NORTH UMPQUA WILD AND SCENIC RIVER Environmental Assessment

A wild and scenic river environmental assessment developed jointly by:

U. S. DEPT. OF AGRICULTURE
FOREST SERVICE
Pacific Northwest Region
Umpqua National Forest

U.S. DEPT. OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Roseburg District

OREGON STATE PARKS & RECREATION DEPARTMENT

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Environmental Assessment

North Umpqua Wild and Scenic River

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CHAPTER I

Purpose and Need for Action

CHAPTER I Purpose and Need for Action

Purpose and Need/Proposed Action

The proposed action is the development of a comprehensive river management plan for the North Umpqua River as the result of Congressional designation via the Omnibus Oregon Wild and Scenic Rivers Act of 1988. The decisions to be made include:

- Methods to protect and enhance outstandingly remarkable river-related values.
- Determination of the boundary.

Planning for National Forests and BLM lands has two levels. The first level of planning, the programmatic level, is the Forest Plan and Resource Management Plan. This level provides area-wide analysis and management standards and guidelines. This river management planning process falls within this catagory. The second level of planning is site-specific project planning. Projects identified in this river planning process must go through this level of NEPA analysis before implementation.

The results of this process will require an amendment to the Umpqua National Forest Land and Resource Management Plan.

Background

Recognizing the need to protect outstanding free-flowing rivers, Congress passed the Wild and Scenic Rivers Act in 1968. To complement the Federal Wild and Scenic Rivers Act, the State of Oregon passed the Oregon Scenic Waterways Act in 1969 to preserve free-flowing rivers and their associated significant resource values and to protect the property rights of adjacent landowners.

In 1978, the US Forest Service adopted their decadal Land Use Plan (LMP) which specified that the North Umpqua River would be managed as a Wild and Scenic River even though it had not yet been designated. In 1983, the BLM adopted their Resource Management Plan (RMP) and took the same action.

In 1980, the State of Oregon conducted an evaluation of the scenic waterway potential of the North Umpqua River from slackwater at Winchester Dam to Soda Springs Dam. The evaluation process served to eliminate river segments that did not fulfill, in an outstanding manner, the scenic waterway criteria as depicted by the Oregon Scenic Waterways Act. The study concluded that a 33.8-mile segment of the North Umpqua River, from Rock Creek to Soda Springs Powerhouse, met the qualifications for State scenic waterway designation as outlined by ORS 390.855. The segment was recommended for inclusion in the Oregon Scenic Waterway system because it possessed

outstanding geologic features, water interests (rapids, pools, waterfalls), plant life, fish and wildlife values, historic and archeologic features, scenic values, and recreation opportunities. In 1984, amendments to the Federal Wild and Scenic Rivers Act provided for the study and consideration of the North Umpqua River as a Wild and Scenic River. The following year a suitability study was completed jointly by the Umpqua National Forest and the Roseburg District Bureau of Land Management. It concluded that the North Umpqua River met the eligibility and suitability standards for a recreation river due to the accessibility of State Highway 138 and the existing degree of development along the shoreline. As a result of resource studies, public comment and physical examination of the river environs, four outstandingly remarkable values were identified. These were: water quality, scenic quality, recreation, and fisheries.

With the passage of the October 1988 Oregon Omnibus Rivers Bill, Congress designated the 33.8-mile segment of the North Umpqua River as a Recreation River and recognized the four outstandingly remarkable values.

The same segment of the river was added to the State Scenic Waterway Program when the Oregon Rivers Initiative (Ballot Measure 7) was passed by the voters in 1988.

In 1989, the Umpqua National Forest, Roseburg District Bureau of Land Management, and Oregon State Parks and Recreation Department began developing this joint management plan for the designated portion of the North Umpqua River.

In 1991, in response to new information, Cultural Resources was added as an Outstandingly Remarkable Value (ORV).

Management Goal

With passage of the Wild and Scenic Rivers Act, it became national policy "that certain selected rivers of the Nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values shall be preserved in free-flowing condition and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations.

Scoping

Several steps were taken during the planning stages of the river management planning effort to ensure that the viewpoints of interested individuals and groups were considered. A mailing list of key interest groups, elected officials, government agencies, and all landowners within one-half mile of the river was compiled to keep all interested citizens informed of the planning efforts.

In July of 1989, the public was notified of the interim one-quarter mile corridor boundary and was provided with basic information concerning the Wild and Scenic Rivers Act and State Scenic Waterways program.

Over the course of river planning, individuals and groups received a number of newsletter updates concerning the North Umpqua Wild and Scenic River planning. The initial newsletter (Summer 1990) provided brief summaries of the river planning activities and presented current recreational use trends for whitewater boaters and fly anglers within the river corridor over the period of 1985-1989. The Fall 1990 newsletter update notified interested citizens of the resource assessment findings and provided additional general information concerning the similarities and differences of the Wild and Scenic Rivers system and the State Scenic Waterways program. The Winter 1990 newsletter update provided summaries of river planning activities and presented information about the river recreation allocation system. The Spring 1991 newsletter provided a tabular comparison of a range of management alternatives with a brief summary for each resource category.

A public meeting was held on April 24, 1990, at the Roseburg Bureau of Land Management office to discuss the implementation of an Outfitter-Guide Special Use Permit process for fish guides on the North Umpqua River. Objectives of the meeting included determining the perception on timeliness of enforcing special use permit regulations and the perception of what it takes to implement an effective permit system.

The river planning team hosted an open house on September 25, 1990, at the Glide Community Center to share information, answer questions concerning the planning process, and receive public input on three proposed boundary alternatives. A representative of the State Scenic Waterways program provided information about the program and addressed private landowners' concerns about management within the river corridor.

The open house was preceded by a media tour of the North Umpqua River corridor. Representatives from two local television networks and a reporter from the News-Review joined river planning team members in a discussion of issues to be addressed in the plan and current planning efforts.

In an effort to understand how primary river user groups and visitors would like to see the river managed, the river planning team hosted an on-site session on October 25, 1990. Thirty-three individuals were contacted and invited to attend this meeting. Representatives from three commercial rafting outfitters and two angling groups attended the 1-day session. Public input was also received from two additional commercial rafting outfitters in writing and by phone.

A second public open house was held at the Glide Elementary School on March 22, 1991. The purpose of this gathering was to present the range of

alternatives, share information from data gathered, and receive public input on the management alternatives.

A number of meetings were held between the river planning team and the steering committee, an ad hoc group of individuals representing all cooperating agencies. The steering committee was comprised of Forest Recreation Staff Officer, District Ranger, BLM Area Manager, Douglas County Planners, and State Parks and Recreation River Program Manager. The primary purpose of the steering committee was to act as a sounding board and to direct the planning team during periods of impasse or at times when a management decision was needed.

In February of 1992, the preliminary Wild and Scenic River Plan and EA were completed. The River Plan was mailed out to approximately 375 groups and individuals along with the issues and alternatives from the EA, in February, 1992. During the three-week comment period, 48 responses were received. Fifteen were from other agencies and from Forest Service/BLM employees; the other 33 were from individuals or organizations.

Input received covered the entire spectrum of issues, and a wide range of interests, with comments focusing on the Management Plan rather than on the NEPA portion of the planning process. Each comment letter was reviewed by the River Planning Team. All comments were listed and then grouped by main categories. Decisions were made on each comment by the Planning Team with the help of agency specialists. In many cases changes were made to reflect these comments, and these changes have been incorporated in the final River Management Plan.

During the response period, a number of internal/external briefings were held to explain the major points of this River Management Plan. The briefings were:

2/20/92	Briefing for all state agencies held in Salem.
2/26/92	Internal briefing for Forest Service employees - Roseburg.
2/27/92	Meeting with Steamboaters to explain/clarify plan - Roseburg.
3/6/92	Presentation to Oregon Packers and Guides Association - Eugene.
3/12/92	Presentation to Project Leadership group - Roseburg.
3/13/92	Review of plan with Forest Service Regional Office/BLM State Office - Salem.
3/16/92	Briefing for the Roseburg BLM District Manager - Roseburg.
3/19/92	Coordination meeting with State Scenic Waterway planner - Roseburg.

3/19/92	Briefing for Douglas County Planning Commission - Roseburg.
3/31/92	Briefing for North Umpqua Planning Advisory Committee - Glide.
4/13/92	Review of plan with the Forest Service Regional Office/BLM State Office - Salem.

Outstandingly Remarkable Values

In 1989, the Umpqua National Forest, Roseburg District Bureau of Land Management, and Oregon State Parks and Recreation Department began developing a joint management plan for the designated portion of the river. The resource assessment is an initial phase of that planning process.

The assessment serves as the foundation of the river management planning process. Results of the assessment provide the basis upon which management decisions affecting resources within the planning area can be made during the interim period pending plan completion and approval. Additionally, the findings and conclusions reached at the end of the assessment effort are used in management plan scoping, including specific issue identification and establishment of final administrative boundaries.

The resource assessment for the North Umpqua Wild and Scenic River was conducted using the results of the 1985 suitability study and current data obtained through consultation with resource specialists, study of aerial photographs and field inventories. A list of resource specialists, consultants and other individuals who provided expertise and comment during the evaluation can be found in the appendices included in this document. The following resource categories were considered during the assessment: recreation, scenery, fisheries, water quality and quantity, cultural, wildlife, botanical, and air quality.

The findings of the resource assessment validate the four Congressionally recognized outstandingly remarkable values (ORV's). These resource values include fish, water quality and quantity, scenery, recreational opportunities. The assessment also found the cultural resource to be outstandingly remarkable (for a complete description of each ORV, see Appendix A). The Oregon State Parks and Recreation Department's findings indicate that scenery, recreation, fish, and water quality and quantity are special attributes of the State-designated North Umpqua Scenic Waterway.

Issues

During the Management Planning Process, five major issues were identified through discussions with various user groups for the North Umpqua Wild and Scenic River corridor:

1. How would Wild and Scenic River classification affect private landowners in the Wild and Scenic River Corridor.

2. Should the number of commercial outfitters and the number of clients that they serve be limited? Should the number of private boaters, and fishing guides, likewise be limited?

3. What types and levels of use could be accommodated in the Wild and Scenic River corridor while still maintaining or enhancing the outstandingly remarkable values (ORV's) of fishery, water quality and quantity, scenery, cultural and recreation?

4. How serious are the social conflicts that are occurring between different recreation user groups in the corridor, and what steps should be taken to minimize these conflicts while still responding to public user demands?

5. How can the Wild and Scenic River boundary be drawn so that it best encompasses the ORV's of fishery, water quality and quantity, scenery, cultural and recreation, and maximizes their protection and enhancement.

With assistance from agency staff specialists, specialists from other agencies, and perhaps most importantly, with the active and energetic involvement of those people most invested in the outcome of this planning process - the Public users of this river - these issues are addressed and analyzed in this document.

CHAPTER II
Affected Environment

CHAPTER II Affected Environment/Existing Uses

The following information summarizes the Wild and Scenic North Umpqua corridor and its resources, their current condition, and the state of the affected environment.

Setting

The 33.8-mile segment of the North Umpqua Wild and Scenic River from Soda Springs powerhouse downstream to Rock Creek is located exclusively within Douglas County in the southwestern portion of Oregon and within the Umpqua River Drainage Basin, an area of approximately 4,560 square miles. Approximately 25.4 miles lie within the Umpqua National Forest and 8.4 miles within the Bureau of Land Management. The Umpqua River Basin is the eleventh largest drainage basin in the State of Oregon.

The North Umpqua River begins near the crest of the of the Cascade Range in the Mt. Thielsen Wilderness. With a drainage area of about 1,308 square miles, it flows westward for 106 miles, then joins the South Umpqua River a few miles northwest of Roseburg to form the mainstem of the Umpqua River.

The Umpqua River, which is classified as a Pacific slope stream, discharges directly into the Pacific Ocean near the city of Reedsport. The approximate length of the river is 211 miles from its mouth to its headwaters in the High Cascades.

Climate/Geology

The North Umpqua basin is characterized by a temperate, maritime climate with wet, mild winters and moderately dry, warm summers (84 degrees F July mean temperature).

Steep slopes and rugged topography characterize the study segment of the North Umpqua River. Elevation changes of 2500 feet from the river to the ridgetops are not uncommon within the canyon. The river drops 1000 feet from 1760 mean sea level (MSL) to 760 feet MSL within the 33.8-mile segment.

Volcanic activity has been a dominant force in shaping the geologic character of the North Umpqua Wild and Scenic River area. Lava flows originating from fissures east of the river, left a blanket of dense basalt on the valley floor. These events considerably altered the pre-eruption drainage patterns. Streams that once followed the bottom of a deep canyon were then disgorged onto a broad valley floor. Subsequent erosion has produced the steep canyon walls that exist today. One of the prominent features resulting from that process is columnar jointing which consist of vertical basalt columns reaching heights of 50 feet and diameters ranging from 6 to 36 inches.

Soil conditions are also largely attributable to volcanic events. Those soils occupying the greatest area within the river segment possess primarily loam and clay loam textures. Surface materials typically have a high small-rock fragment content. The proportion of these fragments in the profile is primarily a function of the degree of slope and soil depth. Soils located on old landflows are typically deep and are underlain by highly weathered rock materials. In the upper reaches of the river, a blanket of pumice two to eight feet thick has covered many of the soils. Textures of this pumice mantle range from loamy fine sand to fine sand.

Within the Wild and Scenic River corridor and adjacent to the North Umpqua River are many major historical landslide deposits. The original deposits were most likely the result of the undercutting of softer ash-flow deposits which underlie more competent ash-flows and lava flows as the North Umpqua carved its present course. During the latter portion of the glacial periods when the glaciers were receding, precipitation was much higher. This higher precipitation combined with the accelerated runoff created greatly increased flow in the river system. If the underscoring of the cliffs was not enough to create the landslides, the combination of oversteepened valley walls, greater soil moisture and the jolt of a volcanic event such as Mt. Mazama's further contributed to these occurrences.

Hydrology

The geology of the North Umpqua River basin determines the river's flow, and greatly influences its water quality. Deep pumice soils in the High Cascades above Soda Springs absorb snowmelt and rain. Lower elevation Western Cascade soils are shallow and rocky, and release runoff quickly. Two different river reaches result. Above Copeland Creek, the winter runoff peaks are low, and summer flows fill the narrow canyon. Downstream, flashy winter floods from Copeland, Steamboat and other creeks have carved a wider, shallower channel.

North Umpqua summer flow comes from the High Cascades, filling and then spreading out in these two distinctly different reaches. The upper river is deep and swift throughout the year, then wider with more exposed rocks in the longer, lower reach.

