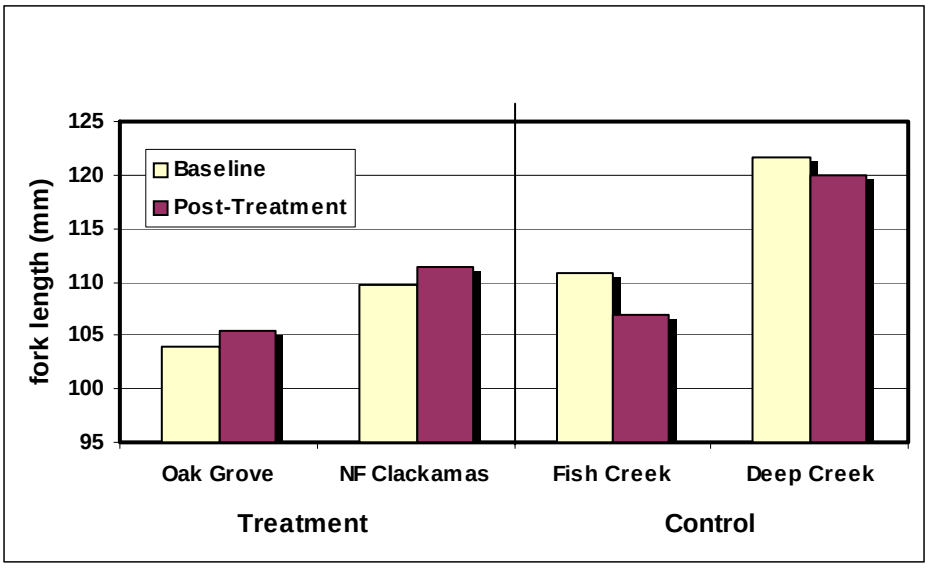


Figure 6 displays another biological monitoring element. The growth of juvenile coho is compared between stream reaches treated with salmon carcass placements and stream reaches with no treatment. Once again, it is early in the monitoring program to drawn definitive conclusions. However, based on information found in published literature, application rates of carcasses may be too low. Carcass application rates in river systems reported in scientific literature range from 0.64-16.11 kg/m^2, whereas streams treated in this project in 2002 and 2003 ranged from 0.03-0.09 kg/m^2. In 2004 with special approvals from both the Oregon Department of Fish and Wildlife and Oregon Department of Environmental Quality, the Forest increased the application rate of carcasses for those streams being intensively monitored to 0.40 kg/m^2. With an additional year of treatment in 2005 at this higher application rate, we remain optimistic that more conclusive monitoring results will indicate direct positive responses.

Figure 6. Coho smolt fork lengths (baseline vs. post-treatment averages for treatment and control streams).



Upper Sandy River Spring Chinook Spawning Surveys

Fisheries biologists from the Zigzag Ranger District teamed up once again with staff from the Oregon Department of Fish and Wildlife to conduct spawning surveys for spring Chinook salmon in the upper Sandy River Basin (all rivers and tributaries upstream of Marmot Dam). Since spawning surveys began in the early 1980s, the specific sample reaches and survey protocols have varied until 2002 when independent agency efforts were coordinated to yield more accurate and reliable data in a consistent format. Even with the coordination of survey protocols and selected sample reaches, three "index" streams have been consistently surveyed over the years, dating back to 1991. They include portions of the Still Creek and the Salmon and Zigzag rivers. These three "index" streams contain the greatest proportion of observable spawning activity within the upper basin.

Surveys are conducted mid-August through mid-October on both "index" stream reaches and randomly selected reaches throughout the upper basin. Specific data are collected to enumerate redds, live spawners, and carcasses. When carcasses are found, detailed information is collected, including sex, length, and hatchery mark (if present). Additionally, scale samples are taken to age individual fish and otoliths are removed to verify hatchery vs. wild fish origin.

The 2004 run of 2,503 spring Chinook over Marmot Dam represents the largest return since 1998 – one year prior their listing under the Endangered Species Act. The peak spawning period occurred between late September and early October.

