



United States
Department of
Agriculture

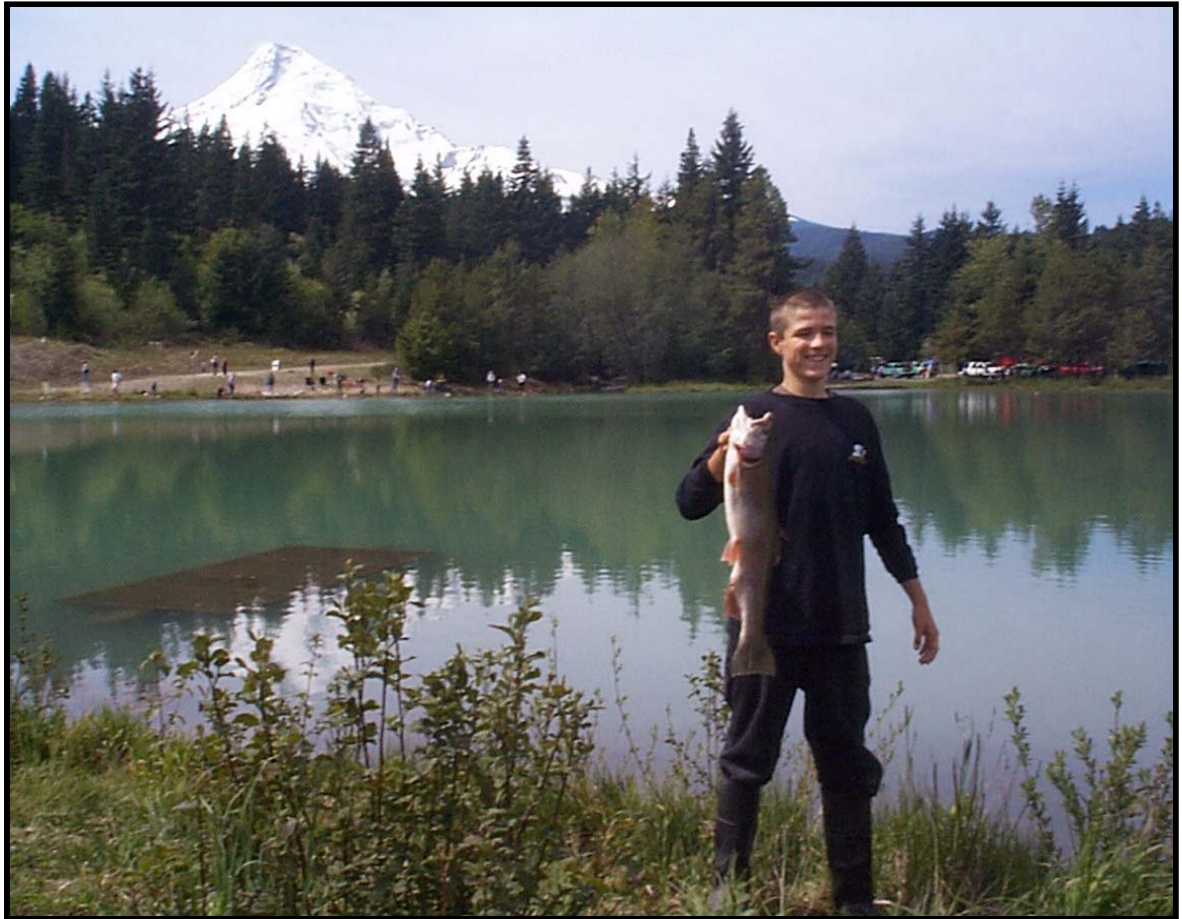


Forest Service

Pacific
Northwest
Region

2001

Fisheries Program 2000 Accomplishment Report



Winner of the Big Fish Contest at the Hood River Ranger District Fishing Clinic, Mt. Hood National Forest

Table of Contents

Introduction.....	1
2000 Awards.....	2
Fish Conservation.....	3
Thinking Like a Watershed.....	6
Planning and Support.....	14
Monitoring and Inventory.....	16
Environmental Education.....	22
Staffing and Funding.....	24
Thank You to our Many Partners!.....	26

Introduction

The year 2000 was another productive and busy year for the fisheries program on the Mt. Hood National Forest (the Forest). This document highlights outstanding activities and projects involving the fisheries staff. The fisheries staff is listed at the end of the document, and if you have any questions or comments please contact personnel at the ranger stations or the Forest Headquarters Office.

Some key highlights:

- Fish conservation is a cornerstone of the program. Fisheries staff continue implementation of the Endangered Species Act, analyzing projects and writing 29 reporting documents to assure National Forest projects either would aid in or not impede the recovery of fish.
- All personnel contribute to programs assisting the recovery of fish and aquatic populations. Some of the programs include the Clackamas River Fisheries Working Group, the Sandy River Basin Agreement Team and the Hood River Bull Trout Working Group.
- For the first time, fifth-field (25,000-100,000 acre) watersheds were compared to each other across the Forest to set priorities for watershed restoration. The watersheds were ranked by watershed sensitivity, management intensity and biological considerations such as “stocks at risk”. The analysis will be folded into a Forest-wide Environmental Assessment for watershed restoration projects (to be completed in 2001).
- Watershed councils and basin working groups continue to be an important venue to strengthen our partnerships with local communities and resource professionals. Fish biologists have played key roles in the start up of the White River Watershed Council, and participate with the Hood River Watershed Council, Fifteenmile Watershed Council, Sandy River Basin Agreement Team and Clackamas River Fisheries Working Group.
- Relicensing of hydroelectric projects on the west-side of the Forest continued to be a major work item.

2000 Awards

The Region 6 Fisheries Program annually recognizes outstanding contributions to the fish program. The Forest received four of the six awards in 2000 in the following categories:

- ***Partnership in Total Fish Program Development*** – Tom Horning and Bob Bergamini, Clackamas River Ranger District
- ***National Fishing Week, District Award*** – Barlow Ranger District
- ***Friend of the Program*** – Cole Gardiner
- ***Recreation/Fisheries Policy Award*** – Chuti Fiedler, Hood River Ranger District, for development of a bilingual brochure and interpretive kiosk on identification and protection of bull trout.

A special award was given to Gary Asbridge, Hood River Ranger District, from the Hood River Farmers Irrigation District recognizing his leadership and contribution to the Greens Point Creek Restoration Project.



From left to right: Dan Shively, Mt. Hood National Forest fish program manager accepting for Cole Gardiner; Tom Horning, Clackamas River Ranger District; Gary Asbridge, Hood River Ranger District; Chuti Fiedler, Hood River Ranger District; and Chris Rossel, Barlow Ranger District.

National Rise to the Future Award – Wolfree, Inc.

The Washington D.C. Fisheries Program annually recognizes nationally outstanding contributions. Nominees compete against other programs from throughout the United States. In 2000 Wolfree, Inc. received the National Rise to the Future award for “Public Awareness”, honoring their work in environmental education and conservation.