Precipitation and Temperature - Rain and snow increase with elevation in the North Umpqua River basin, with some variation in the river corridor. Annual precipitation near the lower end of the Wild and Scenic reach is 42 inches at Glide, 54 inches at Steamboat, and 48 inches at Toketee. Higher in the watershed, total annual precipitation (water equivalent) is 63 inches at Lemolo and 48 inches at Diamond Lake. Ninety percent of annual moisture at Steamboat, falls in winter, outside the June through September dry period. Most precipitation above Toketee falls as snow. At lower elevations, snow followed by rain alternately builds a snowpack and melts it throughout the

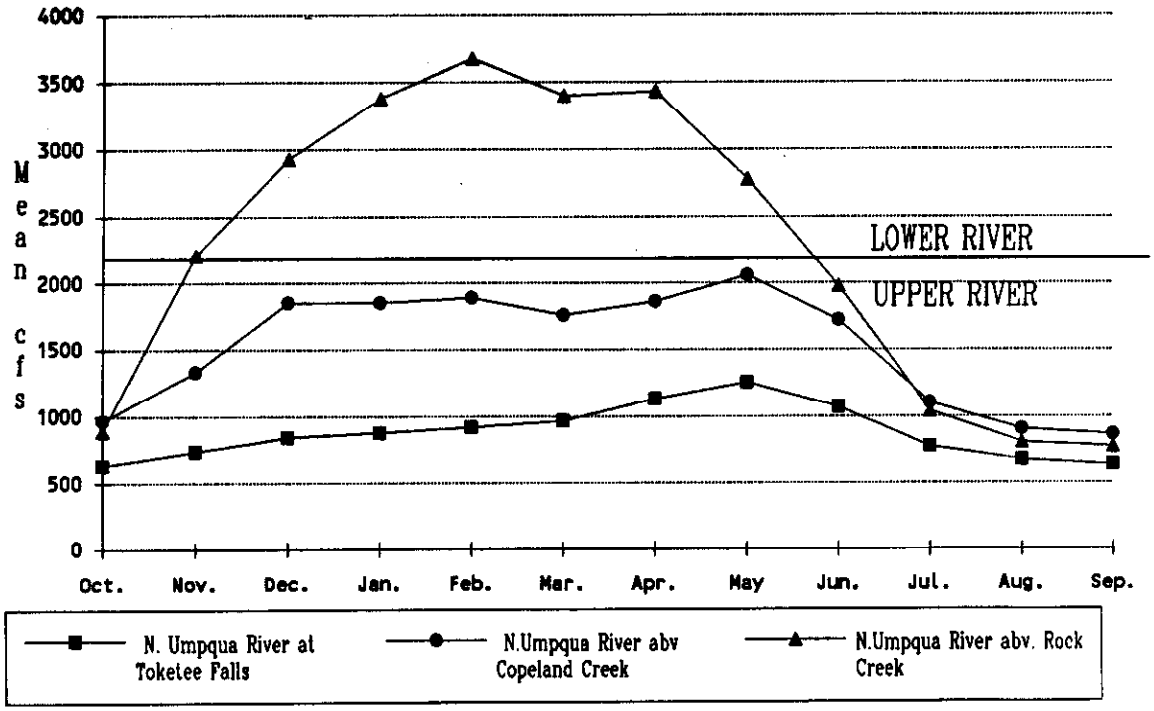
winter. The mean annual temperature is 52 degrees at Rock Creek, 51 degrees at Toketee, and 46 degrees at Lemolo.

River Flow - The upper and lower North Umpqua river flows are shown in Figure II-1 . Flow is shown in cubic feet per second, or cfs. Streamflows above Copeland Creek are highest during May snowmelt. Downstream, more runoff is collected from the lower elevation streams where mixed rain and snow in January and February produces most flooding in mid-winter. The highest floods, like those in 1955 and 1964, have occurred in winter when warm rains and condensation melt a deep snowpack. Flows in summer are the same throughout the Wild and Scenic reach from Soda Springs to Rock Creek.

The largest recent flood measured 40,700 cfs above Copeland Creek (a 50-year flood or greater) on December 22, 1964. The river ran 565 cfs (a 50-year, one-day low) on September 132, 1959.

Figure II-1

Mean Monthly Flows of the North Umpqua River



High summer flow is the most noticeable feature of North Umpqua river hydrology. Since little rain falls between June and October, most Pacific Northwest streams barely flow during those months. Snowmelt stored in deep pumice and other volcanic soils sustains the North Umpqua throughout that time. For example, the drainage area feeding the North Umpqua at its streamgauge above Copeland Creek is the same size (475 square miles) as the South Umpqua River drainage above Tiller. Summer flow on the North River, however, is 20 times that of the South Umpqua. Such high flows keep the river cool, and dilute sediment and dissolved material.

During summer, the river flow drops slowly. The natural flow is influenced by the operation of Pacific Power and Light's (PP&L) Soda Springs powerhouse, at the beginning of the Wild and Scenic reach below Soda Springs Dam. While storage in the dam cannot contain more than a few hours of typical summer flow of the river, daily and hourly fluctuations are common. Up to 1600 cfs of river flow is diverted through the powerhouse generator, and in summer its outflow is the entire river flow. Figure II-2 shows 1990 hourly summer flow and temperature of the river, and Figure II-3 gives the same information for the month of July 1990 at a larger scale. Flow and temperature were measured at the North Umpqua streamgauge below Steamboat. Pacific Power and Light own policy limits river fluctuations to 4 inches per hour at the U.S. Geological Survey Gauging Station No. 14316500 above Copeland Creek. That is approximately 50 cfs change in an hour, when the river is flowing 1000 cfs in summer. Changes in river depth can affect anglers wading the river, and flow changes may affect fish behavior.

Both summer and winter flows affect water quality by delivering sediment and dissolved materials to the river, diluting those that are already there, and keeping water temperatures cool.

Water Quality - The North Umpqua River is known for its cool temperature. Figure II-4 shows daily streamflow, and maximum and minimum temperatures for 1990. Summer temperatures reached 68 degrees Fahrenheit, while many other streams peaked in the mid 70's. The average of the 14 warmest consecutive daily water temperatures for 1982-1990 is plotted in Figure II-5. Recent years (1988 and 1990) were warmer than those in the early 1980's, as they were on other forest streams. Flow and temperatures were measured at the North Umpqua streamgauge below Steamboat Creek.

Figure II-2

Hourly Flow and Water Temperature, Summer 1990

North Umpqua (Below Steamboat near Glide)

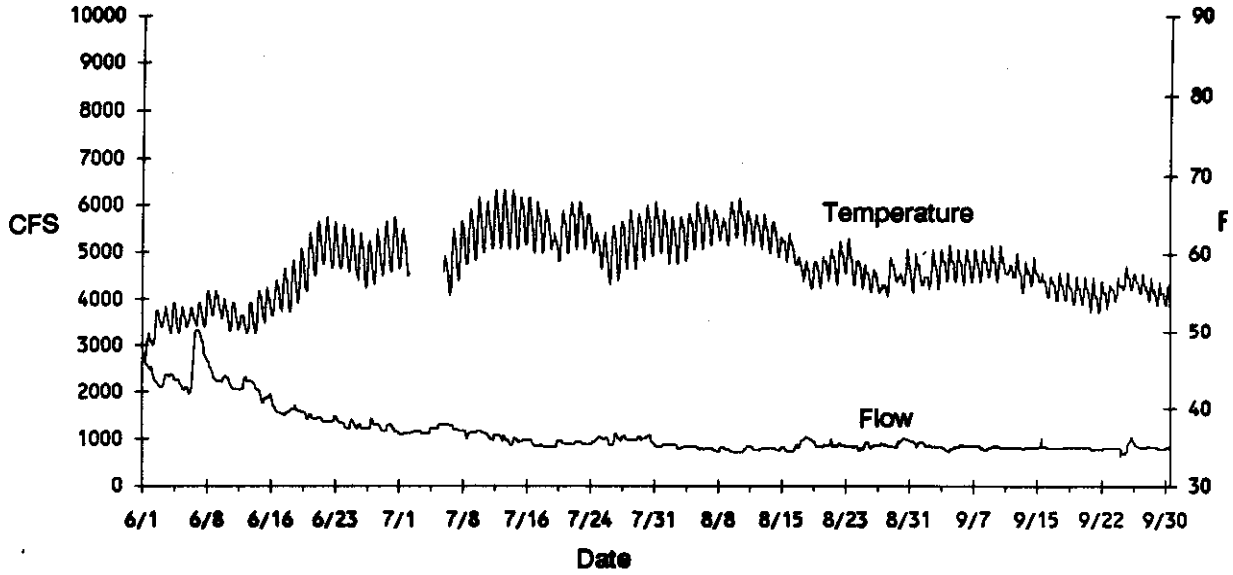


Figure II-3

Hourly Flow and Water Temperatures, July 1990

North Umpqua (Below Steamboat near Glide)

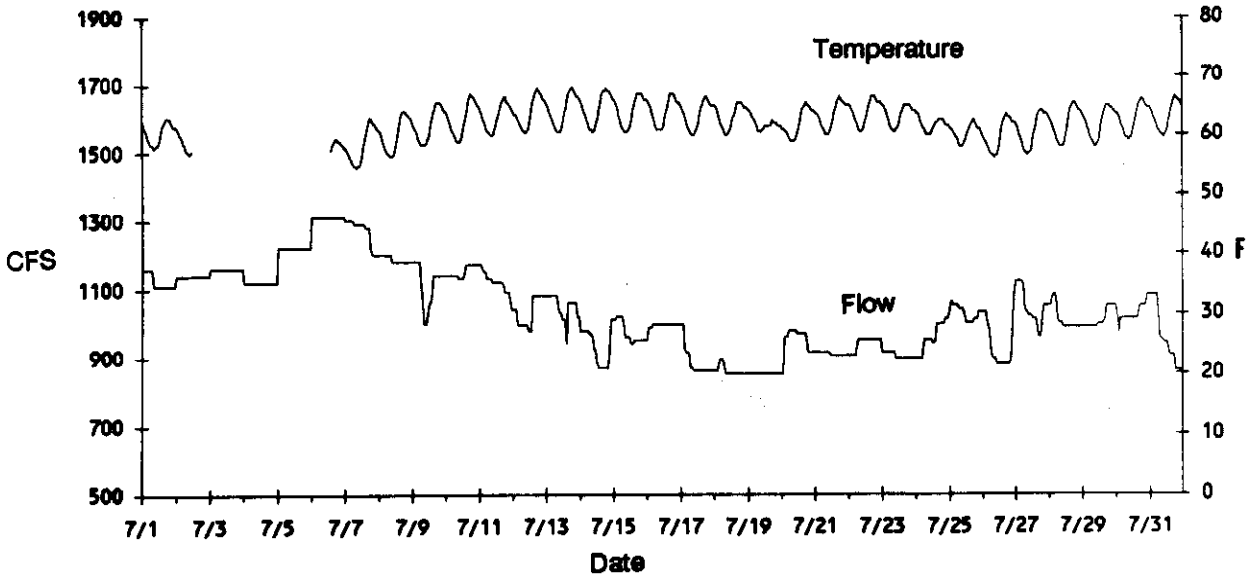


Figure II-4

Daily Temperature and Flow, Water Year 1990

North Umpqua (Below Steamboat near Glide)

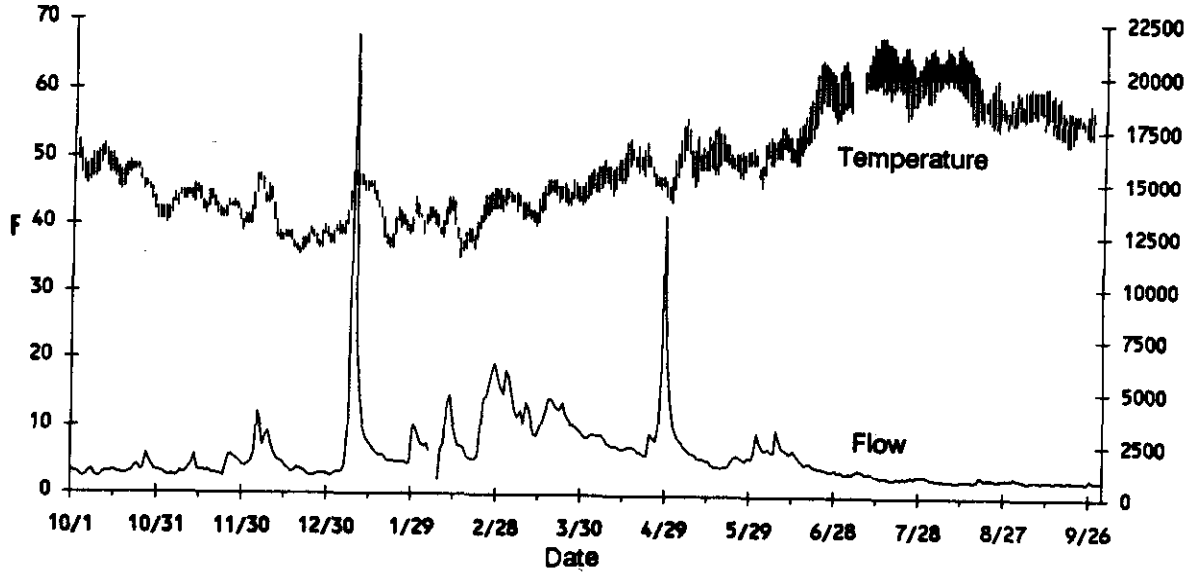
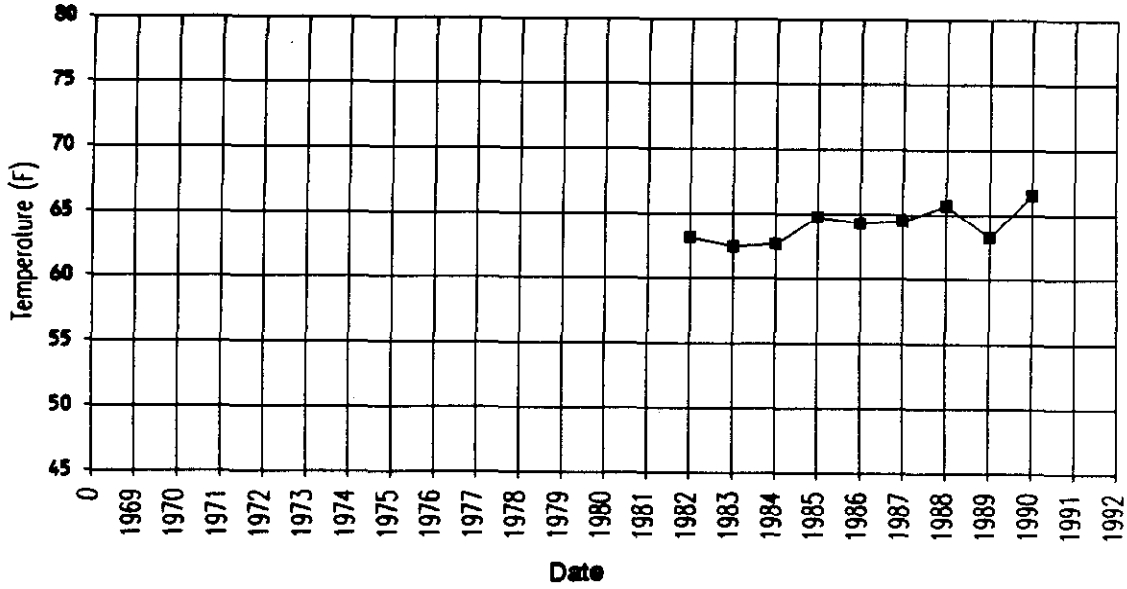


Figure II-5

14 Day Mean Maximum Temperatures

North Umpqua (Below Steamboat near Glide)



When the river rises, sediment is carried into the channel, and water velocity scours sediment from its banks and bed. The more bare ground and landslides there are in winter, the more sediment a given flow will carry. Turbidity (in nephlometric turbidity units or NTU's) is a good indicator of how well fish can see to feed or how a waterfall looks, and water of 5-10 NTU is noticeably cloudy. Figure II-6 shows 1990 daily turbidity of untreated North Umpqua river water, measured at the Work Center water treatment plant above Steamboat Creek. Turbidity increases each time the river rises at the North Umpqua streamgauge above Copeland Creek. Mean monthly flows, turbidity and ranges are shown in Figure II-7, for 1982-1990.