Photo above: Several spring Chinook observed spawning in Still Creek.

Approximately 67 percent of the adult spring Chinook manually released into the upper basin from the fish sorting facility at Marmot Dam were accounted for in the 2004 spawning surveys. During the peak of spawning, the Salmon River contained the greatest proportion of observed redds, 547 total, followed next by Still Creek with 108 redds, and the Zigzag River with 54 redds. Extrapolating the redd count data to account for a total adult spring Chinook fish population estimate (i.e., total redd count at time of peak spawning times 2 adults) is used to compare against the actual number of fish released upstream of Marmot Dam and establish a three-year trend (Table 2).

Table 2. Total adult spring Chinook estimated from expanded redd count data in the upper Sandy River Basin vs. Marmot Dam counts; 2002-2004.

Survey Stream	Year		
	2004	2003	2002
Salmon River	1,272	254	372
Still Creek	226	56	124
Zigzag River	108	48	30
Other	78	14	14
Total Adults based on redd counts	1,684	372	540
Marmot Dam Passage	2,503	969	1,159

Restoring Aquatic Resources

Clear Creek Campground Restoration

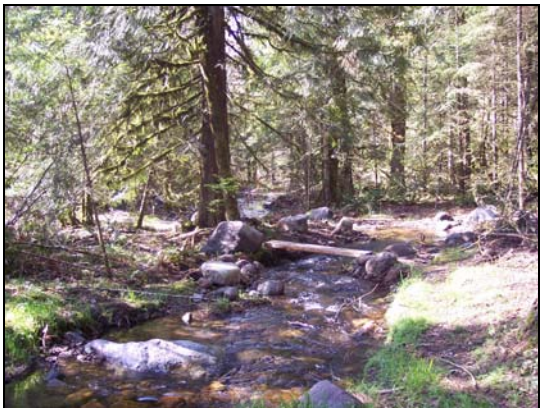
Fish biologists at the Zigzag Ranger District identified a restoration opportunity on a former small wetland complex adjacent to Clear Creek. The area had been filled and paved, and was used as a dispersed campground and picnic area. The dispersed area was built on a two acre parcel of Mt. Hood National Forest land, and is surrounded by private homes.

A grant from the Title II Payments to Counties program funded the restoration project. Partners from the Sandy River Basin Watershed Council assisted in the design and implementation of the project.

Photo above: Pre-project photo of paved surface on top of historic wetland, looking south (downstream).

Photo above: The same view, after the project has been completed. Juvenile coho and chinook salmon are using the wetlands for rearing.

Work included removal of 1,500 cubic yards of fill and the pavement overlay. The 1.5-acre wetland restoration project was designed to return wetland function to the area. The elevation of the entrance to the wetland complex off Clear Creek is designed to be maintenance free, and the downstream connection to Clear Creek is designed to allow access to migrating salmon. Native vegetation was used to restore streambanks and accelerate the return of trees and shrubs to the area.



Photos above: This pair of before-and-after photos shows the exit channel on the southern, downstream end of the wetland.

Mirror Lake Restoration

Mirror Lake is one of the Forest's most heavily used hiking destinations. Mirror Lake is 1.5 miles from Highway 26 on the Zigzag Ranger District, and hikers are treated to a beautiful view of Mt. Hood upon their arrival to the lake. The popularity has taken a toll. A 1991 Forest lake survey found that the western half of the lake's riparian area vegetative cover is less than 40 percent. This same survey found silt about three inches deep in the small pools of the outlet creek below the lake. This creek drains into Camp Creek, an important anadromous, fish-bearing stream with coho and chinook salmon and winter steelhead. Fish biologists determined a reduction in silt and increasing the vegetative cover along the shore of the lake would help restore water quality and fisheries habitat.

Mirror Lake is approximately eight acres in size with an average depth of nine feet. Mirror Lake supports an active sport fishery for rainbow, cutthroat, and brook trout. Erosion due to heavy use and user created campsites and access trails, has increased runoff and sedimentation. Human waste disposal is also a concern. Loss of vegetative cover has exacerbated this condition, impacting fish habitat and water quality as well as decreasing the recreational users experience of this special place.