Fish Conservation

The fish found in Table 1 are listed under the Endangered Species Act (ESA) as threatened, or are proposed or candidate species for ESA listing. Any federal action that may affect listed fish; such as harassing, collecting, or changing habitat (commonly known as “take”), must go through the consultation steps identified in the ESA.

Table 1. Status of Threatened Fish on the Mt. Hood National Forest in 2000

Species	Evolutionarily Significant Unit Status
Chinook Salmon	Listed Threatened Lower Columbia River ESU 3/99 Listed Threatened Upper Willamette River ESU 3/99
Coho Salmon	Candidate Lower Columbia River/ Southwest WA ESU 7/95
Steelhead	Listed Threatened Lower Columbia River ESU 3/98 Listed Threatened Middle Columbia River ESU 3/99
Coastal Cutthroat Trout	Proposed as Threatened Southwest WA/Columbia River ESU 4/99
Bull Trout	Listed Threatened Columbia River Distinct Population Segment 5/98

The Forest consults with two federal regulatory agencies, U.S. Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS). Table 2 displays the number of consultation documents prepared by Forest Service fisheries biologists to meet requirements of the ESA. A biological evaluation is first completed, then, if warranted, a biological assessment is prepared. A team of biologists from federal agencies reviews proposed projects and the consultation documents. The team may specify guidelines to amend the proposed projects to minimize impacts to fish. Preparation of documents and consultation with regulatory agencies continues to be a major work item.

Table 2. Summary of Consultation Documents Submitted to the National Marine Fisheries Service and the Fish and Wildlife Service

Projects	Number of Biological Evaluations (BE's) and Assessments (BA's) Prepared	
	BE's	BA's
Timber Sales	4	4
Recreation Projects	7	0
Restoration Projects	5	0
Engineering Projects	10	0
Other	3	0
Total	29	4

Hood River Bull Trout Working Group (Hood River Ranger District)

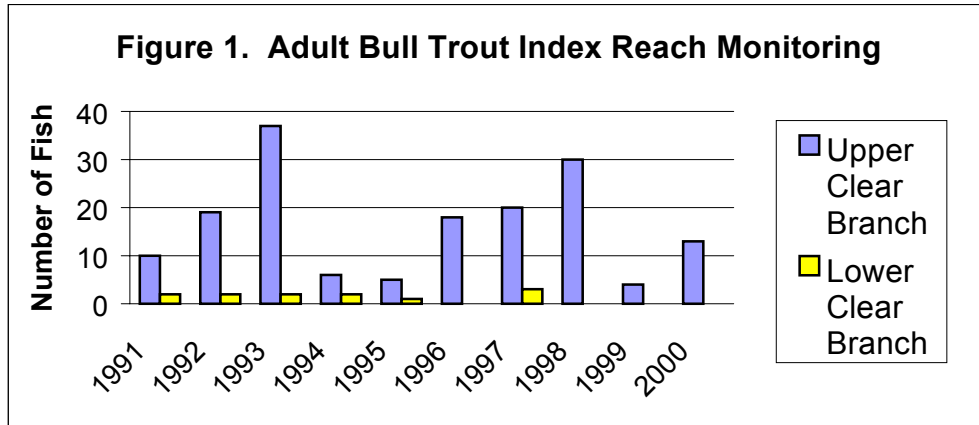
The Hood River inter-agency bull trout working group exemplifies the Forest's commitment to recovery of declining fish populations. Formed in 1989, cooperators include the Forest, Oregon Department of Fish and Wildlife, the Confederated Tribes of Warm Springs, Middle Fork Irrigation District (MFID) and the U.S. Fish and Wildlife Service.

Fish biologists from the Hood River Ranger Station monitor bull trout populations on the Forest. Index reaches were established in 1991 to determine distribution and fish densities. Over the years the information gathered has been used to determine key spawning and rearing areas for protection, and to establish population trends. Surveying at night by snorkeling has been found to be generally the most successful technique for consistent juvenile census. Night snorkeling is used to do all exploratory surveys to try and find new populations within the Hood River basin. Redd surveys are conducted in low gradient, non-glacial, streams to establish annual spawning index rates. Day snorkeling is specifically conducted in Clear Branch Creek to get an annual count of upstream adult migrants into their spawning reaches. The results of the annual counts are displayed in figure 1.



Night snorkel surveys are the most successful method of finding bull trout.

Since the inception of this program, bull trout distribution has expanded from Clear Branch and the Hood River mainstem to also include Pinnacle Creek, Coe Branch/Compass Creek, Eliot Branch and Bear Creek. Trends in population continue to be stable but very low.



The Clear Branch dam in the Middle Fork Hood River watershed is a fish passage barrier. A trap at the base of the dam is in operation from April – November to capture and transport fish over the dam. Cutthroat trout have been captured and released above the dam, but not bull trout, due primarily to low numbers caught. In 1999 and 2000 there were no bull trout captured at all at the trap due to flood damage affecting the attraction flow. District fisheries personnel, along with ODFW and MFID, have discussed the trap attraction flow problem and are working towards a solution.

Willamette/Lower Columbia Technical Recovery Team (Headquarters)

Forest Fish Program Manager Dan Shively is a participant on the NMFS Technical Recovery Team for the four listed salmon and steelhead stocks in the Lower Columbia River and Willamette Basin. He is also chair of the habitat work group. The goal of the habitat work group is determine aquatic habitat needs for the four stocks of fish. The goal of the recovery team is to develop the ESA recovery goals and delisting criteria for the listed fish.

Accomplishments for the year include:

- Co-hosting a two-day habitat assessment workshop involving scientists from around the Pacific Northwest to review and critique habitat and production capability models. A product of the workshop is a summary outline documenting the proceedings.
- Participation with the entire recovery team to identify historic populations and determine population viability for the listed fish and set standards to delist from the ESA.
- Conducting numerous meetings and conference calls for the habitat work group. There are many aquatic habitat models, and the habitat group developed a work plan to conduct systematic analyses of the models to evaluate their strengths and weaknesses.

Clackamas River Bull Trout Recovery Working Group (Clackamas River Ranger District)

Historically, bull trout occupied the Clackamas River watershed. Bull trout are currently listed as threatened under the Endangered Species Act. A draft recovery plan has been developed for bull trout, and the Clackamas River basin has been identified as a potential location for reintroduction. Representatives from agencies and local interests continue to investigate recovery alternatives.