Figure II-6

Daily Turbidity, and Mean Daily Flow

North Umpqua River (above Steamboat and Copeland Creeks)

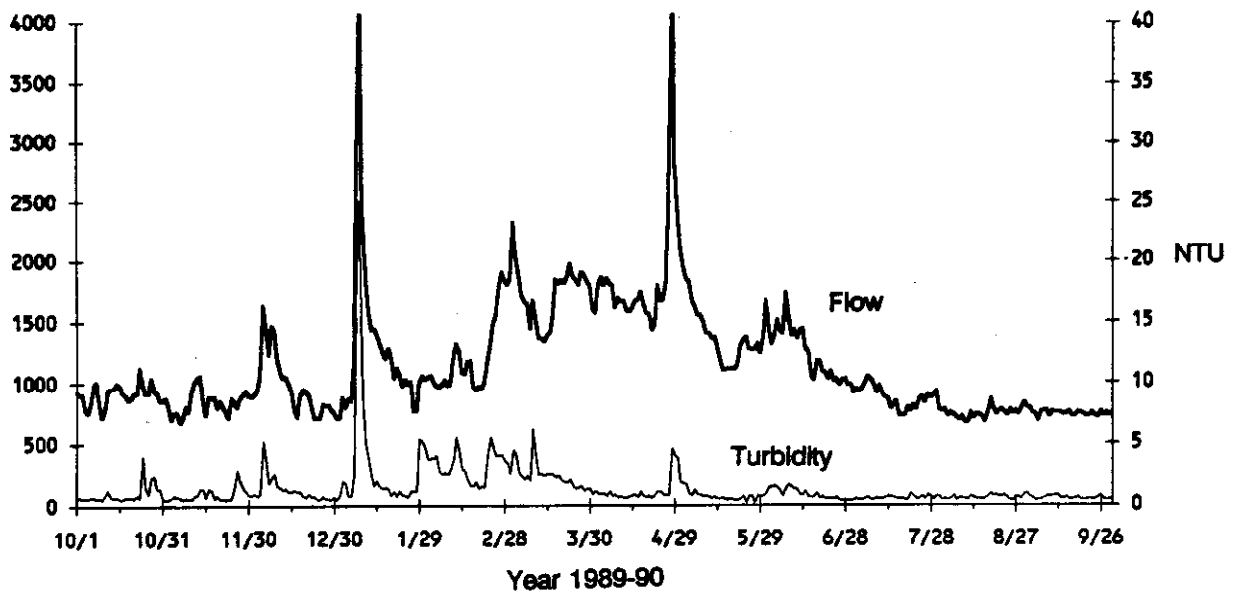
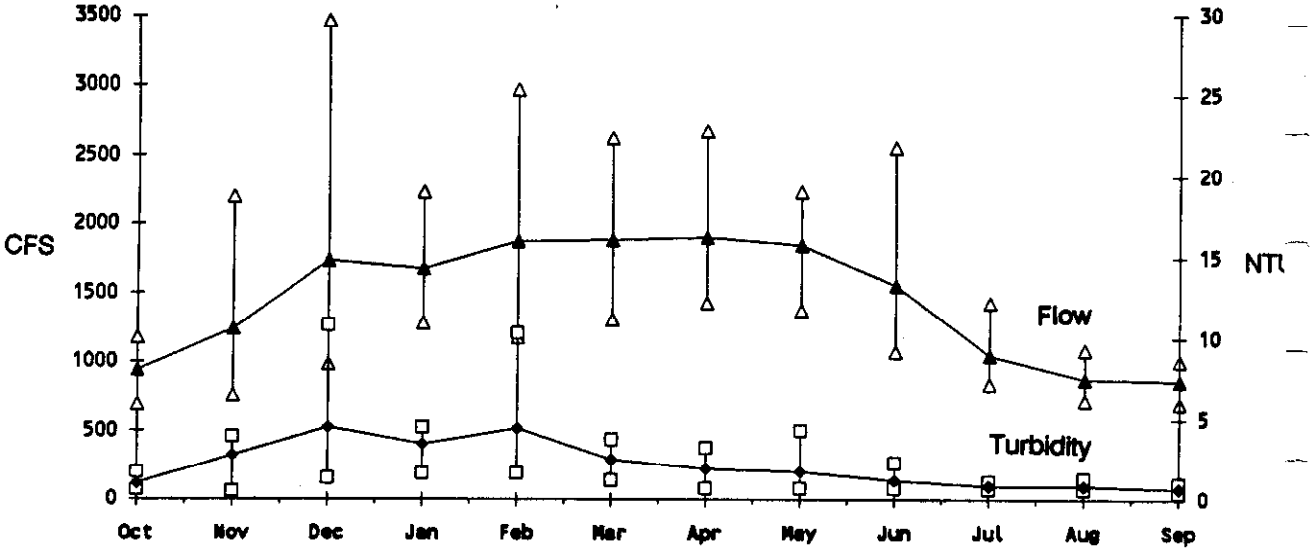


Figure II-7

Mean Monthly Flow and Turbidity

North Umpqua River (above Steamboat and Copeland Creeks)

1982-1990



No continuous testing of chemical and physical characteristics of the North Umpqua has been done in the study area. An untreated (but chlorinated) drinking water source at Horseshoe Bend Campground was tested periodically between 1977 and 1984. North Umpqua water there showed all metals and pesticides either undetectable or below drinking water limits. The water hardness and alkalinity was low. The Oregon Department of Environmental Quality (DEQ) tested the North Umpqua at Lone Rock near Glide between 1965 and 1971. Ammonia, nitrate and orthophosphates were all low, below 0.5 mg/l. Bacteria change often in surface waters and must be tested frequently for meaningful results. That hasn't been done. No record of petroleum testing for gas and oil exists, except for samples following a diesel spill in the river above Steamboat in 1989. No petroleum residues were detected, either from the spill or any other sources.

Aquatic invertebrates, or the aquatic life stages of some insects, can be useful indicators of water quality. Since many serve as a food base for fish, their number and diversity can signal healthy conditions for some fish species. Aquatic invertebrates were tested on Panther, Calf, Copeland, Boulder and

Steamboat Creeks in 1989. Tributaries to Steamboat Creek, and especially lower Steamboat Creek itself, as a whole showed the highest invertebrate densities on the Forest. Fish Creek, just upstream from Soda Springs, had aquatics similar to other North Umpqua tributaries tested. A different assemblage of organisms was found on two high elevation streams that same year - Bear Creek and the Upper North Umpqua. Bear Creek aquatics seem naturally impoverished (low taxa richness), perhaps from extremely cold water and low nutrients. The Upper North Umpqua above Toketee Lake had a relatively low standing crop and richness of species. In 1990 and 1991, samples were taken on all these streams, plus on the main North Umpqua near Boulder Flat and at the Umpqua National Forest Boundary.

Tributaries-Flow and Water Quality - The North Umpqua is the sum of its tributaries. Streamgauges measure flow of Steamboat, Boulder and Fish Creeks, as well as the Clearwater and Upper North Umpqua Rivers. Fish Creek, the Clearwater and the Upper North Umpqua supply virtually all the river's summer flow, while Steamboat and the lower tributaries contribute almost half the highest winter flows. A continuous temperature recorder on Bear Creek (a branch of the Clearwater River above Soda Springs) shows the warmest summer water temperatures reach 54 degrees Fahrenheit. In contrast, the 68-degree North Umpqua is fed by Steamboat Creek (77 degrees), and 67 to 71 degree summer maximums from Boulder, Copeland and Calf Creeks. Daily minimum temperatures are 5-10 degrees below maximums in summer, and winter temperatures in all streams fluctuate little around 40 degrees.

Turbidity is a measure of light reflecting off sediment in water, which affects visibility. Steamboat and Canton Creeks have had daily turbidity monitoring since 1971. Suspended sediment tests, where all sediment is filtered from the water and weighed, began in 1985 along with twice-daily sampling. Turbidity in the 1970's was apparently higher in storms of the same size, than turbidities measured since then. In comparison with Elk Creek on the South Umpqua, and Layng Creek to the north, Steamboat and Canton turbidities appear relatively low. A study of suspended sediment in 1971 found that Steamboat Creek had more than twice the annual sediment of the South Umpqua River. The difference was probably due to higher streamflows from Steamboat, and coarse sediment that doesn't produce high turbidities. Steamboat sediment (like the size that settles on spawning gravels) may be high. Particles that don't settle (reducing visibility in water) may be relatively low.

Water-Related Uses within the Wild and Scenic Reach - Many human activities depend on the river, or affect its water. While most Forest Service and BLM campgrounds get drinking water from wells or smaller streams, Horseshoe Bend takes water from the North Umpqua. Steamboat Work Center (Oregon Department of Transportation or ODOT) treats water from an intake above Steamboat Creek for offices, residences and the Canton

Creek Campground. Susan Creek Village and the Oregon Department of Fish and Wildlife (ODFW) Rock Creek Fish Hatchery also use North Umpqua River Water.

Use of the North Umpqua River water is regulated by the Oregon Water Resource Department, through administration of water rights. Some uses on federal lands (such as water for building and maintaining timber haul roads, firefighting, administration and watershed uses) were reserved when National Forests were established. All other federal uses (for recreation, wildlife and livestock) are subject to Oregon water rights. All private and other non-federal users must obtain water rights for any use. In 1991, the Oregon Department of Fish and Wildlife filed an instream flow application on the North Umpqua River for 680 cfs above Steamboat Creek, and 1020 cfs from there downstream through the rest of the Wild and Scenic reach. Above Steamboat, the instream flow is met 9 out of 10 years in September (the driest month). Downstream, the river only flows more than 1020 cfs 3 years in 10. That means that any water right filed after 1991, if these instream rights are issued, cannot be exercised except in months when flows are higher than 680 and 1020 cfs. This will likely mean that new campground and other developments (federal, other agencies or private), below Steamboat Creek will have to be supplied from wells.

Sewage effluent from a treatment plant at the Steamboat Work Center discharges to the river below Steamboat Creek. The effluent must meet the standards of an EPA-DEQ permit. Although nitrogen and phosphorous testing is not required by the permit, tests taken in 1974 showed most total nitrogen and total phosphorous results below 10 and 1 mg/l, respectively. Other possible sources of sewage include septic systems at Dry Creek, Steamboat, Smith Springs, Susan Creek Village, and Rock Creek, as well as at Forest Service, Douglas County, and Bureau of Land Management campgrounds. Pit and vault toilets at campgrounds and residences may infiltrate waste water to groundwater or to the river. Boaters, anglers and campers can deposit human waste when sanitary facilities are not convenient and not used.

Pacific Power and Light's North Umpqua Project was constructed between 1949 and 1956, using flow from the upper North Umpqua to generate electricity. Flow is diverted from Fish Creek, the Upper North Umpqua at Lemolo Dam, and Clearwater River, through a total of eight generators. The last generator at Soda Springs controls up to 1600 cfs of the river's flow, or 75-100 percent of the mean monthly flows for all months, as measured above Copeland Creek (see Figure II-7). Storage behind the project's dams is too small to greatly alter seasonal flow in the Wild and Scenic reach, and power is largely generated by natural streamflow. Daily and hourly effects do occur, however, and Lemolo Reservoir (the largest) is occasionally lowered and filled for dam maintenance. Erosion from canal maintenance, roads, and occasional flume failures and landslides all put sediment in the North Umpqua, Clearwater and Fish Creek. Perhaps more important, flow is diverted from these streams

most of the year, then scours the channels for short periods when canals are emptied for repairs or maintenance. Dam safety at Lemolo, Toketee and Soda Springs is extremely important since a dam failure would threaten human lives, property, and all river values (fish, wildlife, water quality and more) in the entire river below.

Road construction, timber harvest and log haul on National Forest, BLM and private lands all affect water quality and flow of the North Umpqua River. If vegetation is cut along streams, water temperature increases. Root strength is lost when trees are cut during logging and road building. On unstable soils, landslides can result. Bare roadbanks, log skid trails, and road surfaces can erode soil into streams. Road maintenance and widening of the North Umpqua Highway or secondary roads can have the same effects. The cumulative effects of removing too much tree cover can increase river peaks during rain-on-snow floods. A more complete discussion of these effects is given in the 1990 Umpqua National Forest Land and Resource Management Plan, Final Environmental Impact Statement. The Forest Service and BLM Management Plans as well as the Oregon Forest Practices Act, contain measures to reduce these effects.

In the mid-1990's, reconstruction of the North Umpqua Highway is planned from Rock Creek to the Cascade Crest. The Steamboat to Boulder Flat segment will be widened first. Some increased erosion is expected. The wider highway may be safer for most vehicles, but truck accidents may increase if travel speeds are higher. Truck accidents in particular increase the risk of spills.

Wildfire can kill trees and expose soil with some of the same effects that logging has on water. In the fall of 1987, the Apple Fire burned 2400 acres down to the river, and the Snakebones Fire burned 600 acres in the headwaters of Steamboat Creek. Few landslides have occurred so far, and grass seeding may have reduced surface erosion. However, shading vegetation was lost from a few streams, and some dead trees have fallen in the river each year since the fire.