The goal of this project is to repair and restore impacts to the lakeshore, decreasing sedimentation to the lake and downstream habitat. Actions included rehabilitation, closing, and revegetating three-quarters of a mile of trail and lakeshore, eight to 10 campsites, and construction of up to 690 linear feet of boardwalk that surrounds Mirror Lake. Actions also included installation of wooden steps in the trail to reduce erosion and impacts from hikers. Initial restoration actions will occur in 2004.

Accomplishments at Mirror Lake in 2004 included:

- 100 cedar and 200 Douglas-fir seedlings, and 300 hardwood cuttings planted,
- over 100 native vegetation transplants,
- approximately one-half of upland and one acre of lakeshore treated,
- 690 feet of boardwalk constructed through a wetland,
- five user defined trails closed and revegetated,
- four sections of wooden steps installed over areas of steep, eroding areas,
- three areas of lakeshore armored with rocks and woody debris, and
- 15 small, temporary informational signs installed throughout the project area, scheduled to be replaced with five permanent signs in 2005.

Photo above right: Shows an access trail to the lake eroding with sediment entering the lake. Photo below right: Shows the same area after construction of steps designed to reduce erosion to the lake.

Partnership Projects

The Forest relies on many partners for the successful implementation of our work and planning efforts. Here you will find a few examples that highlight the interaction between the Forest and organizations that care deeply about the Forest and contribute to its' health and well-being.

Catlin Gabel

For 13 years the Forest has completed needed resource projects through a partnership with the Catlin Gabel School from Portland. Students learn the value of teamwork, hard work, and hands-on natural resource management. The 2004 program began in June at Camp Cody on the Barlow Ranger District. Catlin Gable seniors began work on a mile long buck-and-rail fence to protect the riparian area from cattle grazing along a one-half mile section of Wildcat Creek. After clearing the fence line of heavy *Ceanothus* cover, next came the hard work of moving bucks and fence rails into place. At the end of three days of hard work, about 4,000 feet of fence had been constructed.

A few weeks later, the Elana Gold scholarship trip arrived at Camp Cody with 37 students, parents, staff, and alumni. The Elana Gold students worked hard on the Wildcat enclosure during the June heat and were able extend an additional 500 feet of fence line to the enclosure (photo at left). The Forest is planning on finishing the project in 2005.

Photo above: Catlin Gable School students participate in building a buck-and-rail fence to exclude cattle from grazing along Wildcat Creek.

Catlin Gabel School returned in September with the newly arrived freshman class to assist in projects in the Rock Creek area. Catlin Gable students began digging fire line for an upcoming 600 acre prescribed fire underburn near the Sportsman Park area, scheduled for the spring of 2005. Fire crews from the Forest assisted and supervised the students, and taught students how to use fire fighting hand tools properly while digging fire line. In addition to digging line, student's removed dead branches from trees near the fire line and any overhanging shrubs.

Sandy River Anchor Habitats Project

A collaborative stakeholder group interested in the future of fisheries management in the Sandy River Basin convened in 1999. Taking a global look at the entire basin across multiple ownership boundaries, these stakeholders developed the *Sandy River Basin Agreement*, which called for a "strategy that is consistent with state and federal efforts to maintain and recover salmonids listed under the ESA (Endangered Species Act) in the Sandy River Watershed."

In 2004, the original 1999 agreement stakeholders and many additional partners in the basin came together again to identify specific reaches of streams and rivers in the Sandy River Basin important for current salmon and steelhead production – these areas are called *anchor habitats*. Using technically sound and scientifically rigorous tools and methodologies, the partners identified multiple anchor habitats throughout the basin for fall Chinook, spring Chinook, coho, and winter steelhead. Figure 7 shows the composite map of anchor habitats for all four species. The partners are continuing work in 2005 to develop an aquatic habitat restoration strategy for the basin using the anchor habitats as a foundation.