Thinking Like a Watershed

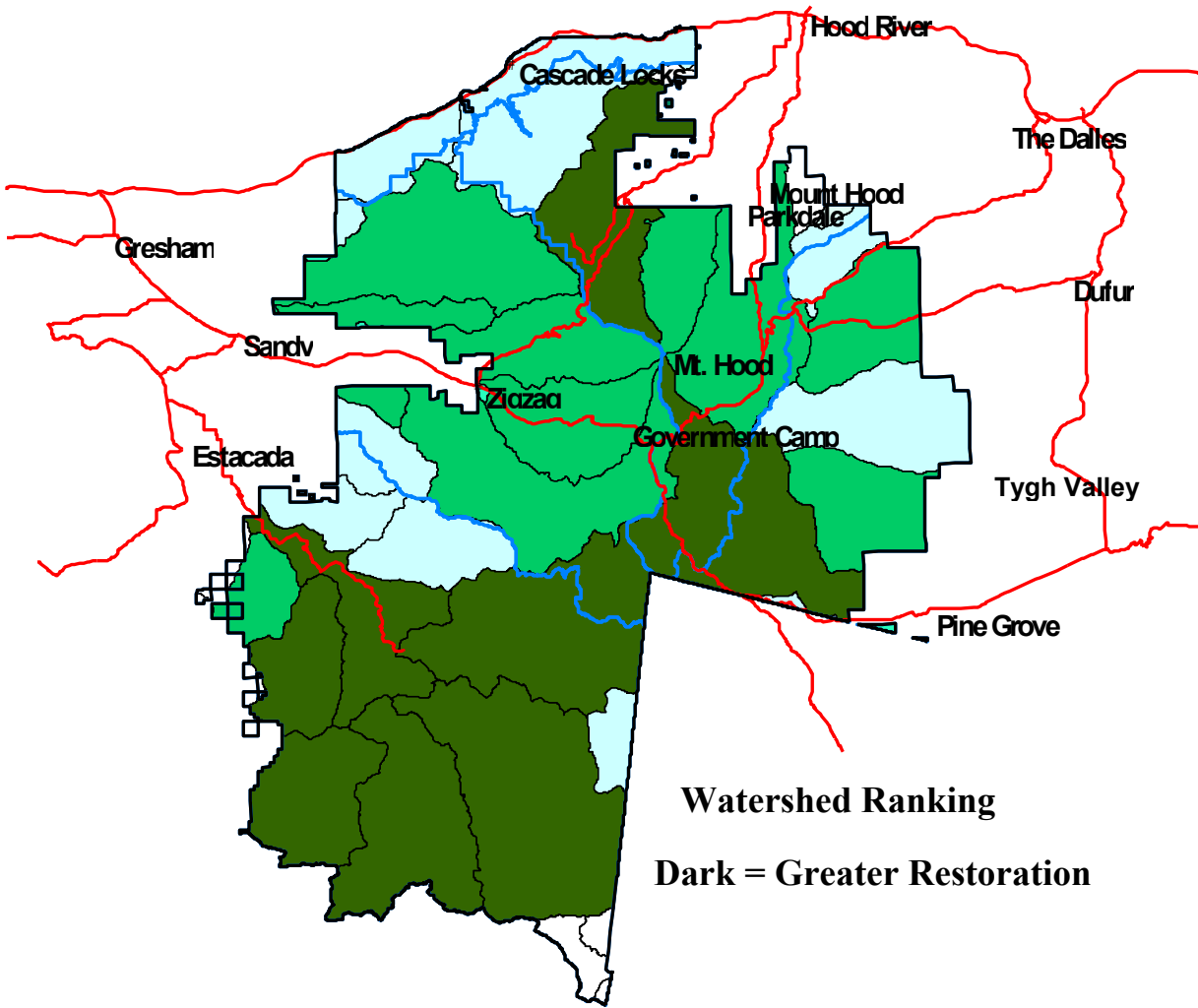
The fisheries program continues to emphasize watershed management as a component of fisheries management. Many activities are best done at a watershed or basin scale. Examples of these activities include analysis across landscapes (such as watershed analysis), management of fish stocks, community involvement through watershed councils, and partnerships with other fish management organizations such as state government, private industry and research.

Watershed Restoration-Fifth Field Analysis

For the first time on the Forest, an interdisciplinary team has evaluated and ranked all the major watersheds to help focus watershed restoration dollars and activities. The criteria for ranking include watershed sensitivity, management intensity and biological considerations such as “stocks at risk”. The analysis will be folded into a Forest-wide Environmental Assessment for watershed restoration projects (to be completed in 2001).

Figure 2 displays the initial results of ranking watersheds by watershed sensitivity.

Figure 2. Watershed Restoration Ranking



Stream Restoration Projects

Stream restoration projects are one of many tools used to restore ecological health to streams and watersheds. Stream restoration projects are done as part of an integrated effort to correct problems throughout a watershed. Coupled with stream restoration projects are activities such as road decommissioning (removing roads to restore the natural drainage pattern of the hillside), stabilizing landslides, and thinning trees in riparian areas to promote faster growth of the remaining trees. Highlighted below are a few stream restoration projects completed across the Forest in 2000.

Still Creek Coho Carcass Nutrient Introduction (Zigzag Ranger District)

In 2000, biologists at Zigzag Ranger District continued with coho carcass placements in a two-mile stretch of Still Creek. This was the 6th year of a cooperative project between the Forest and the Oregon Department of Fish and Wildlife to increase nutrient levels in the stream channel. Nutrients from decomposing carcasses increase primary productivity and provide food for aquatic organisms such as macroinvertebrates, which juvenile salmonids feed on.

Over a period of five weeks in October and November of 2000, students backpacked carcasses into the stream reaches and deposited them in pools, off-channel habitats, and log jams. Approximately 600 carcasses were placed using over 60 volunteers from Portland high schools, Mt. Hood Community College, and local partners such as the Northwest Steelheaders.

Fish Creek, Clackamas River (Clackamas River Ranger District)

A three year, watershed-wide restoration project was completed in the Fish Creek watershed in 2000. Following the large flood in 1996 Fish Creek had the greatest number of landslides on the Forest. Most roads were inaccessible, and substantial change occurred in the stream channel. Following analysis and public input a restoration program was initiated in 1998. Table 3 summarizes the work accomplished.

Table 3. Summary of Restoration Projects Completed in Fish Creek

Road Decommissioned Category	Miles Decommissioned
Level III, IV, and V	50.6
Level I and II	45.9
Level I and II closed naturally	10.0
Total System Miles Closed	106.5
Cost per Mile of Decommissioning	\$25,000
Major Pipes Removed	114
Minor Pipes Removed	1,050
Stream Crossings Restored (estimate)	60-80
Erosion Control (all hand placed)	
Seeding and Fertilizing	435 acres
Mulching with Annual Rye Grass Straw	114 acres
Erosion Control Mat	718 square yards
Other Reconstruction Sites Total Cost	\$315,150
Total Project Cost*	\$2,636,000

**does not include silviculture, fisheries or riparian activities*

In addition to completing the hillslope projects, inchannel restoration work was completed. Approximately 350 logs and 100 large boulders were utilized to create log complexes along stream margins at four sites within unconstrained stream reaches. A side channel was also restored. Approximately one mile of stream was treated.

Stream restoration projects includes large log complexes to provide overwinter fish habitat.



Cheaney Creek, Zigzag River (Zigzag Ranger District)

During the summer of 2000, 300 feet of eroding cutbank at the mouth of Cheaney Creek was sloped back and bioengineered with log/boulder complexes and alder/willow/conifer plantings to stop erosion and bank loss. Pre-project monitoring had indicated that riparian bank erosion at this site was occurring at a rate of 3-6 linear feet per winter culminating in an estimated 30-40 feet loss of bank in the last ten years. The eroding cut bank was introducing sediments into the Salmon River, a Wild and Scenic River and a major producer of Coho salmon, Chinook salmon, and winter steelhead trout in the Upper Sandy River Basin.