Water from the river and tributaries is also used for road watering and firefighting. Vehicle accidents (especially log trucks overturning) occasionally spill gasoline, diesel, asphalt and chemicals on the North Umpqua Highway. In September 1989, a 500-gallon diesel tank tumbled into the river above Steamboat, emptying its contents. Rafters, anglers and campers could smell diesel along the river and highway for about three miles, but water samples downstream found no petroleum and spawning Spring Chinook were apparently unaffected. The Umpqua National Forest Spill Prevention and Response plan establishes spill coordinators at Glide, Toketee and Roseburg, spill reporting procedures, and caches of absorbent material at Forest Service offices and at the Steamboat Work Center. Companies with booms and skimmers for the main river must be called from Portland.

Herbicides have been used to kill roadside vegetation along North Umqpua Highway 138 and other roads in the river basin. In recent years, herbicide use has greatly decreased on BLM and National Forest lands, including the State Highway right-of-way. When road ditches and riverside roadbanks are sprayed, especially in spring, runoff in the next rainstorm may contain herbicide residue. A sample of Highway 138 ditchline water in spring 1983 contained 149 parts per billion simazine, a grass herbicide. Similarly, some dust control agents (petroleum, pulp liquor, magnesium salts) can enter streams and the river.

Summary - Flow has been measured on the upper and lower North Umpqua River since 1925, but water quality data is sparse. Continuous measurement of temperature began in 1982, and a record of turbidity from drinking water testing has been assembled from 1982. Chemical, bacteria, and aquatic invertebrate tests are limited. Water quality from tributaries has been measured on some streams since 1969. A much longer history of these measurements, and testing designed to characterize the main river, will be necessary to detect water quality trends if any exist. A great deal of research is needed to relate any water quality changes to aquatic life in the North Umpqua.

At the same time, water-related uses within the basin have increased. Timber harvest, camping, boating, traffic and the related disturbances (roads, clearcut acres, and sanitary facilities) are accumulating. Little is known about how well road drainage and sanitary facilities are functioning, or the effects of extreme floods and rain on landslides and channel torrents throughout the basin. Human activity and natural events can change water quality, fish, and scenic values-all of which are essential characteristics of the water in the North Umpqua Wild and Scenic River water.

Fish

The affected environment for fisheries in the North Umpqua River can be most logically divided into two parts: (1) the biological resources and (2) the physical or abiotic conditions. Also, due to the interconnected nature of watersheds, it necessarily includes all the tributary watersheds that flow into the relatively small portion of the river basin that is included in the designated Wild and Scenic River corridor. Two other identified Outstandingly Remarkable Values (ORV's), Water Quality and Recreation, affect or are affected by the Fisheries ORV. Angling, a component of the Recreation ORV, particularly for summer steelhead, is world class in the designated portion of the North Umpqua River. The large numbers of exceptionally large, wild, or naturally produced steelhead is a major factor in this elite status.

Fish Resources. This section contains two sub-sections. First, in Table II-1, is a list of fish species present in the North Umpqua basin and Table II-2, which displays the life histories of the six major wild anadromous salmonids found in the North Umpqua. The second sub-section is a discussion of present and historical abundance in the North Umpqua, by species.

An important, widely held, scientific theory is the "stock" concept for anadromous fish. This theory holds that there exists heritable characteristics that favor the long-term survival of distinct populations and that these characteristics are found in discrete, interbreeding populations that are sub-basin or stream specific. These characteristics can be physical such as body size and shape, or behavioral such as timing or location of migrations. It is strongly based on the homing ability of these fish.

Table II-1

Fish of the North Umpqua Basin

Anadromous Salmonids (streams and rivers only)	
Summer Steelhead Trout[1] *(Oncorhynchus mykiss)*	
Winter Steelhead Trout *(Oncorhynchus mykiss)*	
Spring Chinook Salmon[1] *(Oncorhynchus tshawytscha)*	All below Soda Springs Dam
Fall Chinook Salmon *(Oncorhynchus tshawytscha)*	
Searun Cutthroat Trout *(Oncorhynchus clarkii)*	
Coho Salmon[1] *(Oncorhynchus kisutch)*	
Resident Salmonids	
Rainbow Trout[1] *(Oncorhynchus mykiss)*	Streams, rivers & lakes
Cutthroat Trout *(Oncorhynchus clarkii)*	. . .
Brown Trout[2] *(Salmo trutta)*	. . .
Brook Trout[2] *(Salvelinus fontinalis)*	. . .
Kokanee Salmon[2] *(Oncorhynchus nerka)*	Lakes only (Hemlock Lake and Lemolo Reservoir)
Non-Game Fish	
Redside Shiner *(Richardsonius balteatus)*	Rivers and streams
Umpqua Long-Nosed Dace *(Rhinichthys evermanni)*	. . .
Speckled Dace *(Rhinichthys osculus)*	. . .
Suckers *(Catostomus spp.)*	. . .
Sculpins *(Octtus spp.)*	. . .
Pacific Lamprey (anadromous) *(Lampetra tridenta)*	. . .
Brook Lamprey *(Lampetra richardsoni)*	. . .
Golden Shiner[2] *(Notemigonus crysoleucas)*	Diamond Lake only
Tui Chub[2] *(Gila bicolor)*	Upper North Umpqua rivers & streams
Umpqua Squawfish (Pterichochylus umpquaensis)	

[1] Significant hatchery releases into the basin. Anadromous as smolts.
[2] Introduced.

Table II-2

Life Histories of Major Anadromous Salmonids North Umpqua Basin

SPECIES	TIME (inclu.)	PLACE[1]	PURPOSE
Adults			
Spring Chinook	April-July May-Sept. Sept.-Oct.	R R R, MT	Migration Over-summering Spawning
Fall Chinook	Oct.-Nov.	R	Migration, spawning
Summer Steelhead	May-Oct. June-Dec. Jan.-March	R R, MT R, MT, ST	Migration Awaiting maturation Spawning
Winter Steelhead	Dec.-April April-June	R, MT, ST R, MT, ST	Migration Spawning
Coho [2]	Oct.-Dec. Nov.-Jan.	R, MT, ST R, MT, ST	Migration Spawning
Searun Cutthroat[3]	July-Dec. Jan.-March	R, ? ?	Migration Spawning
Juveniles			
Spring Chinook	Sept.-April Yearlong March-Dec.	R, MT R, MT R	Eggs in gravel Rearing (up to 18 mos) Out-migration
Fall Chinook	Oct.-April April-June	R R	Eggs in gravel Out-migration
Summer Steelhead	Jan.-May Yearlong March-Nov.	R, MT, ST R, MT, ST R, MT	Eggs in gravel Rearing (up to 3 years) Out-migration
Winter Steelhead	April-July Yearlong March-Dec.	R, MT, ST R, MT, ST R, MT	Eggs in gravel Rearing (up to 3 years) Out-migration
Coho	Oct.-April Yearlong April-June	R, MT, ST R, MT, ST R, MT	Eggs in gravel Rearing (up to 1 year) Out-migration
Searun Cutthroat	Jan.-May Yearlong April-June	R, MT, ST R, MT, ST R, MT	Eggs in gravel (up to 4 years) Rearing Out-migration

[1] R = North Umpqua River
MT = Major tributaries (Rock, Steamboat, Canton, Calf, Copeland)
ST = Small tributaries (numerous).
[2] Coho escapement very low, spawning and rearing locations poorly described.
[3] Searun cutthroat biology not well documented. Runs are very depressed.

The concept is particularly relevant when discussing a relatively large basin with such a complex assemblage of wild and hatchery stocks such as is found in the North Umpqua basin. It is likely that some stocks are reach or even tributary specific. They contribute to the whole in that the runs are the sum of the stocks, but they are each very important in that they represent a unique, genetically diverse set of physical and behavioral characteristics. It is also very likely that numerous stocks have been lost from a variety of causes, some natural and some human caused, over the last century. Possible causes include barriers to migration, severe habitat losses, overfishing, and interaction with non-native stocks.

Winter Steelhead. Winter run steelhead in the North Umpqua are almost entirely wild fish. Since 1946, when direct count information from Winchester Dam became available, run sizes have ranged from about 4,000 to 11,000 with an average of approximately 7,100 fish. At this, winter steelhead are consistently the most abundant wild anadromous adults returning to the basin. During the 45-year period of record, there has been considerable year to year variation, but the overall trend appears to be quite stable. Information on run sizes prior to 1946 are spotty, but there is some indication that some early returning stocks entered the commercial coho fisheries in October and November. These stocks, although not specifically tied to the North Umpqua, are for the most part absent from the Umpqua at the present time. Winter steelhead are widely distributed throughout the North Umpqua basin below Soda Springs Dam and, under favorable conditions, utilize virtually every accessible tributary and the river itself for spawning and rearing. There is considerable overlap in the distribution and habitat use of summer steelhead with winter run fish, the primary difference being that the summers spawn earlier. Juveniles are virtually indistinguishable except that summer young-of-the-year fry are larger (emerge earlier) than do winter run fish. The Oregon Department of Fish and Wildlife is presently managing winter steelhead in the North Umpqua for wild fish only and goals of 8,000 to 10,000 are, with the exception of 1991, being met.

Summer Steelhead. Summer run steelhead returns are the result of both natural production and hatchery production. Wild fish returning across Winchester Dam have ranged from around 2,000 to over 8,000. Since direct count data became available, the period 1946-55 averaged 3,200, then dropped through the 1950's and 1960's to an average of about 2,500, then increased through the 1970's and 1980's to about 4,000 fish.

A hatchery program for summer steelhead was initiated in 1958. Initially, hatchery numbers were well below wild numbers, but for the period 1969-73, large numbers of hatchery fish returned with a hatchery to wild ratio as high as 6:1. Hatchery releases were reduced and by 1975 the ratios were approximately 1:1. In the last 3 years, wild fish numbers have dropped slightly, but are still within the historical range. Ratios of hatchery to wild have increased to 2:1 or even 3:1 during the last 6 years.

As with winter steelhead, pre-1946 data is sketchy. Incidental catches in the lower river shad fishery during the 1920's ranged as high as 18,000 pounds, which could be as many as 2,400 fish. There is no estimate of what portion of the total this represents, but does indicate that historical run sizes were substantial. Some, although an unknown portion, of these were most likely South Umpqua fish.

The basin-wide distribution of spawning and rearing by summer steelhead is not quite as extensive as winters; but within streams tributary to the designated section, it is nearly identical. Steamboat Creek and its major tributaries, Canton Creek, Copeland Creek, and Boulder Creek have long been recognized as important spawning and rearing streams. Research has shown that most juvenile steelhead, presumably both summer and winter, that are spawned in the Steamboat sub-basin rear for 1 year or less and then move downstream for an additional 1 or 2 years before smolting. This may occur in the mainstem North Umpqua. This assumption is, however, unproven and studies of habitat utilization and limiting factors are areas needing further research. The ODFW presently is managing summer steelhead as both a wild and a hatchery run and have goals of 6,000 to 8,000 wild fish and 5,000 to 10,000 hatchery fish passing Winchester Dam. In recent years, the goal for wild fish has not been achieved, while hatchery returns have met or exceeded the goal 3 out of the last 4 years.

Spring Chinook. Like summer steelhead, spring chinook runs are resultant from both natural and hatchery production. Since 1946, when direct count data from Winchester Dam became available, wild run sizes have ranged from about 2,500 to over 11,000. The average for the period is about 5,500 fish. The wild spring chinook population, although showing considerable year to year variation, is considered stable.

A hatchery program for spring chinook was initiated in 1952. Initial hatchery returns were small, averaging about 1,000 fish until 1969 when 9,300 returned. Hatchery returns were strong, even exceeding wild returns twice, until 1978 when they dropped to an average of about 2,800 fish until 1985. Strong returns of about 6,000 during the period 1985-87 paralleled large wild returns. The last 4 years have seen a sharp decline to an average of about 2,100 hatchery fish. Abundance of hatchery returns has shown considerable year to year variability, roughly paralleling wild returns with a hatchery to wild ratio of 1:2 or 1:3.

A commercial fishery has long existed for spring chinook, but harvest data is not available prior to 1923. Harvest is subject to many variables such as fishing effort and water flows, but gives a crude indication of run sizes. During the period 1923 to 1940, catches ranged from over 10,000 to about 1,000 fish with an average of about 4,500 fish. These numbers are similar to the total wild run for the period of record (1946 to present), indicating that the total wild run sizes historically were greater, perhaps considerably, than present. A portion, unknown how many, was most likely from the South Umpqua.

Within the North Umpqua basin, spawning and rearing of wild fish occurs primarily in the mainstem North Umpqua below Soda Springs and the lower reaches of Copeland, Steamboat, and Canton Creeks. Freshwater rearing duration and timing of out-migration is highly variable. Juvenile spring chinook are either rearing in and/or migrating down the North Umpqua River year-round. The ODFW is presently managing spring chinook as both a wild and a hatchery run with goals of at least 5,400 wild and 4,000 to 7,000 hatchery fish passing Winchester Dam. With the exception of 1991, wild goals have been met or exceeded. Hatchery goals, however, have not been met since 1987. New hatchery procedures and increased smolt production will, it is thought, increase hatchery returns to achieve the goal.

Coho. Like summer steelhead and spring chinook, coho runs are the result of both natural and hatchery production. Since 1946, when count data became available, wild coho numbers have shown large fluctuations ranging from over 3,000 to about 500 for the period 1946-70, with an average of about 1,300. For the period 1970 to present, wild returns have ranged from 1,500 to 10, with an average of about 550. The wild population is considered depressed.

Stray hatchery coho were first recorded passing Winchester Dam in 1974, but purposeful hatchery returns began in 1982. For the first 5 years, returns were relatively large, ranging from 1,750 to 9,000 with an average of 4,800. For the period 1987-90, returns dropped, ranging from 1,972 to 742 with an average of 1,400 fish. Hatchery returns have exceeded wild returns every year except two since the hatchery program began, with no established trend in ratio.

As with the other salmon species, coho have long been sought by commercial fishermen. Catch and processing data for the Umpqua is available beginning in 1892. Commercial landings of coho for this period were very large. For the period 1892 to 1940, catches ranged from about 30,000 to over 250,000 fish. The harvest occurred in the lower river and the proportion from the North Umpqua was not determined. It is likely that it was a minor part, but even a minor part may have been a substantial number compared to the present wild fish returns.