Partnering organizations in 2004 include:

- Association of Northwest Steelheaders
- Bureau of Land Management
- City of Portland Water Bureau
- Clackamas County
- Native Fish Society
- NOAA Fisheries
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Trout
- Sandy River Basin Watershed Council
- The Nature Conservancy
- U.S. Fish and Wildlife Service

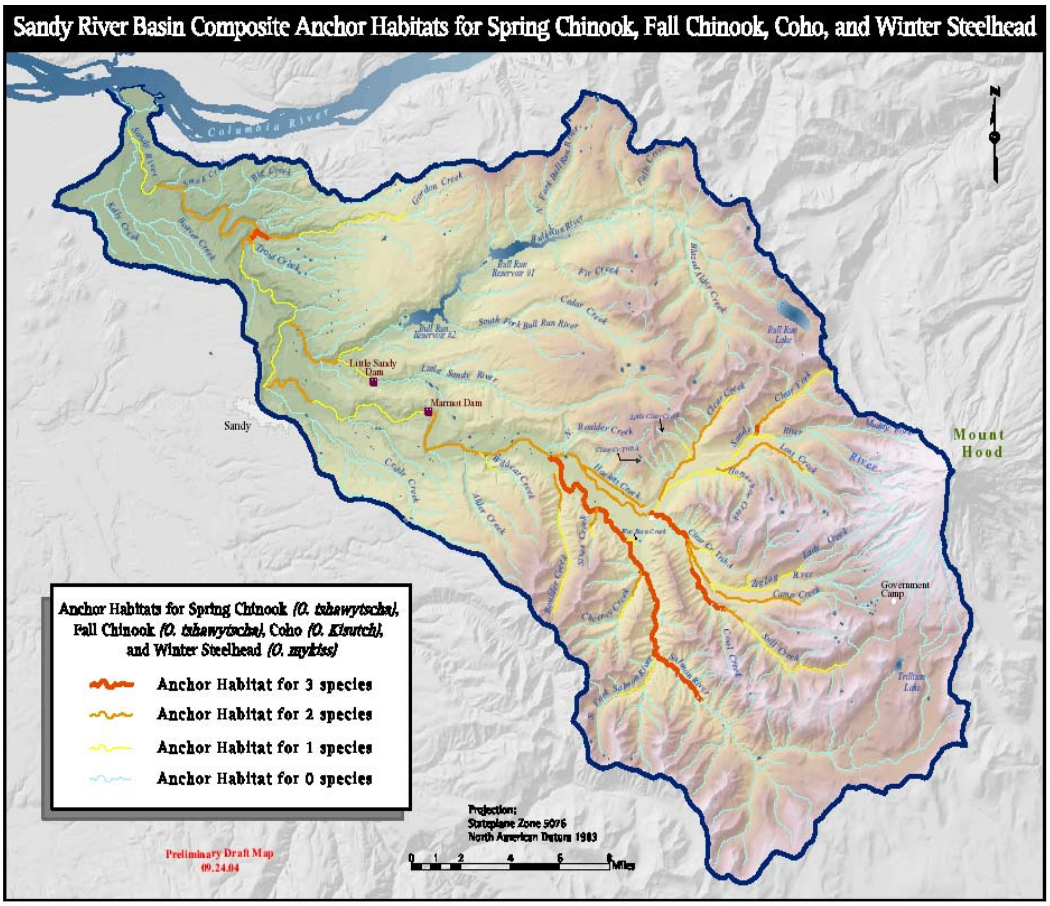


Figure 7. Preliminary Sandy River Basin anchor habitats for fall Chinook, spring Chinook, coho, and winter steelhead.