Noxious weeds (scotch broom) that had been out-competing native conifers and plant species in the riparian area were also removed and replaced with native plant species. Approximately one acre of riparian area was treated using volunteers from Americorps and Multnomah County work crews.

As another component of this project, a seven person Multnomah County volunteer work crew spent five days using hand tools to remove a thirty foot long by two foot diameter plugged culvert along the Bonanza Trail in the Salmon-Huckleberry Wilderness. This culvert obstructed winter flows, resulting in slumping of the hill slope and the potential for mass wasting of the hill slope into Cheaney Creek.

Clear Branch, Middle Fork Hood River (Hood River Ranger District)

Another flood repair project on the Forest was completed in Clear Branch Creek. Three major activities were implemented in 2000; restoring stream flow in an abandoned side channel by excavating sediment and other material at the entrance, closing, and then restoring a rock quarry and access road in the riparian area to a functioning floodplain/wetland complex, and adding large wood to the stream channel and floodplain with a helicopter. One mile was treated with restoration activities.

The side channel provides habitat for fish during high winter flows.



Clear Fork, Sandy River (Zigzag Ranger District)

During the summer of 2000, approximately 190 logs and root wads were flown into a one quarter mile reach of Clear Fork Sandy River. The project goal was to correct residual effects from the 1996 and 1999 flood events. Flood effects include large wood movement out of the reach, channel straightening and downcutting, and side channel abandonment. The overall goal of the project is to restore channel complexity to the low gradient reach, while improving the sites ability to move bedload and water associated with large flood events.

Initial project results include channel aggradation, and re-watering of a side channel associated with placed log jams. A momentary (one to three years) decrease in stream bed particle size distribution is expected as a result of the decreased channel gradient and power, and increase in channel length.

Pre-project monitoring was completed in 1994 and 1996. Example monitoring elements include a plan view map of the reach (via Redi-mapper), Wolman pebble counts and channel cross sections. Photo points established in 1994 were re-shot and permanently benchmarked for future monitoring efforts.

Ramsey Creek, 15 Mile Creek (Barlow Ranger District)

The impacts of 1996 flood in the Ramsey Creek watershed were severe. Several miles of stream downcut, the floodplain was abandoned, and the channel was simplified. An aggressive restoration project was implemented in 2000. 56 Log jams were created along 1.5 miles of the 2.9 mile project area. 1,100 logs were imported for channel work, of which 650 were placed both in the active channel and floodplain of the upper section of the project area. A major portion of the riparian area was restored through road decommissioning and planting of conifers and shrubs. The remaining work is scheduled to be completed in 2001.



The newly restored channel is loaded with large wood for fish habitat.

Green Point, West Fork Hood River (Hood River Ranger District)

The Hood River Ranger District partnered with the Farmers Irrigation District, Confederated Tribes of the Warm Springs Reservation, Oregon Department of Fish and Wildlife, and many other cooperators to improve fish habitat and stream/riparian function in Green Point Creek. Forest Service personnel participated in the design, implementation, and monitoring phases of this large scale project. Approximately 600 logs placed in the stream channel and floodplain by helicopter. The Forest Service contributed funds and 250 logs to the effort.

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 land management agencies and plans together with local property owners and private land managers. The Forest is a partner with six watershed councils, the Clackamas River Basin watershed council, the Hood River watershed council, the Fifteenmile watershed council, the Mill Creek watershed council, the newly formed White River watershed council, and the Sandy River Basin watershed council. Fish biologists were active with their local councils, either serving as a board member or technical advisor.

White River Watershed Council

The White River watershed council startup was in 2000. Preliminary steps taken by the council include identification of council and board members, and initiation of a watershed-wide watershed analysis. Issues explored include use of the Conservation Reserve Program where fields are converted to native vegetation species for wildlife benefits, no-till techniques to conserve topsoil, and water irrigation use.

Clackamas River Watershed Council

The Clackamas River watershed council joined the Clackamas River fisheries working group (commonly called OBOB's). Active participation from the council has helped OBOB's address issues and concerns from the many citizens and interests on the Clackamas River.



This two-way culvert trap is used to monitor movement of juvenile fish in and out of a side channel. The project is sponsored by OBOB's with watershed council support

Sandy River Basin Watershed Council (SRBWC)

The SRBWC had an active year in 2000 with securing and hiring a Watershed Coordinator. The Forest has become a major contributor to the SRBWC by providing office space for the coordinator. Duane Bishop represents the Forest at monthly council meetings. The council is actively pursuing OWEB funding for several restoration projects in the basin as well as outreach to landowners, governmental and non-governmental agencies.

Hood River Watershed Council

The Hood River Watershed Council continues to be very active in the basin and is recognized as a primary player influencing policy decisions in the area. The Hood River Watershed Council has completed a restoration project priority list for the Hood River Basin and is actively pursuing funds for a variety of restoration and education projects.

Sandy River Basin Agreement Team

Recognizing the regulatory hurdles with the listing of steelhead and chinook in the Sandy River basin, in 1999 local representatives of government agencies formed the Sandy River Basin Agreement Team. The original team consisted of a representative from Portland General Electric, Oregon Department of Fish and Wildlife, Mt. Hood National Forest, U.S. Fish and Wildlife Service, National Marine Fisheries Service and the City of Portland. The original mission of the group was to maintain and improve conditions for salmon and provide for their long-term protection.

The group has now split in two – a policy group and a fisheries technical working work. Duane Bishop, Zigzag Ranger District Fish Biologist, represents the Forest on the working group. His group has been applying the Ecosystem Diagnosis and Treatment Method to assess watershed health and develop and implement a watershed plan for the Sandy River Basin. Most of the data used in the model is from Forest stream surveys, completed monitoring surveys and smolt trap data. Preliminary analysis is due in 2001, and will serve as the basis for restoration strategies and projects. Restoration activities are scheduled to begin in 2002.

Planning and Support

FERC Relicensing

After a 30- to 50- year license term, a hydroelectric project licensed by the Federal Energy Regulatory Commission (FERC) comes up for relicensing. Biologists on the west-side of the Forest are involved in relicensing five projects owned by Portland General Electric (PGE) (see Table 4).

Table 4. Location of hydroelectric plants with Forest relicensing participation.