The distribution of spawning and rearing habitat in the North Umpqua basin for wild coho is poorly described. Low escapement numbers complicate the task. It is thought that the Little River/Cavitt Creek sub-basins and Rock Creek are important coho producing areas. Coho have been found at very low abundance as far up the system as Copeland Creek. The lower gradient portions of most tributaries likely provide suitable habitat. The ODFW is presently managing coho for both wild and hatchery production with an emphasis on hatchery fish. The objective for wild returns is 1,300 fish and for hatchery returns it is 3,500 fish. The wild goal has been met 3 out of the last 10 years; the hatchery goal 4 out of 9 years but none of the last 4 years.

Searun Cutthroat. Searun cutthroat are essentially resultant from natural production. Since 1946, run sizes have ranged from nearly 2,400 to as low as 25 fish. For the 30-year period 1946 to 1976, there was considerable yearly

variation, but overall, run strength appeared stable around 750 fish. There was one exception in the early 1960's when numbers were lower. Since 1977, the number of returning wild searuns has severely declined to a 14-year average of only 72 fish. There is much uncertainty as to the cause of the decline and whether recovery is possible with such low numbers for such a long period of time. There is very little historical data on past abundance. There has never been a commercial fishery for searun cutthroat, but substantial sport fisheries existed historically in the North Umpqua from mid-summer to late fall.

There is little known about the distribution and habitat use of searun cutthroat in the North Umpqua basin. They are thought to spawn between January and March. Rearing time and out-migration of juveniles is poorly documented. The extremely depressed numbers make it nearly impossible to describe needed habitat or limiting factors for this species. The possibility of loss of viability and extinction of the North Umpqua stock of searun cutthroat is high. The ODFW plans to manage searun cutthroat for wild fish only unless it is determined the run cannot sustain itself. The ODFW is presently reviewing this species for inclusion on the State sensitive species list. A recovery plan for this species will be proposed.

Fall Chinook. Fall chinook are the result of natural production only from the lowermost portion of the mainstem of the North Umpqua River. Most, if not all, of the production takes place below the W&S corridor. The North Umpqua is not thought to be high quality habitat for fall chinook and numbers of returners crossing Winchester Dam have ranged from 719 to 1 fish, with an average of about 140 fish. There is little historical data on fall chinook abundance in the North Umpqua, but numbers were likely always relatively low.

Resident Trout. Non-migratory, resident trout populations in the North Umpqua River are the result of natural and hatchery production. Rainbow trout are the most abundant, with small numbers of introduced brown and brook trout that have moved downstream from lakes and impoundments. Resident native cutthroat are also present. Wild trout populations, both rainbow and cutthroat, are thought to be relatively low and is supplemented with about 46,000 yearling hatchery rainbow to sustain a trout fishery. The ODFW is managing the North Umpqua for both wild and hatchery resident trout. The objective is to maintain a trout fishery at the present level with supplementation of hatchery fish while increasing the searun cutthroat returns to more normal levels. The hatchery rainbow trout are not generally long-lived in the river, and habitat use is generally close to the place of stocking.

Summary. As can be seen in Table II-3, the North Umpqua River contains a complex mix of fish species and stocks. For anadromous fish alone, at a minimum, there are nine stocks from six species. Six stocks are wild or naturally producing, three are of hatchery origin. Additionally, some widely distributed species, most notably summer and winter steelhead, most likely contain inter-basin, tributary specific stocks. This would potentially swell the number of stocks upwards to 15 or more distinct stocks. Also from Table II-3, seven of the nine stocks are

presently stable, populations are large enough to be viable, and two are depressed. Of note, however, is that five have shown substantial declines in recent years and another, wild coho, is already depressed. Other factors, such as ocean and freshwater fishing, ocean and estuary productivity, predation, disease, and inter-action with non-native stocks have also played a role in these declines.

Table II-3

Anadromous Fish Assemblage
North Umpqua River

SPECIES	STATUS	RECENT TREND
Winter Steelhead [1]	Stable	Stable
Summer Steelhead [1]	Stable	Declining
Summer Steelhead [2]	Stable	Stable
Spring Chinook [1]	Stable	Declining
Spring Chinook [2]	Stable	Declining
Coho [1]	Depressed	Stable
Coho [2]	Stable	Declining
Searun Cutthroat [1]	Depressed	Declining
Fall Chinook [1]	Stable	Stable

[1] Wild Stock
[2] Hatchery Stock

Physical Habitat

The North Umpqua River originates on the western slope of Miller Mountain on the crest of the Cascade Range in the extreme eastern portion of Douglas County. From its head at Maidu Lake, it flows westerly 106 miles to its confluence with the South Umpqua River at River Forks, the start of the main Umpqua River. Soda Springs dam, at river mile 70, is presently the upper limit of anadromous fish use on the North Umpqua. The existing habitat conditions are the result of the natural productivity of the entire watershed in combination with modifications resultant from human activities. For the portion of the North Umpqua River encompassed in, or affected by the Wild and Scenic designation the major human activities affecting fish habitat quality are: 1) construction and operation of the Pacific Power North Umpqua Project 2) timber harvest and associated activities such as road construction throughout much of the watershed 3) reconstruction of Highway 138, and 4) habitat restoration and enhancement work, primarily in tributary streams.

The construction of the Pacific Power hydropower project in 1954 affected the habitat of the mainstream North Umpqua in several ways. First, construction of Soda Springs dam stopped upstream migration of anadromous fish into the Fish Creek sub-basin. Toketee Falls prevented passage further up into the North Umpqua basin. The historic distribution into Fish Creek is not well described and may have been limited to the lower 1.5 miles. Fish passage was not provided for, thus a substantial amount of habitat at the uppermost end of the North Umpqua River basin for steelhead, and possibly spring chinook and coho salmon was lost. The project also reduced habitat quality in the North Umpqua by altering the natural bed load regime and reducing gravel recruitment into the river. In the upper portion of the Wild and Scenic River, spawning substrate is presently very limited for wild spring chinook and possibly both winter and summer steelhead. Another change is caused by flume and canal failures that have increased the frequency and magnitude of landslide activity thus increasing turbidity and fine sediment and causing periodic short-term degradation. Lastly, the productivity of the water in the river below the project may be lowered due to increased nutrient capture in the project reservoirs and reduced nutrient input from allochthonous sources.

Timber harvest and associated activities, including road construction, is the most common land use activity in the North Umpqua basin and is the largest single source of habitat modification. Although relatively little timber harvest has occurred within the boundary of the Wild and Scenic corridor, the harvest activities in most watersheds tributary to the North Umpqua River has resulted in reduced habitat quality which has an effect on the Fisheries ORV in the designated section. The Fisheries ORV is effected in two ways. First, habitat quality in the river can be directly affected by increased sediment, unnatural variation in temperature regime, or increases in peak flows. In the past, timber harvest commonly occurred down to the streams edge. With current practices, which include streamside buffers, there is some indication that increased summer water temperatures can be avoided and reversed. Short-term sediment deposition on gravel bars in the river during the fall and early winter can degrade spawning habitat for spring chinook. The second is more complex. Habitat quality in portions or most of all the tributaries to the North Umpqua are presently in a degraded condition resultant from past management activities. Four of the six wild stocks identified in the previous section utilize these tributaries for a significant portion of their juvenile life history. Three of those four are depressed or declining. These declines are a result of several complex and poorly understood factors. These factors include ocean and freshwater fish harvest, variable esturine and ocean productivity, competition with introduced non-native stocks, increased mortality from predation and disease and reduced habitat quality and quantity. Degraded habitat is thought to be one of the main factors in this decline. Habitat degradation resultant from timber harvest activities includes increased sediment deposition, increased summer or lowered winter water temperatures, decreased amounts of large wood in stream channels or flood plains, and increased peak flows. These factors, independently or acting together, reduce the habitat capability of the stream for one or more life stages of the juvenile fish inhabiting them. This loss of habitat capability reduces, perhaps significantly, anadromous

fish production. The lowered production of juvenile fish, if spread over a wide geographical area for a sufficient amount of time, will usually lead to a decline and eventual loss of that stock.

The initial construction of state Highway 138 and subsequent maintenance and reconstruction has also resulted in a direct modification of habitat conditions in the North Umpqua River and some of its tributaries. For example, at least one tributary, Fairview Creek, had fish passage blocked for a period of time, resulting in a complete loss of habitat during that time. In many places, the road is located very near the river and fill or rip-rap material is within the high water stream channel. Additionally, the right-of-way was cleared of large trees which are no longer available to enter the stream channel or flood plain and blown-down trees that may have entered the system are now removed as routine maintenance. Finally, cuts and fills have increased rates of soil erosion and landslides which increase turbidity and fine sediment input to the river.

The final area of human modification is habitat restoration and enhancement activities. Little or no restoration or enhancement work has been conducted in the mainstream North Umpqua. The large size, flow regime and lack of appropriate technologies has, for the most part, precluded this type of modification. Virtually all of work to date has been conducted on the tributaries. A few, such as improved passage at natural waterfalls such as in Steamboat and Copeland Creeks could be classed as enhancement of natural conditions. The vast majority however, are restoration due to identified habitat degradation. Most are related to timber harvest activities such as passage at log jams or stream crossings, loss of instream structure, scoured stream channels, or loss of shading vegetation. Large scale restoration efforts have been conducted in the Rock Creek, Steamboat, Canton, and Calf Creek sub-basins. Much of the technology is experimental, and valid long-term evaluation is minimal. Also, on a basin scale the amount of habitat actually being treated is quite small. Overall, habitat restoration and enhancement has not resulted in a major change in habitat quality in the North Umpqua River basin.

Summary. In its natural condition, while not highly productive from a nutrient or bio-mass standpoint, the North Umpqua River basin provided sufficient habitat to support a diverse assemblage of organisms, including numerous distinct species and stocks of anadromous fish. Past human modifications to this condition have, on the whole, resulted in a reduced habitat capability. Dams without passage facilities, associated with hydropower production eliminated some habitat. Gravel deposition patterns have been altered below these dams as well. Past timber harvest and associated activities have resulted in substantial habitat degradation throughout the basin, primarily in tributary watersheds. The construction and maintenance of a major highway adjacent to the river has altered this condition as well, reducing complexity in the system. Only recently have we recognized the magnitude and significance of these changes and initiated restoration activities. These activities to date have been very limited in scope and on a basin-wide scale largely ineffective.

Conclusion. The major factors that led to the finding that Fisheries was an Outstandingly Remarkable Value were: 1) the number and diversity of wild anadromous fish species and stocks that are present, 2) the productivity, and resultant abundance of wild and hatchery summer steelhead to support a highly valuable and unique in-river recreational fishery of international stature, and 3) the productivity and abundance of wild and hatchery spring chinook to support a regionally important ocean commercial and, ocean and in-river sport fishery, and 4) the presence of wild coho and searun cutthroat trout, two species having exhibited widespread declines throughout their range to such a degree that threatened, endangered, or sensitive status may be warranted. Four of the six wild stocks are considered stable, two as depressed. The recent trend, however, is a decline for two of the four stable stocks including the very important wild summer steelhead and wild spring chinook stocks. Therefore, the existing condition is that four of six wild stocks that led to the ORV finding are either depressed and/or declining.

Wild fish depend on habitat quality and quantity throughout every life stage. For spawning and juvenile rearing for four of the six species of wild fish, that habitat is the major and minor tributaries to the North Umpqua River. Habitat quality in most of those streams is substantially degraded at the present time, primarily from land use practices. Three of those four stocks are depressed and/or declining. The reasons for this decline are complex and poorly understood. Freshwater resting, spawning, and rearing habitat quantity and quality is one of many potential factors. Other inter-related factors, such as ocean and freshwater fishing, productivity in the ocean and estuaries, predation, disease, natural cycles, and competition from non-native stocks most likely have also contributed to this decline. In conclusion, the fish resources and physical habitat factors that make Fisheries an ORV in the North Umpqua River are far from pristine and may be on the decline. Further, these factors are not limited to the designated Wild and Scenic corridor, rather are representative of the interconnected nature of the entire watershed. Finally, all the effects of future activities in the entire watershed will need to be considered to prevent further degradation and allow restoration of this ORV.

Wildlife

Wildlife resources within the North Umpqua River Wild and Scenic Corridor are typical of faunal species found within other river systems in the southwestern Oregon region. Although the river offers a variety of aquatic and terrestrial habitats, the area does not contain nationally or regionally important or unique habitats or populations of wildlife species.

Lands within the North Umpqua River interim corridor provide habitat for a number of southwestern Oregon wildlife species. Riparian habitats along the river provide the needed food, water,and shelter to attract a diverse wildlife community. Big game species include blacktail deer (*Odecolius nemionus*), black bear (*Ursus americanus*), and Roosevelt elk (*Cervus elaphus*). Upland game and nongame species are also abundant in numbers and varieties. The

large, old growth timber found along the river provides excellent habitat for cavity-dependent species and raptors.

The river corridor contains a relatively large, contiguous block of unfragmented old growth Douglas-fir forest and is, thus, prime habitat for the northern spotted owl (*Strix occidentalis*) (Federally listed as a Threatened Species) and other species of birds, mammals and amphibians associated with this ecosystem. Several spotted owl nesting territories encompass both sides of the North Umpqua River. Although considered significant, the presence of the northern spotted owl is not unique to the southwestern Oregon region.

The osprey (*Paridion laliaetus)* is another old growth ecosystem associate that occupies the North Umpqua River. The old growth paralleling the river provides large dominant snags and broken-top live trees required for nesting. There are an estimated 15 occupied nesting territories along the North Umpqua River corridor.

During the fall and winter and spring months, bald eagles (*Haliacetus leucocephalus*) (listed on the Federal Threatened Species List) have been known to visit the North Umpqua River. Utilizing the river as a staging area or migration corridor in route to other wintering sites, their presence in the area is apparently only transitory in nature. Although the presence of old growth timber and a healthy fish population provide potential nesting habitat, no bald eagle nesting sites are known to exist within the river corridor.

Vegetation

Vegetational composition of species are typical of the western hemlock vegetation zone and do not represent unique populations or habitats within the southwestern Oregon region. There are no Federal or State listed or candidate threatened, endangered floral species within the North Umpqua River corridor. Although three plant species listed as special status or sensitive occur within the interim North Umpqua Wild and Scenic River corridor, they are confined to relatively concentrated locations and do not represent diverse or unique populations or communities.

The vegetation along the North Umpqua River is located in the western hemlock vegetation zone. Associations of western hemlock (*Tsuga heterophylla*) and western red cedar (*Thuja plicata*) form climax communities throughout the zone. Most of the forested habitat along the North Umpqua is in a subclimax condition dominated by Douglas-fir (*Psudotsuga menziesii*).