In the Sandy River Basin, the Mt. Hood National Forest has actively pursued restoration of anchor habitats on both federal and private lands over the last five years. A few of the more notable examples are listed below:

- Clear Creek Campground Restoration (federal)
- Arrah Wanna Homeowners Salmon River Restoration (private)
- Wee Burn Creek Restoration at The Resort at the Mountain (private)
- Clear Fork of the Sandy River Aquatic Habitat Restoration (federal)
- Salmon Carcass Stream Nutrient Restoration (federal and private)

Watershed Councils

The Oregon Legislature authorized formation of watershed councils in 1995. Watershed councils are locally organized, voluntary, non-regulatory groups established to improve the condition of watersheds in their local area. The council is a forum to bring local, state and federal agencies and plans together with local property owners and private land managers. The Forest is a partner with six watershed councils. These include:

- Clackamas River Basin Council
- Fifteenmile Creek Watershed Council
- Hood River Watershed Group
- Mill Creek Watershed Council
- White River Watershed Council
- Sandy River Basin Watershed Council

Forest Service fish biologists were active with their local watershed councils, attending regular meetings and providing technical advice and assistance in aquatic habitat restoration project planning and implementation. Watershed councils provide a critical conduit for implementing restoration projects, and they often serve as an important link for special watershed restoration grants. Watershed councils, in cooperation with the Forest, have received grants through the Title II Payments to Counties Program and the Oregon Watershed Enhancement Board.

Conservation Education

Cascade Streamwatch

Cascade Streamwatch (CSW) is a unique outdoor, aquatic ecology education program and facility. The program uses professional natural resource biologists as mentors to students from inner-city schools and under-served communities in Oregon and southwest Washington, and it focuses students on hands-on, science inquiry learning about watersheds and aquatic ecosystems. The CSW facility, itself, is a one-of-a-kind, outdoor classroom along the banks of the Salmon River at BLM's Wildwood Recreation Site in near Welches, Oregon. Founded in the early 1990s, the three primary partners; the Forest, Wolftree Inc., and BLM; established the CSW goal to increase students' understanding of Cascade mountain watersheds and stream ecosystems and to raise their awareness of how human actions can affect these watersheds.

The program uses a science-based curriculum in which students are active participants in the investigation of aquatic ecosystems. The foundation of the program comes from the professional biologists and natural resource specialists from the Forest and other participating partners who 'mentor' the students and provide them with insight, training, and experience. Students benefit by taking part in learning about and monitoring different environmental parameters such as water quality, macroinvertebrate assemblages, salmon life cycles, and streamflows.

Objectives of CSW are to 1) heighten the students' awareness and appreciation of Pacific Northwest aquatic ecosystems, 2) ignite interest and cultivate skills in science and math, 3) provide curricula that supplements and enhances classroom studies, and 4) develop and maintain ecosystem monitoring programs which support community efforts to restore fish and wildlife habitats in the Pacific Northwest.

In 2004, 2,261 students from 79 classes were directly served (between the Wildwood facility and the Bear Springs location). Nearly half of these students (46 percent) experienced two days in the field, engaged in science inquiry projects. The CSW program is also conducted in partnership between the Forest Service and Wolftree, Inc. on the neighboring Deschutes and Gifford Pinchot national forests. In 2004, there were a total of 8,126 students reached through the CSW program involving all three national forests.

Photo above: Students collect aquatic macroinvertebrates at Cascade Streamwatch.

Oxbow Salmon Festival

The Forest is one of the primary sponsors of the Oxbow Salmon Festival, a celebration of the return of salmon in October at METRO's Regional Oxbow Park along the Sandy River. The Forest participates on the festival's steering committee along with partners from Metro Regional Government, Portland General Electric, and Oregon Trout.

Photo above: A storyteller keeps children and adults entertained inside the Salmon Tent at Oxbow Salmon Festival.

Forest Service personnel help plan, staff, coordinate, and implement the event. During the festival, the Forest hosts the children's activity tent, informational booths on fisheries, hydrology, and environmental education, and a giant salmon-shaped tent that allows seating of 30-35 children for storytelling. The highlight of the festival in 2004 was viewing spawning chinook salmon in the Sandy River. An estimated 6,500 people attended the festival in 2004; 60 percent were first-time visitors of the festival.

Salmon Watch

The Forest has been a long-standing partner with Oregon Trout and their renowned Salmon Watch program. In place since 1994, Salmon Watch has been an effective conservation education program serving middle and high school students in Oregon. Students witness spawning salmon, one of nature's greatest spectacles, coupled with classroom instruction and service learning projects. The program is designed to instill a deeper appreciation and understanding of the value of native fish, watershed conservation, and environmental stewardship.