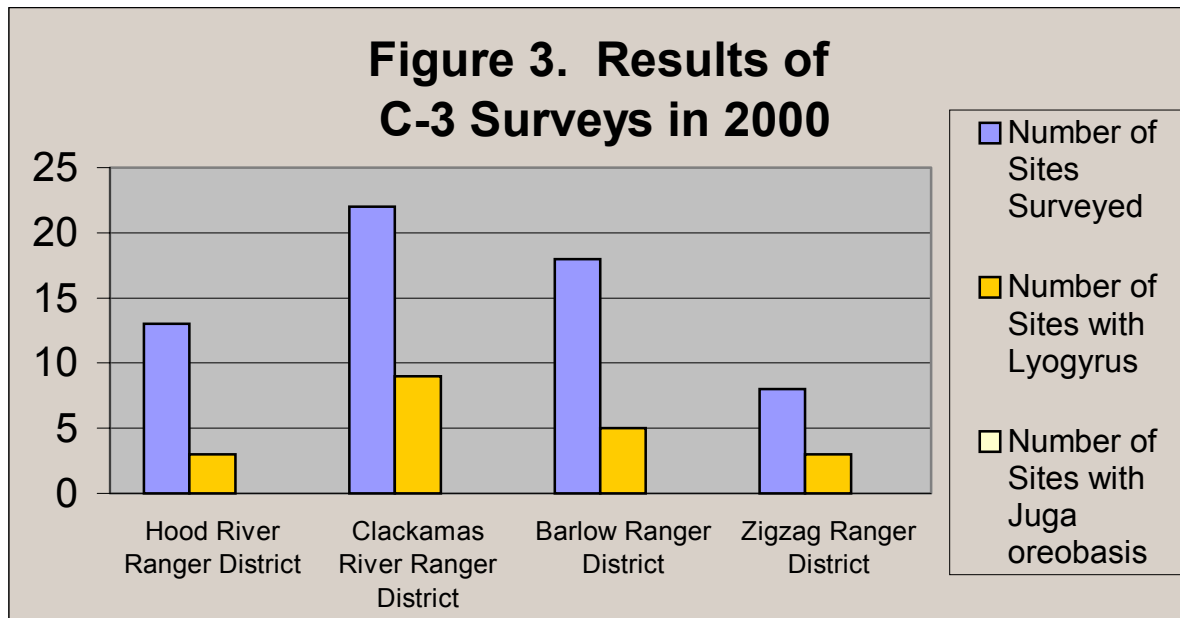
Plant(s)	River Basin	License Expiration Date	Assumed New License Term	Forest contact
Oak Grove	Clackamas River	08/31/06	30 years	Tom Horning
N. Fork, Faraday, and River Mill	Clackamas River	08/31/06	30 years	Tom Horning
Marmot and Little Sandy	Sandy River	11/16/04	N/A*	Duane Bishop

**The Marmot hydro plant will be decommissioned after its current lease expires.*

Relicensing hydroelectric projects is complex, as applicants and affected resource interests strike a balance between power and non-power benefits, while considering all resource issues at stake. PGE and the licensing participants are using an alternative licensing process to negotiate through the many complicated steps. The alternative licensing process uses a collaborative approach to involve the public, local, state, and federal agencies (including the Forest) and others earlier than through traditional relicensing.

Survey and Manage Program

As the Forest Service has shifted to ecosystem management the amount of information collected prior to planning and implementing projects has increased significantly. Planning ground disturbing activities such as timber sales, recreation improvements or fish habitat projects requires extensive ground surveys. The 1994 Northwest Forest Plan identified many species of plants and animals requiring special survey techniques to detect their presence. The species are commonly called “C-3” species, referring to the name of the table where they are listed in the Northwest Forest Plan. The fisheries program is responsible for the survey of two aquatic mollusks – the Columbia dusky snail (*Lyogyrus n. sp.1*) and the Basalt Juga (*Juga Oreobasis n.sp. 2*). In 2000 the results of surveys for C-3 species are displayed in figure 3. There were no Basalt Juga found on the Forest.



When a C-3 species is found a project may be modified to protect the species. Generally the standards and guidelines of the Northwest Forest Plan provide adequate restrictions, but additional measures may be taken to insure protection of water quality and habitat.

Monitoring and Inventory

The center of the monitoring and inventory program is the Forest-wide, Level II stream survey program. Stream surveys provide us with a “snapshot” of current stream conditions. Survey data is used to identify potential restoration projects and to determine the extent of fish distribution on the forest. In 2000, 43.6 miles of stream were surveyed, inventorying fish habitat features such as pool depth and stream bank stability.

Lake Surveys

Region 6 Level II surveys were completed on four lakes on the Mt. Hood National Forest during 2000. The lakes surveyed were Horseshoe (15.5 acres), Round (9.6 acres), View (7.8 acres) and Timber (18.4 acres). All the lakes were located on the Clackamas River Ranger District. Water quality, biological and recreational levels were within acceptable levels for all lakes surveyed.

Timothy Lake Survey

Timothy Lake is a 1,388 acre reservoir within the Clackamas River watershed. The lake was first surveyed in September for *Mysis* shrimp using plankton net tows. Opossum shrimp, *Mysis relicta*, were introduced into Timothy Lake, and 10 other Oregon water bodies, in 1965, 1966 and 1967 by the Oregon State Game Commission to improve fish production. A total of 178,000 opossum shrimp were introduced.

The objective of the survey was to sample Timothy Lake and determine a presence of *M. relicta*, or at least present evidence of the likelihood of their failure to become established. No individuals of *Mysis relicta* were found in the year 2000 Timothy Lake sampling. This survey concurs with an earlier report, which found the original introductions of *M. relicta* into Timothy Lake failed. The cause of failure in the Timothy Lake introductions is unknown.

Still Creek Smolt Trap (Zigzag Ranger District)

A smolt trap has been operating on Still Creek since 1992. It is the only operating smolt trap within the Sandy River Basin. It provides a means for enumerating annual smolt production to evaluate recovery of basin stocks and success of restoration efforts. In 2000, numbers of steelhead smolts enumerated totaled only 11% of 1999 totals and numbers of coho smolts enumerated totaled only 42% of 1999 coho smolt totals.

Lower numbers of steelhead smolts in 2000 may be related to the 1996 floods as the 2000 emigrating smolts are offspring of the 0+ fry class present in the stream during the floods of 1996.

Marmot dam is located approximately 11 miles downstream of the smolt trap on the mainstem of the Sandy River. Portland General Electric operates Marmot dam, and has decided to decommission the dam when the operation license expires in 2004. The Still Creek trap will be an essential tool to monitor impacts of dam removal on escapement and distribution of native anadromous fish versus introduced hatchery fish.

Bull Run Lake Cutthroat Surveys (Zigzag Ranger District)

Spawning surveys in tributaries and shoals of Bull Run Lake for coastal cutthroat trout are in their eighth year. Surveys began in 1993 after water withdrawals by the Portland Water Bureau dropped lake elevations below natural levels, blocking access of fish into spawning tributaries. Under the Bull Run Lake Special Use and Lake Level Management Plan, the Portland Water Bureau may draw down the lake level up to 26 feet.

Biologists are studying the impacts of lake drawdowns on annual fish productivity, recruitment, and survival. They are investigating impacts to spawning success, overwintering and rearing habitats, and access to shoal waters and tributary streams.

The number of cutthroat trout redds has varied from 48 to 512 since 1993. In 2000, tributary total redd counts were the lowest since of all survey years (2 miles of stream surveyed on 6 tributaries, 48 redds found). Total tributary redd counts in 2000 were only 56% of 1999 total tributary redd counts. Spawner counts in 2000 were also the lowest since 1993. Post-spawning stream surveys conducted in July-August showed 27% of the redds constructed in 2000 to be at risk from low summer streamflows.