Regardless of seral stage, forest plant associations follow a moisture gradient. Vegetation communities found at the moist end of the moisture gradient are well represented along the river and its many tributaries. These habitats support a rich variety of understory vegetation which is typically dominated by sword fern (*Polystichum munitum*) and Oregon wood-sorrel (*Oxalis oregana*). Understory vegetation on dry sites within the corridor is characterized by ocean spray (*Holodiscus discolor*), salal (*Gaultheria shallon*) and golden chinquapin (*Cas-*

tanopsis chrysophylla). Intermediate along the moisture gradient are understory associations of western rhododendron (*Rhododendron macrophyllum*) and dull Oregon grape (*Berberis nervosa*). As with the moist forest communities, western hemlock, western redcedar and Douglas-fir dominate the overstory in these locales.

A number of noxious weeds have become established in the North Umpqua River area. These include tansy ragwort (*Senecio jacobaea*), scotch broom (*Cytisus scoparius*), Canada thistle (*Cirsium arvense*), and St. John's-wort (*Hypericum perforatum*).

Kalmiopsis leachiana, a plant species of special interest, is on the state Oregon Natural Heritage Data Base review list. This species is a southwest Oregon endemic known only from the Kalmiopsis Wilderness Area, Siskiyou National Forest and from certain locations along the North Umpqua River, predominantly within the Limpy Rock Research Natural Area which extends into the river corridor. Current management direction provides for maximum protection of the Research Natural Area and all threatened and endangered botanical species.

Timber

Bureau of Land Management

Past and Ongoing Timber Harvest - In the first 8.4 miles of the Wild and Scenic River corridor (the BLM jurisdiction) the BLM-controlled land is intermingled with privately held tracts. As a general rule, the BLM controls the odd numbered sections while the even numbered sections are controlled by private landowners - either large timber companies or small private land owners. A basic understanding of this is necessary because the past harvest history is considerably different on the private and the BLM lands.

All of the large company-owned tracts within the viewshed of the North Umpqua River have been clearcut sometime in the past 50 years. Some of this logging took place in the 1940's and 1950's, and this ground is now well-stocked with 50-80 foot tall Douglas-fir trees. On other company-owned lands logging has occurred much more recently, and these areas now appear as relatively open clearcut areas. Of the small private land holdings in the river corridor some have had the timber harvested. On others, even though there may be dwellings on the site, a forest cover has been maintained.

Cutting on these private lands is controlled by the State Forest Practices Act. This Act provides some protection of streamside riparian areas and water quality by requiring that a strip of buffer vegetation be left along a watercourse.

The BLM lands in the Wild and Scenic River Corridor have had little in the way of logging entry. Guidelines under the existing land use plan call for all BLM lands in the North Umpqua ACEC (a one-quarter mile corridor on either side of the river) to be managed under Visual Resource Management (VRM) II restrictions. The plan designates that these VRM II lands will be managed on a 250-year

rotation under a partial retention category. Under the VRM II guideline, activities are allowed, but they must remain visually subordinate to the natural landscape and must not draw attention from key observer positions. Under the preferred alternative in the land use plan now being developed for the 1990's decade, there will be no scheduled harvest of timber from the Wild and Scenic River Corridor.

The lands outside the Wild and Scenic River Corridor but in the viewshed are currently also being managed under VRM II restrictions.

The current land use plan calls for leaving a 200-foot uncut buffer (100 feet on either side) along any third order or larger stream. A third order stream is defined as the resultant stream after two second order streams merge.

This restriction provides both for wildlife riparian habitat and streamside shading. As a matter of practice, first and second order streams which run water year around are also being buffered.

An Oregon Department of Fish and Wildlife (ODFW) spotted owl agreement area lies partially within the Wild and Scenic River corridor. Approximately 3,700 acres of BLM land comprises this ODFW area. Approximately 560 acres of this are in Sections 7 and 17 of T26S, R2W, within the Wild and Scenic River Corridor boundary. No harvest is permitted in this agreement area.

There are other opportunities within the W&S Corridor to harvest timber, on a case-by-case basis, to enhance the ORV's. Some of those opportunities are:

1. The vegetation poses a safety hazard along the highway, the river, a trail, powerline, or in a developed use recreation area.

2. The vegetation is located within an easement or right of way agreement area, and no suitable alternate route can be found.

3. The vegetation is in the way of a planned facility development or improvement project.

4. The vegetation needs to be cut to enhance a significant or outstandingly remarkable value.

5. A catastrophic natural event (such a wildfire, insect infestation, or blowdown storm) has left large numbers of dead, salvagable trees in the Corridor.

6. An insect infestation threatens adjacent timber lands outside the Corridor.

Umpqua National Forest

The Umpqua Land and Resource Management Plan calls for Landscapes that are seen from the river and Highway 138 to be managed in the following manner:

Foreground - No scheduled timber harvest.

Middleground - Scheduled timber harvest and salvage shall be programed on lands under 50 percent slope at a rate of 10 percent created openings at any time (rotation age 220 years). Created openings are defined as areas having trees averaging less than 20 feet in height.

Background - Scheduled harvest and salvage shall be programmed on lands regardless of slope at a rate of 20 percent created openings at any one time (rotation length of 110 years).

There may be other opportunities to harvest timber within the Wild and Scenic River Corridor on a case-by-case basis. Cutting and/or removal of trees on federal lands within the Wild and Scenic River Corridor may be allowed if any of the following conditions are met:

1. The vegetation poses a safety hazard along the highway, the river, a trail, powerline, or in a developed use recreation area.

2. The vegetation is located within an easement or right of way agreement area, and no suitable alternate route can be found.

3. The vegetation is in the way of a planned facility development or improvement project.

4. The vegetation needs to be cut to enhance a significant or outstandingly remarkable value.

5. A catastrophic natural event (such a wildfire, insect infestation, or blowdown storm) has left large numbers of dead, salvagable trees in the Corridor.

6. An insect infestation threatens adjacent timber lands outside the Corridor.

Cultural

The North Umpqua River was used by prehistoric peoples for more than 6,000 years. Radiocarbon dating and stratigraphic dating places prehistoric occupation prior to the eruption of Mt. Mazama approximately 6,800 years ago. The presence of the time sensitive artifacts indicates the occupation may go as far back as 8,000 years. This long period of occupation resulted in the formation of a number of sites within the corridor that have unusual characteristics when compared

with other sites in the region. Most archaeological sites in the region that have been recorded and investigated are upland lithic scatters essentially devoid of features and radiocarbon datable components. However, numerous sites located on terraces and benches, adjacent to the river contain such features as housepits, burial pits, hearths, and living surfaces, often associated with datable charcoal. These characteristics are generally the result of a more intensive occupation of riverine terraces and benches than is found elsewhere.

The prehistoric archaeological resources of the North Umpqua River taken as a group are extremely important to understanding the prehistory of southwestern Oregon. In the latest synthesis of Oregon prehistory, Mel Aikens of the University of Oregon has pointed out that southwestern Oregon is the area least known archaeologically and that it is Oregon's last archaeological frontier. A recent doctoral dissertation by Brian O'Neill has defined a Late Archaic occupation, the Narrows Phase, that is found along the main stem and North Umpqua rivers and is named for a site just downstream from the corridor. Archaeological sites on the North Umpqua are, thus, critical to understanding and further defining the Narrows Phase and its relationship to the earlier Falls Phase on the South Umpqua River and the Rogue phases of the Rogue River drainage.

The Prehistoric archaeological resources within the corridor provide a rare opportunity to study the effects of cataclysmic environmental change on human populations, a subject that has considerable human interest value. When the final eruption of Mt. Mazama occurred, about 6,800 years ago, a considerable area around the caldera was immediately changed. The upper North Umpqua River landscape was covered with a layer of airborne ash at least as far downstream as Dry Creek. A cloud of superheated gas and ash flowed across Diamond Lake and down the North Umpqua River to the Toketee Falls area, denuding the forest and killing whatever plant and animal life happened to be in the way. Subsequent flood events carried ash and pumice further downstream, blanketing theretofore untouched terraces. Drainages were choked with ash and their gravel beds became silted over, altering fish spawning grounds. The aboriginal survivors of the event were forced to adapt to this devastation. Archaeological sites on the river terraces between Swiftwater and Medicine Creek preserve the record of these adaptations. Mazama ash serves as a cap over the early occupations, allowing for pre- and post-eruption comparisons. It also serves as a time marker with which to gauge the successes and failures of human endeavors, to guage the malleability of the human spirit.

Of special historical interest is the Steamboat area within the North Umpqua River corridor. Visitors were initially drawn to the area because of the excellent fish resources. The first known fish camp constructed on the river in the 1920's was located in this vicinity.

Stretching across the river near Steamboat is the historic Mott Bridge, a recognized Oregon Historic Civil Engineering Landmark. Constructed by the Civilian Conservation Corps in 1935-36, the Mott Bridge is possibly the only

surviving example of three such structures built at that time in the Pacific Northwest.

The bridge was named for Major Jordan Laurence Mott, a nationally known author and sports enthusiast who frequented the North Umpqua River area for many years. Known as the "Millionaire Reporter," Mott authored a number of books and articles on the outdoors and heavily campaigned for conservation of wildlife and other natural resources. In 1929 the Mott family established a fishing camp at the site of the former Steamboat Ranger Station.

Another historic site of particular interest within the river corridor is the Zane Grey fishing camp located near the mouth of Fisher Creek. In an effort to maintain the high quality of fishing and solitude on the North Umpqua, the author was known to have often referred to the Rogue River when describing his outdoor experiences on the North Umpqua River. In 1934, Grey wrote about the North Umpqua River in a campaign attempt to promote a conservation ethic in protecting the fishery resources.

Recreation

The River Corridor offers a wide variety of recreational experiences. The major use activities are sightseeing, camping, fishing, whitewater boating, and hiking. The following information provides an overview of the existing recreation resources and their activities within the Wild and Scenic River Corridor:

Driving for Pleasure and Sightseeing - Highway 138 has been designated as a National Scenic Byway, (Rogue Umpqua Scenic Byway) by the U.S. Forest Service and Bureau of Land Management, and as a Discovery Drive Loop Tour by the Southwest Oregon Visitor Association. It is currently listed by the AAA as a scenic highway. This travel corridor is considered a sensitivity level 1 route in the Umpqua National Forest Visual Management System. Driving for pleasure and sightseeing have increased as much as 4% annually since 1980 (see Table II-4). This corridor route serves as the primary access to Diamond Lake Recreation Area and Crater Lake National Park. Visitors from all over the world travel through the area to enjoy these major destination attractions.

Four waterfalls are located near the North Umpqua River, contributing additional variety to the high quality experience available to the river visitor. Two of these falls, Susan Creek and Fall Creek Falls, are located in association with special interest interpretive features, Susan Creek Mounds and Fall Creek Petroglyph. The trail leading to Fall Creek Falls is a 1-mile National Recreation Trail. Jobs Garden Geology Special Interest Area is also accessed from this trail.

Other areas of interest in the Wild and Scenic River Corridor and directly accessible from Highway 138 include the Boulder Creek Wilderness, the Limpy Rock Research Natural Area, and the Umpqua Rocks Geologic Area. The North Umpqua River Corridor's recreational resources are managed as Roaded Natural under the Recreation Opportunity Spectrum (ROS) guidelines.

Table II-4

Recreational Vehicle Trends
(Highway 138)

Year	Avg. Daily Traffic (ADT) Total	**Average Daily Recreation Traffic	% Rec. Traffic	Yearly Recreation Traffic	(%) Yearly Increase (+)/Decrease (-)
*1979	1216	547	45%	199,728	
1980	1105	497	45%	181,496	-9.8
1981	1113	500	45%	182,810	+0.7
*1982	998	578	58%	211,276	+13.5
1983	1134	658	58%	246,170	+12.1
1984	1145	664	58%	242,396	+1.02
*1985	1123	482	43%	176,254	-37.5
1986	1330	571	43%	208,743	+15.6
1987	1433	616	43%	224,909	+7.2
*1988	1454	610	42%	222,680	+1.0
1989	1510	634	42%	231,483	+3.9
1990	1534	644	42%	235,162	+1.6

*Denotes years of classification

This data was obtained through the use of the "Oregon Department of Transportation, Official Publication 80-1, Traffic Volume Tables" for each year specified in the table above.

Oregon Department of Transportation (ODOT) reports give average daily volumes for each month. This figure was multiplied by the number of days in each month to arrive at gross volumes. ODOT reports also give the percentage of Average Daily Traffic (ADT) for each classification type.

**It was determined by the Umpqua National Forest that recreation traffic consisted of 90% passenger cars, all out of state passenger cars, 59% panels and pickups, all light vehicles with trailers, 70% campers and light trucks. The sum of these vehicles, Yearly Recreation Traffic, was divided by the number of days in the year to arrive at the Average Daily Recreation Traffic.

The following table reflects the changes in classification by ODOT reports. Notice the wide fluctuations in some of the figures which may account for some of the substantial percentages of change in Table II-4A

Table II-4A

Traffic Classification
(Percent of Total Vehicle Use)

Year Classified	Oregon Passenger Cars	Out of State Passenger Cars	Panels & Pickups	Light Vehicles w/trailers	Campers & Light Trucks	3-axle Trucks	4 axle or greater
1979	18.9	3.3	29.6	7.3	5.1	14.2	26.6
1982	24.7	3.0	36.2	6.1	13.5	6.7	10
1985	17.0	1.1	47.6	2.6	0.6	11.4	20
1988	13.0	3.1	27.4	5.9	2.4	17.2	31

Camping - The North Umpqua Corridor has a total of eight developed campgrounds, with 133 campsites providing for a 685 persons at one time (PAOT) capacity. Three of these campgrounds are non fee with 26 sites, while five are fee areas with 107 sites. Recreation visit totals for these campgrounds have increased 113% from 31,400 in 1985 to 67,005 in 1990 (see Figure II-8). Approximately 40% of campground use is by out of state visitors (see Figure II-9).

Apple Creek, Boulder Flat, and Horseshoe Bend reach capacity most weekends in July and August. Island campground is near or at capacity most days during the full service season. Conflicts between rafting and campground users frequently occur in Boulder Flat and Horseshoe Bend campgrounds.

Roads in six campgrounds are currently paved. Four campgrounds have running water and flush toilet facilities (Horseshoe, Bogus, Canton, and Susan Creek) while the other four (Eagle, Apple, Boulder, and Island) have vault toilets.

Law enforcement of the corridor occurs at a high visibility level with Forest Service officers, a contract recreation deputy from the Douglas County Sherrif's Department, and a Bureau of Land Management Ranger.