The Salmon Watch program is designed to acquaint the leaders of tomorrow with the historical, cultural and economic importance of Pacific salmon. The success of the program is with the teachers, who have been trained and have excellent resource materials through the Salmon Watch program. Another one of the program's strengths is the pool of resource professionals coming from a broad spectrum of private, state and federal agencies involved in resource management that serve as guides and instructors during organized field trips.

Fish biologists on the Forest assisted with several dozen Salmon Watch field trips in 2004. At various locations on the Forest, they led discussions on salmon biology, riparian ecology, water chemistry and aquatic insects; all against the backdrop of spawning salmon.

Fishing Clinics

The Forest sponsored four fishing clinics in 2004 in celebration of National Fishing Week. Across the Forest, about 775 children and 250 adults attended. All fishing clinics are community events, and local businesses and partners donated $4,836 in prizes, food and time. In 2004, over 60 different businesses, service groups and conservation groups contributed to hosting these events. Activities include fishing instruction, angling ethics, environmental education, aquatic insect identification, knot tying and rigging, a casting contest and fish identification.

Photo above: volunteers from a local flyfishing club teach casting at the clinic held at Trillium Lake, Zigzag Ranger District.

Salmon Life Cycle Game

Efforts of 13 conservation groups, education experts and government agencies came to fruition with the production of 1,200 copies of the Salmon Life Cycle Game. The game is a "Monopoly" style board game, designed to teach students grades 3-10:

- the life cycle of Pacific salmon,
- the importance of salmon to Native American tribes,
- basic concepts about watersheds, and
- introduce students to the complex political and social issues affecting salmon management today.

Games are available for lending from local Forest Service and Oregon Trout offices. The partners involved in the game production are listed below.

- Association of Northwest Steelheaders
- Army Corp of Engineers
- Bureau of Land Management
- City of Portland, Bureau of Environmental Services
- Columbia River Inter-Tribal Fish Commission
- Mt. Hood Area Chamber of Commerce
- Mt. Hood National Forest
- Oregon Department of Fish and Wildlife
- Oregon Trout
- Portland Public Schools
- Trout Unlimited
- U.S. Fish and Wildlife Service
- Washington Department of Fish and Wildlife

Photo above: Mt. Hood National Forest Supervisor Gary Larsen leads the game with students from a 4th grade class at West Gresham Elementary School.

Staffing

Headquarters

Dan Shively, *Forest Fish Biologist* (503) 668-1605
Tracii Hickman, *Fish Biologist,* located at Sweet Home Ranger Station (541) 367-9203

Clackamas River Ranger District

Tom Horning, *District Fish Biologist* (503) 630-6861
Bob Bergamini, *Assistant District Fish Biologist*
Sue Helgeson, *Fish Biologist*
Burke Strobel, *Fish Biologist and PNW Liaison*
Floyd Walker, *Fish Technician*

Hood River and Barlow Ranger Districts

Gary Asbridge, *Zone District Fish Biologist* (541) 352-6002
Darcy Morgan, *Assistant District Fish Biologist* – Hood River
Chris Rossel, *Assistant District Fish Biologist* – Barlow (541) 467-2291
KC Briggs, *SCEP Fish Biologist* – Hood River
Summer Crew – Chris Glenney, Sarah Grocholski, and Heidi Vogel