Fifteenmile Creek Water Quality Technical Working Group

This working group, comprised of Oregon Department of Environmental Quality, the Forest, Oregon Department of Fish and Wildlife, Wasco County Soil and Water Conservation District, and Natural Resources Conservation Service members, along with local landowners, is collaborating to determine the total maximum daily loads (TMDL) for water temperature and turbidity in the Fifteenmile Creek watershed. Data is being collected to determine baseline conditions and will be used in computer models that can predict changes in temperature/turbidity based on different land management scenarios. The group is striving to arrive at realistic TMDL's that reflect natural conditions, are achievable, and are supported by all involved.

Fish Passage Culvert Surveys (Forest-level Project)

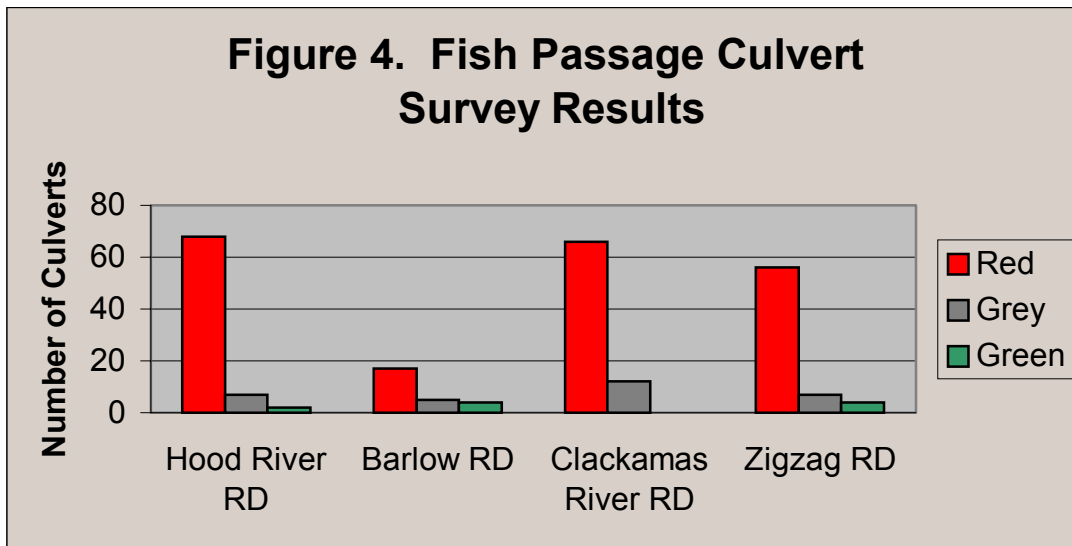
The Forest embarked on an intensive, Forest-wide survey of all culverts on fish bearing streams in 1999, and completed the survey in 2000. In the past, culverts had been surveyed for passage of adult fish, but this was the first attempt to evaluate passage of fish at all life stages.

The protocol for the survey began with an initial evaluation of the following criteria:

- Is the culvert on a fish bearing stream?
- Is the stream gradient below 20%?
- Is there a known impassable falls downstream?
- Is the culvert a road ditch drainage pipe?

Once the pipe passed the initial criteria, fisheries personnel conducted an evaluation of fish passage. Some of the information collected included culvert length, shape, size, and gradient, jumping distance into the culvert, stream channel width and gradient, and miles of habitat blocked above the culvert.

All culverts were then rated either green (completely passable), red (impassable at some or all stream flows), or gray (need further information). Figure 4 displays the results across the Forest. There are a small number (35) of road and stream crossings on the Zigzag Ranger District, and the White River watershed, to be surveyed in 2001.

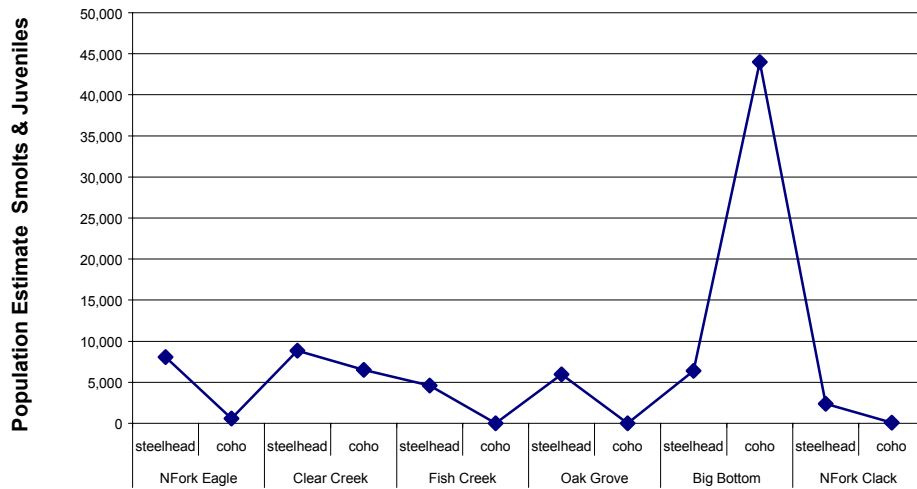


Clackamas River Fisheries Restoration

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. In 2000, the Clackamas River Ranger District continued its role as a principal partner. Biologists led efforts to:

- Monitor out-migrating smolt populations through a system of six rotary smolt traps at locations throughout the Clackamas River basin. Four are on the Forest and two are operated off the Forest. All fish caught are enumerated, and population estimates are completed for Pacific salmon and steelhead. Figure 5 displays the results of the 2000 trapping season.

Figure 5. Clackamas River Fish Traps Year 2000



- Examine the impacts of non-native fish (primarily brook trout) on native fish in the Timothy Lake watershed. Using telemetry (small radio transmitters) fish are tracked to determine distribution, life history characteristics, spawning areas, and interactions with native fish.
- Continue the long-term evaluation of special angling regulations (catch and release, fly fishing only) on cutthroat trout in the Oak Grove Fork of the Clackamas River.
- Monitor and evaluate salmonid use and migration through newly installed baffled, squashed arch pipe culverts on Buckeye Creek, Tag Creek and Tar Creek. Fifteen cutthroat trout were captured at each site, and marked with a fin clip. Block nets were installed at the inlet and outlet, and then fish were monitored for movement. Results were positive. In three days between marking and recapture fish successfully moved at one location, and eventual movement was verified at a second location by electroshocking three weeks later.

- A pilot project to evaluate fish passage at the Stone Creek hydro system on the Oak Grove Fork of the Clackamas River began in 2000. Fifteen cutthroat trout and two brook trout were fin clipped and monitored for their movement. The trap failed though, and no fish were recaptured. The trap is undergoing design modification, and the experiment will be repeated in 2001.



Pacific lamprey caught in the rotary-screw trap on Clear Creek, one of six smolt traps sponsored by the Clackamas River fisheries working group.