Figure II-8

Recreation Visits

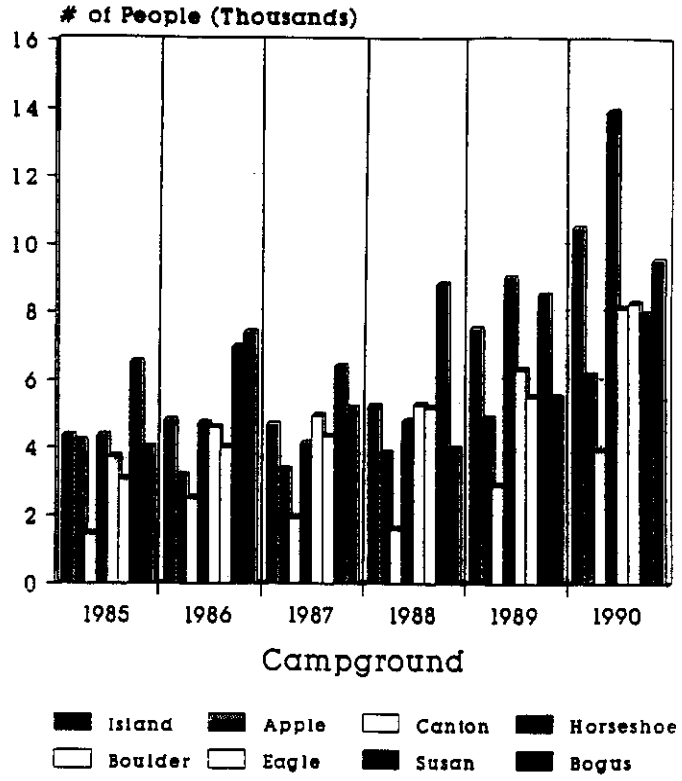
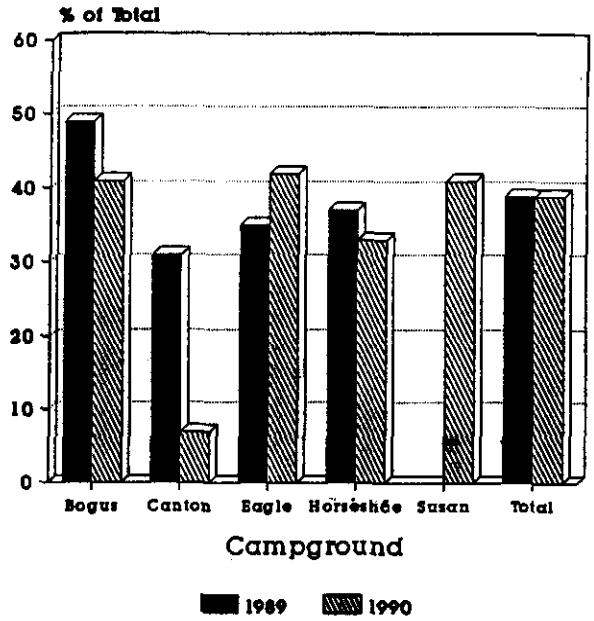


Figure II-9

Out of State Use (% by Campground)



Whitewater Boating - High Cascade Mountain volcanic soil deposits, allow for a vast saturation and slow release of water that flows from hundreds of drainages to create the North Umpqua River. This unique process helps to insure a dependable summer flow for whitewater boating, most of the year. The river provides the whitewater enthusiast an excellent intermediate to advanced experience with Class II to IV rapids. River segments from Boulder Flat to Gravel Bin and Bogus Creek to Susan Creek provide two different one day trips lasting 5-7 hours.

Commercially guided whitewater use as well as non-commercial (private) use of the river have been on a constant rise since 1976, (see Figures II-10 through 12). For commercial outfitters, the period from 1986 to 1990 showed a 105% increase in client service days from 1030 to 2050. The same period showed a 98% increase for non-commercial users from 2050 to 4000 user days. One rafting user day equals an average of 8 hours spent using the river corridor. The user days shown, actually represent 75% of the actual use totals, due to survey design.

Figure II-10

Non-commercial Whitewater Use

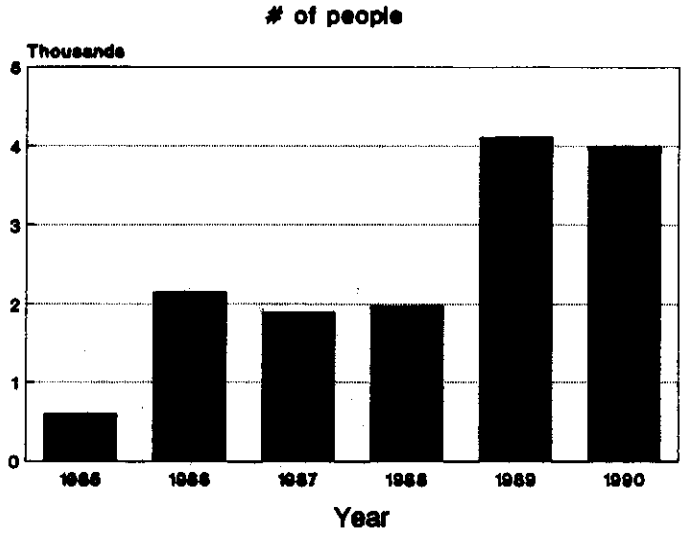


Figure II-11

Whitewater Outfitter/Guide Permits

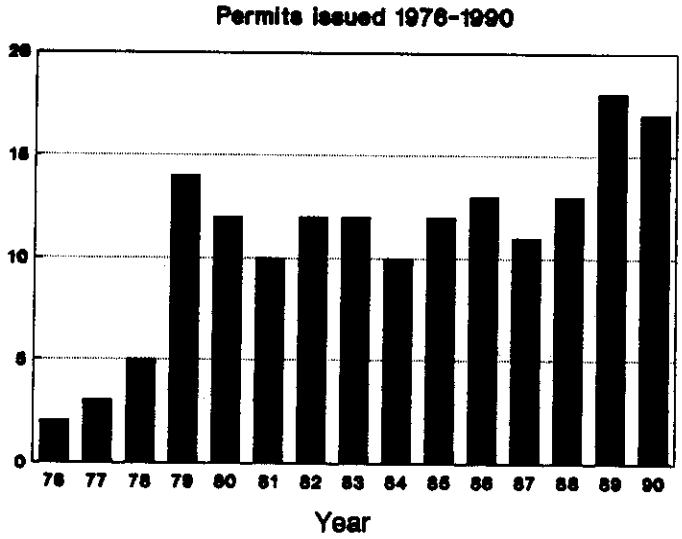
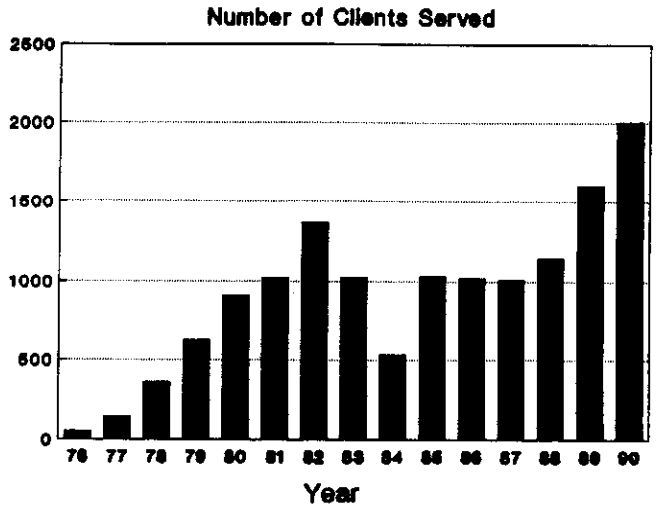


Figure II-12

Whitewater Outfitter/Guide Actual Use



Whitewater boating use trends have exhibited the following patterns; 1) an extension of the boating season into the winter and spring months with the advent of cold water gear; 2) An increase of whitewater use on weekends and holidays (see Figure II-13) creating a peak demand on facilities; 3) A substantial increase of boating use in June-August, (see Figure II-14), thus raising the possibility of conflict with other recreationists.

Equipment used for boating varies slightly by year, but overall the largest percentage of use is by kayaks. This type of use can occur year round and during periods of low flow when other crafts have difficulty maneuvering the main channel. Of the total, kayak use represents 55%, rafts 42% and canoes 3% (see Figure II-15).

Figure II-13

Boating Use (Days of Week)

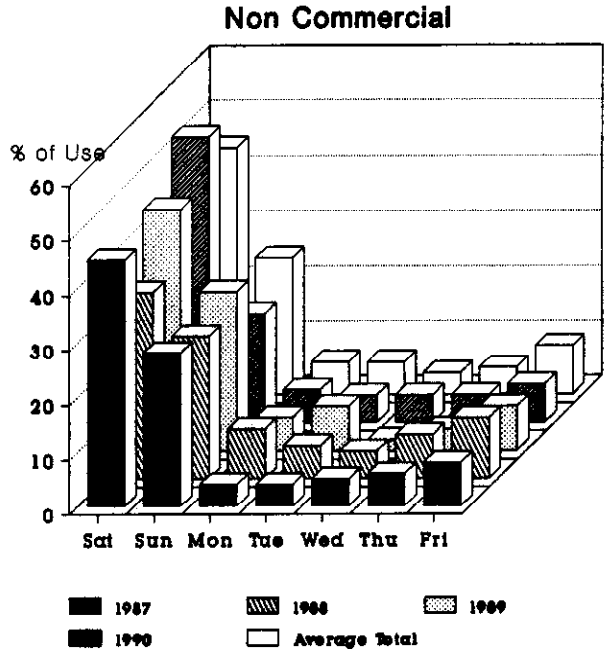


Figure II-14

Boating Use (by Month)

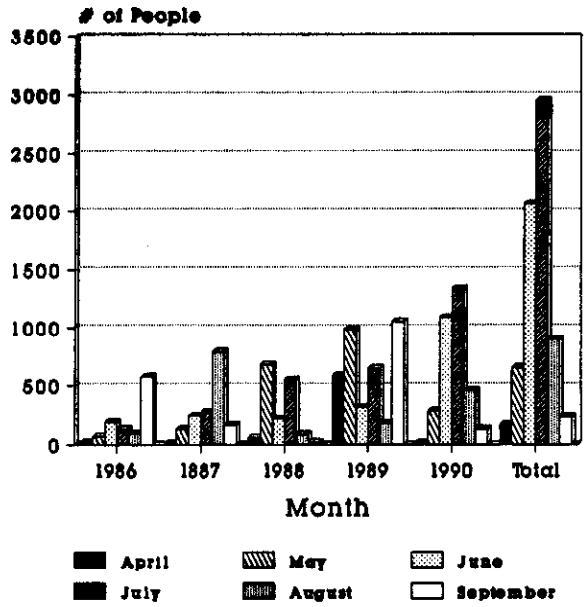
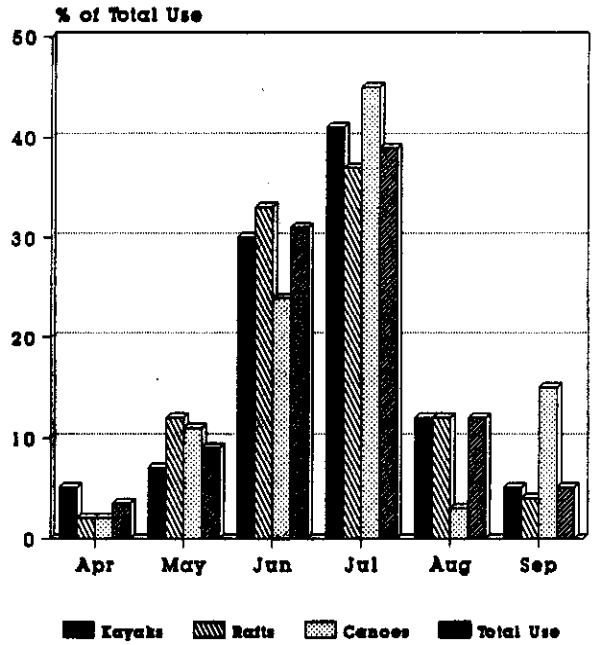


Figure II-15

Boating Equipment Use

1986-1990



These changes in historical use patterns, have brought about a variety of conflicts. Sharing the river resource and its facilities with other users like fishermen, campers, and other whitewater boaters, led to adoption of river etiquette guidelines in 1978. These guidelines, currently voluntary, have proven to be a valuable aid to the user by providing a common understanding of the problems that occur.

Traditionally, there have been conflicts between recreation user groups in the corridor. These conflicts are: 1) between boaters at Boulder Flat put in, and Gravel Bin take-out, (see Figures II-16 and II-17); 2) Between boaters and anglers on the river, primarily on the Soda Springs to Gravel Bin segment, during trout fishing season May to July, and on the Gravel Bin to Bogus Creek segment, after July 15, when the steelhead runs occur, (see Figure II-18 for rafting totals by river segment); and 3) Boaters and campers that use the same campground facilities creating servicing problems.