Zigzag Ranger District

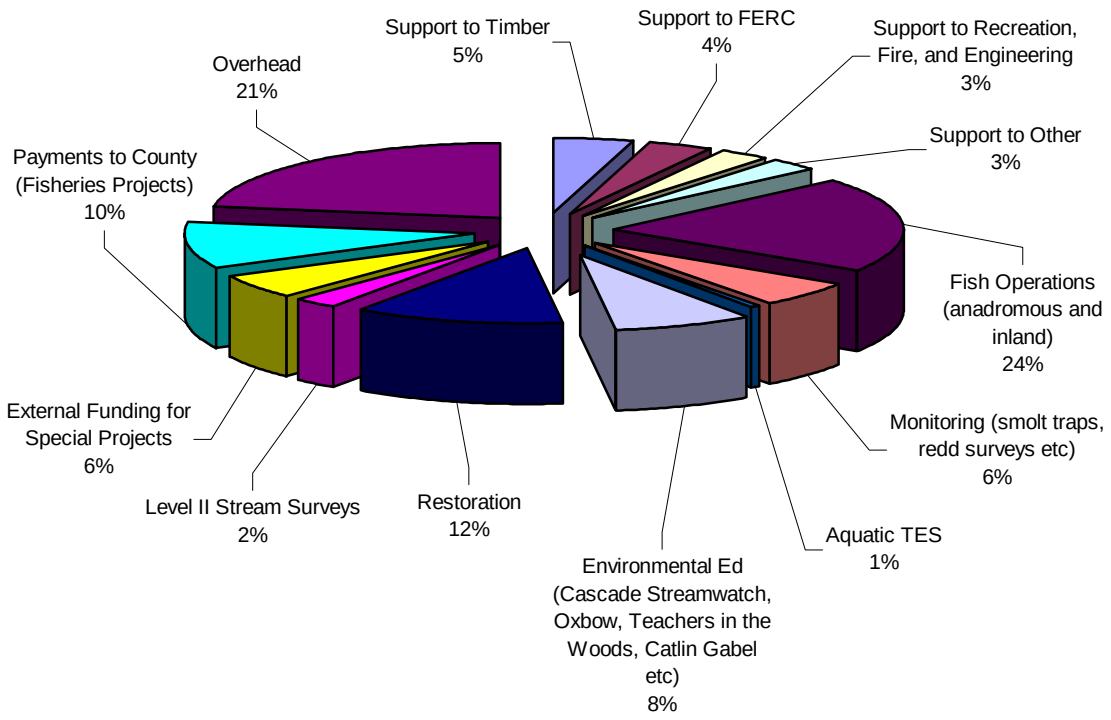
Duane Bishop, *District Fish Biologist* (503) 622-3191
David Saiget, *Assistant District Fish Biologist*
Summer Crew – Kathryn Arendt and Emily Kunz

Stream Survey Program

Katie Serres, *Program Coordinator* (503) 630-8784
Stream Survey Crew – Meagan Hatfield and Liz Keith (AFS Hutton Student)

The total budget for the fisheries program on the Forest in 2004 was $1,537,368. Figure 8 displays the various allocations for program areas.

Figure 8. Fisheries Program Forest-wide Budget FY 2004
Total Budget = $1,537,368



Thank You to Our Many Partners!

- Arrah Wanna Home Owners Association
- Association of Northwest Steelheaders
- Boy Scouts of America, Columbia Pacific Council – Camp Baldwin
- Bureau of Land Management
- Catlin Gabel School
- City of Dufur
- Clackamas County Water Environment Services
- Clackamas River Basin Watershed Council
- Clackamas River Water Providers
- Cleveland High School
- Confederated Tribes of Warm Springs
- Deschutes Resources Conservancy
- Eagle Creek National Fish Hatchery
- Estacada High School
- Farmers Irrigation District
- Fifteenmile Creek Watershed Council
- Hood River County Soil and Water Conservation District
- Hood River Watershed Council
- Inner City Youth Institute
- Metro Regional Parks and Greenspaces
- Middle Fork Irrigation District
- Mt. Hood Community College
- Natural Resources Conservation Service
- Native Fish Society
- NOAA Fisheries
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Forestry
- Oregon Trout
- Portland General Electric
- Portland Public Schools
- Portland State University
- Portland Water Bureau
- Resort at the Mountain
- Salmon Corps
- Sandy River Basin Watershed Council
- Sandy River Hatchery (ODFW)
- The Dalles Water Bureau
- Trout Unlimited – Tualatin Valley and Clackamas River Chapters
- U.S. Fish and Wildlife Service
- Wasco County Soil and Water Conservation District
- White River Watershed Council
- Wilderness Volunteers
- Wolftree, Inc.