Teachers in the Woods (Forest-level Project)

A unique tool the Forest uses to accomplish monitoring tasks is the cooperative program “Teachers in the Woods”. In 1995 a partnership was formed with Portland State University to provide continuing education to science teachers in junior and senior high schools. The fisheries program obtains funding, manages the challenge cost share aspect of the program, and provides supervision on the Forest. A portion of the program is training the teachers in monitoring techniques, but the overall goal is to accomplish needed project monitoring, and introduce or enhance their understanding of the scientific inquiry process so teachers can integrate it into their own classroom curricula.

Twenty-five teachers participated in the Teachers in the Woods program in 2000. Nine teachers were assigned to the Forest. The remaining teachers worked across the Pacific Northwest from Redwood National Park in northern California to western Montana. Work crews of two to four teachers assisted Forest Service personnel in monitoring 12 different types of projects on the Forest. Projects ranged from inventorying impacts of human use in remote wilderness areas to evaluating fish passage at a small hydroelectric facility.



Teachers monitor riparian area use on the Zigzag Ranger District

Environmental Education

Fish biologists work actively with local communities to interpret and share information about the Forest and the fisheries resource. This is done through presentations, classroom and outdoor activities, sponsoring gatherings such as the Salmon Festival and fishing clinics, and development of brochures and videos.

Cascade Streamwatch (Zigzag Ranger District)

The Cascade Streamwatch program operates under the principal partnerships between the Forest, Bureau of Land Management (BLM), and Wolfree, Inc. (a non-profit science education organization). The program serves school children from Portland and surrounding communities with the primary purpose of teaching students about healthy watersheds and aquatic ecosystems. Students benefit by taking part in monitoring different environmental parameters such as water quality, macroinvertebrate assemblages, salmon life cycles, and streamflows. The program conducts courses at the main site at BLM's Wildwood Park on the Salmon River, Three Creeks at Old Maid Flats, and Larch Mountain. The program served 1,100 students in 2000. It is estimated 6,000-8,000 students and adults visited the Wildwood program site on unofficial, self-guided trips.

Wolfree, Inc. has been an instrumental partner since the inception of the idea for Cascade Streamwatch. In 2000 Wolfree, Inc. was recognized for their outstanding efforts with the Forest Service National Rise to the Future Award for "Public Awareness".

Fishing Clinics (all Ranger Districts)

In celebration of National Fishing Week, four fishing clinics were hosted on the Forest in 2000. Over 700 children and adults attended. Many partners; including fishing groups, national and local businesses, service organizations and individuals participate in hosting these events. Activities include fishing instruction, angling ethics, environmental education, aquatic insect identification, knot tying and rigging, a casting contest and fish identification.

Salmon Festival (Forest-level Project)

The Forest is a major sponsor of the Salmon Festival held at Oxbow Park along the Sandy River. The Forest has responsibilities as a steering committee member along with Metro and Portland General Electric. The Forest hosts the children's activity tent and coordinates main stage entertainment. The Forest also staffs an informational booth on fisheries and hydrology. A highlight of the festival is viewing spawning chinook salmon in the Sandy River. A giant salmon tent allows seating of 30-35 children for storytelling. Approximately 8,700 attended the festival in 2000.

Salmon Watch (Zigzag Ranger District)

In 2000, personnel from the Zigzag Ranger District participated in another season of Salmon Watch, an educational program organized by Oregon Trout to educate local school children in the importance of healthy watersheds and aquatic ecosystems. Conducted during the fall return of chinook salmon, outdoor classrooms are held on the banks of the Salmon River where students can witness firsthand the annual return of the salmon, observe spawning, and learn about salmon life cycles, the importance of clean water, and the elements of a fully functioning forest/aquatic ecosystem. In 2000, personnel from the Zigzag Ranger District conducted sessions in over 90 educational sessions from six Portland area schools.

Thousands of Portland area residents enjoy the Salmon Festival, including doing a conga line with Frank Fish!



Staffing and Funding

Headquarters

Dan Shively, *Forest Fish Biologist (503) 352-6002*
Julie Schreck, *Assistant Forest Fish Biologist*
Tracii Hickman, *Fish Biologist*

Hood River and Barlow Ranger Districts

Gary Asbridge, *Zone District Fish Biologist (541) 352-6002*
Chuti Fiedler, *Assistant District Fish Biologist – Hood River*
Chris Rossel, *Assistant District Fish Biologist - Barlow*

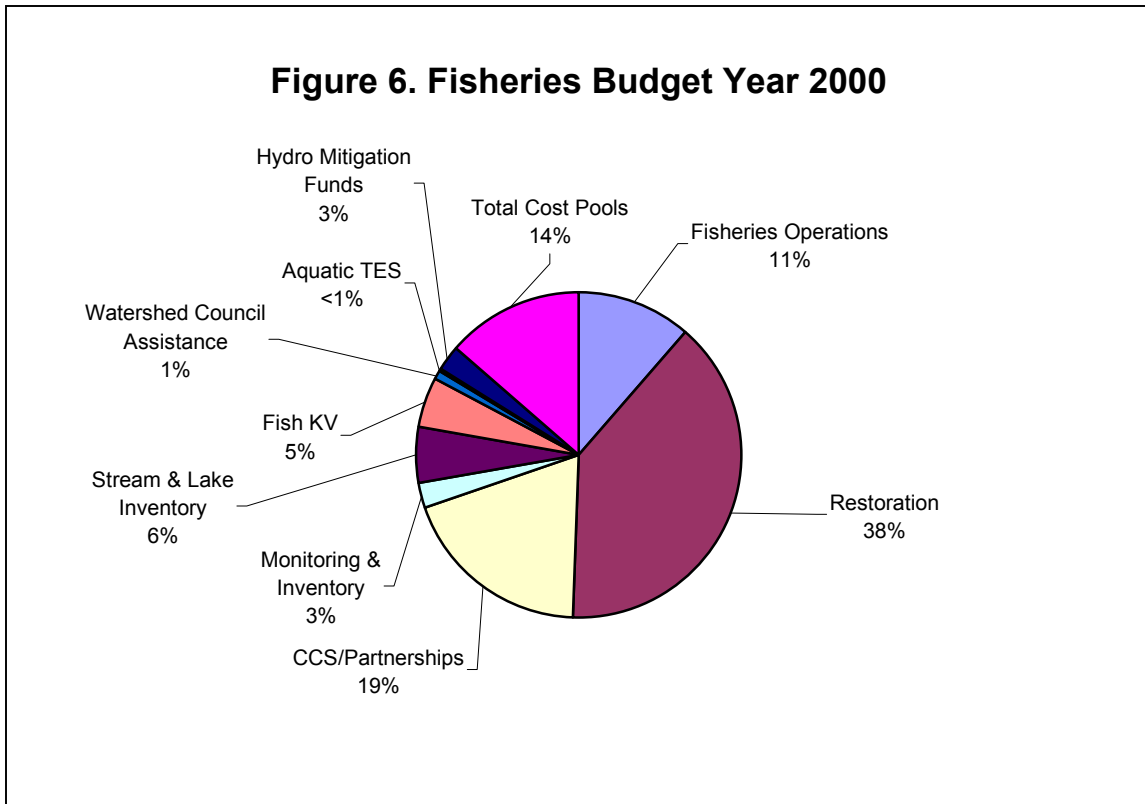
Zigzag Ranger District

Duane Bishop, *District Fish Biologist (503) 622-3191*
David Saiget, *Assistant District Fish Biologist*

Clackamas River Ranger District

Tom Horning, *District Fish Biologist (503) 630-8798*
Bob Bergamini, *Assistant District Fish Biologist*
Sue Helgeson, *Fish Biologist*
Floyd Walker, *Fish Technician*

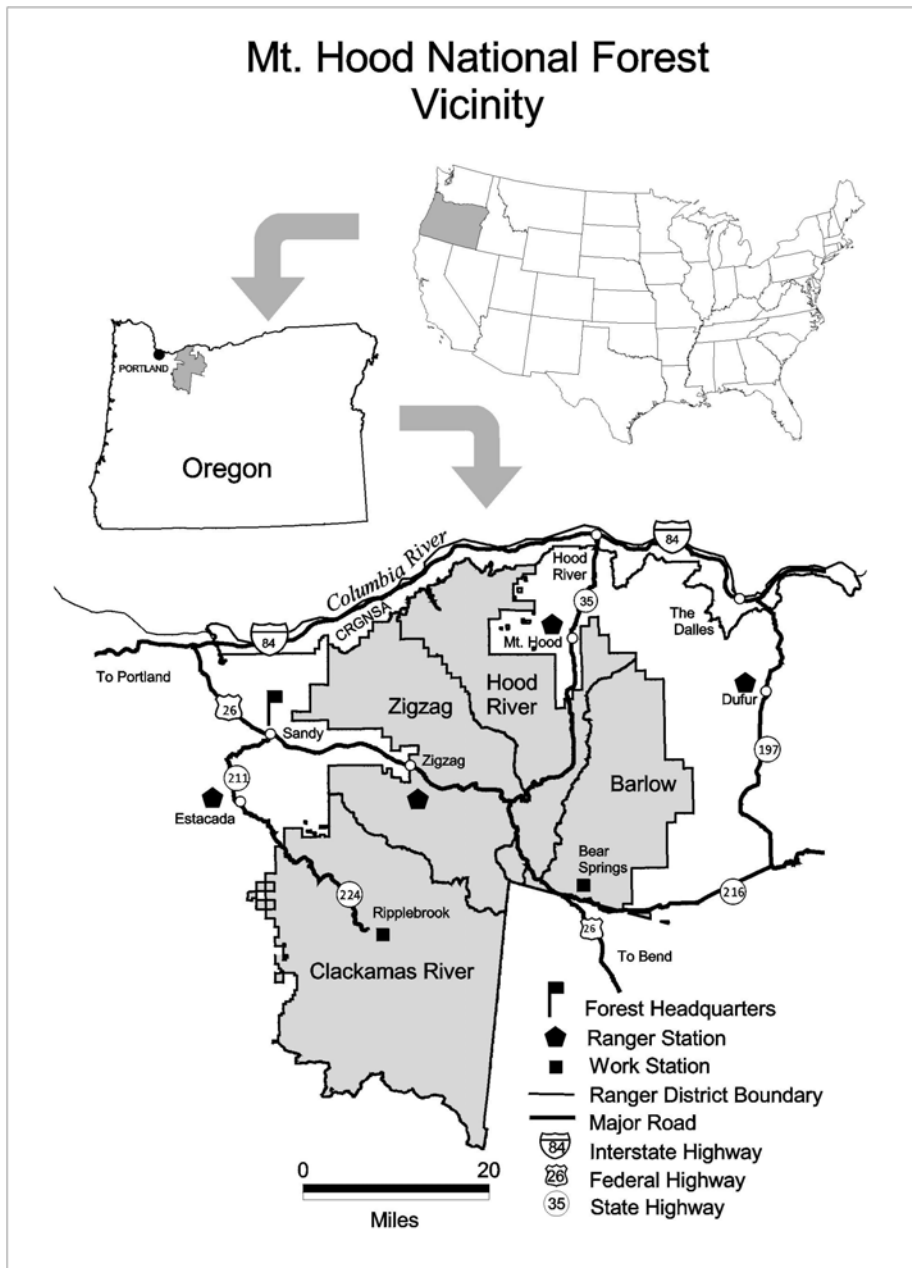
The total fisheries budget for the Forest in 2000 was \$1,551,800. The budget will decline in future years as flood restoration projects are completed. Figure 6 displays the various allocations.



Thank You to our Many Partners!

- ♦ Farmers Irrigation District
- ♦ Middle Fork Irrigation District
- ♦ Oregon Department of Fish and Wildlife
- ♦ National Marine Fisheries Service
- ♦ U. S. Fish and Wildlife Service
- ♦ Portland Water Bureau
- ♦ Wolfree, Inc.
- ♦ Portland State University
- ♦ Mt. Hood Community College
- ♦ Bureau of Land Management
- ♦ Resort at the Mountain
- ♦ Portland General Electric
- ♦ Confederated Tribes of Warm Springs
- ♦ Estacada High School
- ♦ Clackamas River Water Providers
- ♦ Arrah Wanna Home Owners Association
- ♦ Trout Unlimited – Tualatin Valley and Clackamas River Chapters
- ♦ Metro
- ♦ Sandy River Hatchery
- ♦ Cleveland High School
- ♦ Catlin Gabel School
- ♦ Boy Scouts of America – Camp Baldwin
- ♦ Sandy River Basin Watershed Council
- ♦ Hood River Watershed Group
- ♦ Clackamas River Watershed Council
- ♦ White River Watershed Council
- ♦ Fifteenmile Watershed Council
- ♦ Hood River County Soil and Water Conservation District
- ♦ Wasco County Soil and Water Conservation District
- ♦ National Resources Conservation Service
- ♦ Oregon Department of Environmental Quality
- ♦ Centennial High School
- ♦ Reynolds High School
- ♦ David Douglas High School
- ♦ Central Catholic High School

Mt. Hood National Forest Vicinity



**Mt. Hood National Forest
Headquarters Office**
16400 Champion Way
Sandy, OR 97055
Business: (503) 668-1700
Visitor Information: (503) 622-7674

Dufur Ranger District
780 NE Court Street
Dufur, OR 97021
Phone: (541) 467-2291
Hours: 7:45 AM to 4:30 PM, M-F

Bear Springs Work Center
73558 Highway 216
Maupin, OR 97037
Phone: (541) 467-2291

Clackamas River Ranger District
595 NW Industrial Way
Estacada, OR 97023
Business: (503) 630-6861
Visitor Information: (503) 630-8700

Hood River Ranger District
6780 Highway 35
Mt. Hood - Parkdale, OR 97041
Phone: (541) 352-6002

Zigzag Ranger District
70220 E. Highway 26
Zigzag, OR 97049
Business: (503) 622-3191 or (503) 668-1704

Mt. Hood Information Center
65000 E. Highway 26
Welches, OR 97067
Phone: (503) 622-7674

The U.S. Department of Agriculture (USDA) prohibits discrimination on all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and Independence Avenue, SW, Washington, DC 20250-9410 or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.