Figure II-16

Boat Launches by Facility

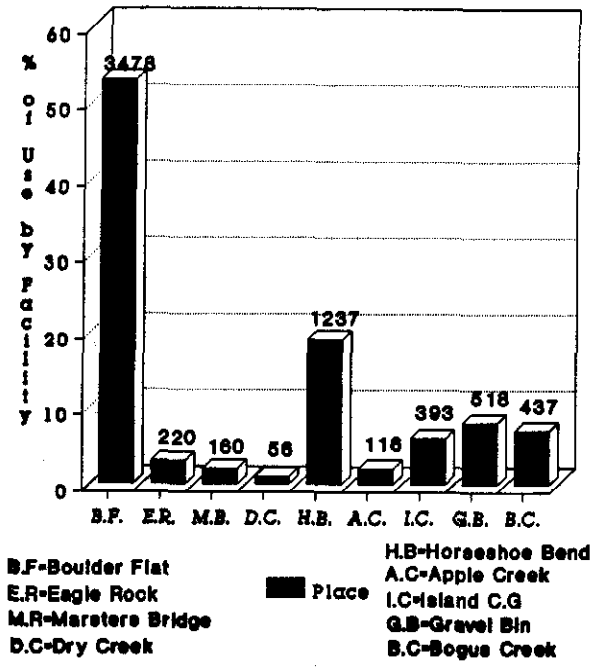


Figure II-17

Take Out Use (by Facility)

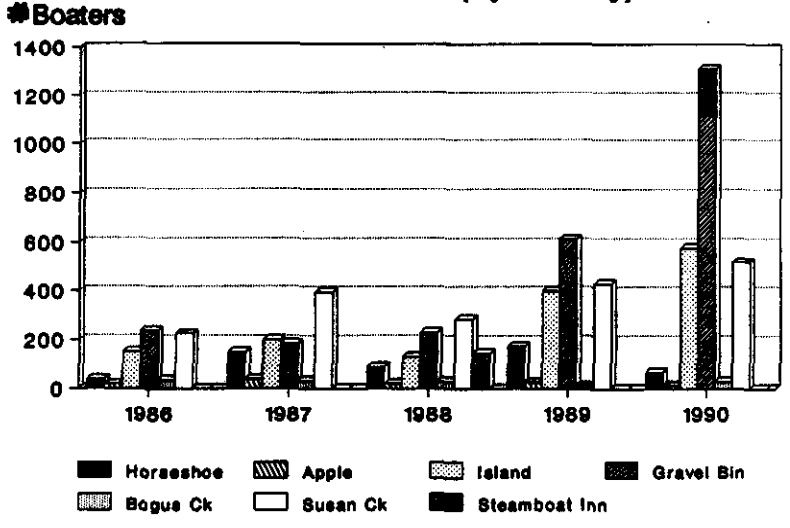
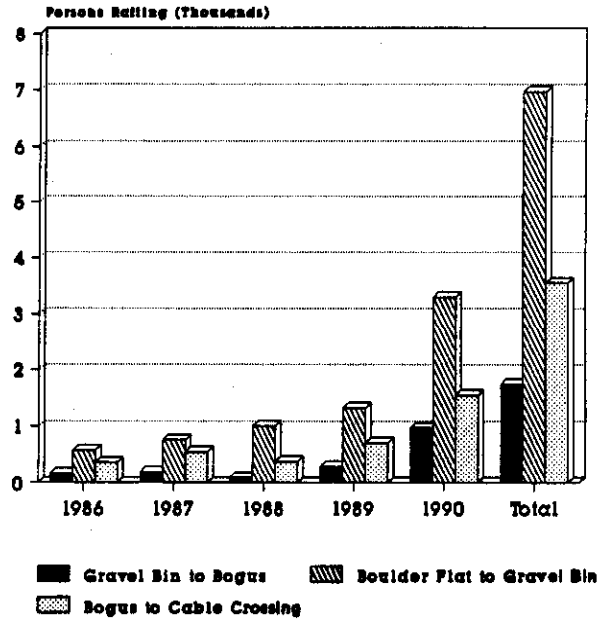


Figure II-18

Rafting Use by River Segment



Fishing - Historically, a great percentage of recreational use of the North Umpqua River has been fishing. A major attraction of the river is its summer run steelhead. Nearly the entire 33-mile Wild and Scenic/State Waterway segment has an ODFW fly angling only restriction established in 1952. An area approximately 300 feet upstream from Rock Creek allows bait angling. The presence of anadromous fish, fly angling only segments, majestic scenery, and overnight accomodation attracts anglers from all over the world.

Within the Wild and Scenic River corridor, a substantial recreational fishery for all four species exists immediately above Rock Creek. It is the traditional, world-class fly angling for summer steelhead, however, for which the North Umpqua is most acclaimed. Of particular importance is the large, wild population of summer steelhead noted for their size and fighting ability. The North Umpqua is considered by many to be one of the finest rivers in North America for its wild beauty and superb fly fishing. Its summer steelhead fishery has a long tradition, dating back to the 1920's, and has been the subject of numerous books and articles. This fishery, represents about 95% of the on-forest anadromous angling use. The Umpqua National Forest is the highest use forest in the Pacific Northwest Region, and the second highest in the entire National Forest system. The economic value of this fishery has been estimated at over $20 million.

Hiking Trails - There are a total of 60 miles of hiking trails within the North Umpqua Wild and Scenic River (W/S/R) Corridor. Trail challenges vary from gentle to most difficult, and opportunities are available to a wide variety of users ranging from non-motorized to motorized.

The North Umpqua Trail, a National Recreation Trail, parallels Highway 138 on the opposite side of the river for the entire length of the Wild and Scenic River section. This trail begins at the trailhead at Swiftwater Park (beginning of the Wild and Scenic River at Rock Creek) and when completed will run 79 miles terminating at Maidu Lake. A total of 38.5 miles are located within the Wild and Scenic River corridor boundary, with a total of eight segments and seven trailheads. From west to east the segments are: the Tioga segment, 11 miles; the Fox segment, 5 miles; the Mott segment, 5.5 miles; the Panther segment, 5.0 miles; the Calf segment, 3.7 miles; the Marsters segment 3.7 miles; the Jessie Wright Segment, 3.75 miles; and approximately 1 mile of the Boulder Creek segment.

Of the 60 miles of hiking trails in the North Umpqua Wild and Scenic River corridor, 2 trail segments (the Mott segment of the North Umpqua Trail, 5.5 miles, and the Fall Creek Falls Trail, 1.0 mile) are National Recreation Trails (NRT). Both trailheads are developed with parking areas, running water and modern comfort stations.

A total of 8.3 miles of spur trail are accessible from the North Umpqua Trail. These spur trails include the McDonald 4.0 miles, and the Cougar Creek 4.3 miles. Portions of these trails lie outside the Wild and Scenic River corridor boundary.

Fall Creek and Susan Creek trails lead to water falls ranging from 80 to 100 feet in height. These trails account for approximately 80% of our total trail use in the corridor.

The Riverview Trail which runs along the north side of Highway 138 from Steamboat Inn west to the Williams Creek trailhead is currently 1.5 miles long and offers the user the corridor's only motorized trail opportunity. A proposal to extend the Riverview Trail to the 480 spur utilizing the old North Umpqua Road will add 3.0 additional miles.

Cyclists are finding the North Umpqua River corridor attractive for several types of bicycle uses. The popularity of this sport has increased in the past several years. Mountain bicycle use of the North Umpqua Trail is becoming a popular activity with bicycle enthusiasts. Experienced users are currently riding the various trail segments which range from 3.6 miles to 5.5 miles.

Another type of bicycle use that occurs frequently in the river corridor is bicycle touring. This recreational activity usually brings to the river corridor groups that vary in size from several individuals, to touring groups consisting of several hundred in one party. Many cyclists are finding the North Umpqua Highway

very appealing for cycling, yet potentially dangerous for bicycle use, because of heavy vehicle traffic and narrow shoulders.

The Deadline Falls Watchable Wildlife Trail (near Swiftwater) is a 0.5 mile barrier-free spur trail off the Tioga section of the North Umpqua Trail. This trail offers the hiker a view of migrating salmon and steelhead as they move upstream to spawn.

Most trails within the corridor are maintained at a maintenance level standard of 4, which is the highest possible. Trail facilities will be maintained or constructed following the Roaded Natural ROS guidelines. Most corridor trails are considered a visual sensitivity level one travel route, which means that visual resources seen from the trail will be protected.

There are two low maintenance level-1 trails; the Mace Mountain Trail, 4.5 miles, and the Williams Trail, 5.7 miles. These seldom used trails, were constructed in the 1930's as fire way routes.

Scenery

Historically, the North Umpqua River has been recognized as one of the most scenic and accessible river sections in the western Oregon region. The canyon landscape is generally characterized by the combination of clear rushing water and vertical rockcliffs and spires within a mosaic of mountain meadows and Douglas-fir/western hemlock forests.

The North Umpqua River has formed a narrow V-shaped canyon between steep forested slopes. The steep slopes of the river canyon are covered in old growth Douglas-fir forest interspersed with dry-slope grassy openings and hardwoods. Through the river corridor, the boulders, outcrops, and small falls add dimension, form, and contrast to the flowing water. The corridor is inventoried as Variety Class A (Unique) under the Visual Management System. A varied and changing landscape is experienced as one travels through the corridor either via the river or the adjacent State highway.

The existing visual condition (EVC) for the viewshed is identified as "Natural Appearing," a condition that is basically dominated by the original, unchanged landscape.

Existing development within the Wild and Scenic River corridor is subordinate to the existing landscape and does not provide significant visual intrusion from the highway or the river. Seven percent of the total acreage falls within private ownership and is predominantly located within the westernmost 8 miles of the Wild and Scenic River section. Development within the corridor is confined to five small areas and a few isolated settlements. Both residential and commercial uses are present.

There are several clearcut harvest units seen in the canyon foreground (up to 1/2 mile). As one travels downstream, additional harvested areas can be viewed in the middleground and background distance zone. A power transmission line

and its associated right-of-way clearing on the north slope of the canyon are intermittently visible from the road and river.

The North Umpqua Highway parallels the North Umpqua River throughout the entire designated segment. From Soda Springs powerhouse to Marsters Bridge four miles downstream, the highway is located along the south side of the river. Downstream beyond this point (remaining 30 miles) the highway is located on the north side of the river. There are 15 intersecting roads to the north and 6 to the south. These dirt/gravel/paved roads provide access to State, County, Federal, and private lands.

Although concealed from the highway, several of the National Forest recreation sites and parking areas are intermittently visible from the river. Evidence of timber salvage activity resulting from a human-caused fire in 1972 and natural occurring fire in 1987 can be seen from both the road and the river in the area of Horseshoe Bend Campground.

There are five bridges in the Wild and Scenic River corridor. With the exception of the historical wooden Mott Bridge, all of the bridges crossing the river are modern concrete structures. One serves the North Umpqua Highway where it crosses to the south side of the river approximately 4 miles west of the upstream terminus of the study area. The other three bridges serve secondary forest roads which lie perpendicular to the river and continue south beyond the river corridor.

Land Ownership and Uses

The Wild and Scenic segment of the North Umpqua River is located from just below Soda Springs Powerhouse 33.8 river miles to the confluence with Rock Creek. This ownership is divided into two segments. The upper segment (25.4 miles) is administered by U.S. Forest Service ownership and includes six private tracts. These tracts together make up 167 acres and constitute 2 percent of the total area in this segment from Soda Springs to Fox Creek. The lower river segment from Fox Creek to Rock Creek is predominately under BLM administration and includes 57 privately owned tracts. These privately owned tracts constitute 21 percent of the area in this segment (see Table II-5).

Landownership within the interim Wild and Scenic River corridor is approximately 93% public and about 7% private. There are approximately forty different private owners within the boundary. Total acre breakdown is as follows:

Landowner	Acres
Umpqua National Forest	7,961
Bureau of Land Management	1,613
Douglas County	475
Private within National Forest	167
Private within BLM	568
State of Oregon	32
Total	**10,816**

There are six small river communities that lie within the boundaries of the Wild and Scenic River corridor. The first small community is in the Dry Creek area. This area contains several private business; a log cabin store, a trailer park, and a whitewater rafting outfitter guide shop. Several private residences are also located in this area. A few of the buildings in this community are visible from the river; many are visible from the highway.

The second concentrated area of development is the site of the former Steamboat Ranger Station compound located on the south bank of the river. The State of Oregon Department of Transportation currently occupies the facility under a special use permit from the U.S. Forest Service. Several of the structures are visible from the river and the road. Also included within this general area, but located a slight distance down river from the ODOT complex, is the Steamboat Inn, a recreational resort which offers food and lodging, also under a U.S. Forest Service special use permit. This complex of eight existing buildings is partially visible from both the river and the road.

The third community is a small area of private ownership is located approximately 2 miles east of the National Forest/BLM boundary and consists of several residences which are partially visible from the river and the road.

The fourth major area of development, a residential trailer court north of the highway, is adjacent to lands managed by the Bureau of Land Management. In this locale, the BLM manages a campground and picnic area on the north side of the river and Douglas County maintains four day use recreation sites. The BLM and Douglas County recreation sites are not highly visible from the road or the river.

The fifth existing development within the Wild and Scenic River corridor includes several homes adjacent to the river, a store, a motel, and two private residences adjacent to the highway at the Frontier Store Site. Ten residences within this general area are visible from the river.

Rock Creek is the sixth and final area of major development within the Wild and Scenic River corridor. Just above the confluence of Rock Creek and the North Umpqua River there is a Douglas Fire Protection Association fire guard station and the water intake for the fish hatchery. Both structures are visible from the south bank of the river.

Table II-5

Land Ownership by Acres

	Private Small Tracts			Private Company		State		County		Agency	Total
	Owner/Legal Description	# Acres	# Tracts		Acres		Acres		Acres	Acres	
USFS Section	Frank Moore Sec. 9, 26-1	70	1								
	McTaggert Sec. 10, 26-1	10	1								
	Aymond Sec. 21, 26-2	23	2								
	Rone Secs. 23 & 26, 26-2	13	1								
	Dry Creek Sec. 20, 26-2	51	1								
	Subtotal	**167**	**6**		**0**		**0**		**0**	**7961**	**8128**
BLM Section	Sec. 1, 26-3	60	16	Sec. 8, 26-2 Weyerhauser	20	Sec. 1, 26-3	14	Sec. 12,25 6-3	226		
	Sec. 12, 26-2	30	2	Sec. 18, 26-2 Weyerhauser	10	Sec. 23, 26-2	18	Sec. 8, 26-3	60		
	Sec. 8, 26-2	20	1			Sec. 24, 26-2 (Entire 37 acres is the river itself. Already accounted for in the 204 acres of River Acres)	37	Sec. 17, 26-2	60		
	Sec. 17,26-2	52	6	Sec. 22, 26-2 Roseburg Resources	5			Sec. 21, 26-2	9		
	Sec. 16, 26-2	138	20	Sec. 24, 26-2 Champion	4			Sec. 22, 26-2	102		
	Sec. 21, 26-2	185	9					Sec. 14, 26-2	10		
	Sec. 23, 26-2	14	2			Total Non River Acres - 32 acres	32	Sec. 23, 26-2	8		
	Sec. 13, 26-2	30	1								
	Subtotal	**529**	**57**		**39**		**32**		**475**	**1613**	**2688**
Total		**696**	**63**		**39**		**32**		**475**	**9407**	**10,816**

10,816 Acres - 33.8 River Miles = 320 Ac/River Mile

Access Within the Corridor

Oregon State Highway 138 provides the primary means of access within the North Umpqua corridor. The highway runs parallel to and within one-quarter mile of the North Umpqua River for the entire length of the segment designated Wild and Scenic. This highway, also known as the North Umpqua Highway, when first constructed was under the jurisdiction of Douglas County from Roseburg east to Rock Creek. The road was extended further east from Rock Creek to Steamboat Creek by the Forest Service in the 1920's. By 1940 the road was further extended to Diamond Lake by way of Copeland Creek. The present route up the Clearwater River was completed after 1940. Jurisdiction of the road was transferred from Douglas County to the State of Oregon in 1985.

The highway is a Federal Aid Primary route and extends from Roseburg to northeast of Crater Lake National Park. It is the primary access from Roseburg to the North Umpqua River, Diamond Lake, and Crater Lake National Park. Logging trucks and trucks shipping other forest products are the primary types of commercial traffic with destinations on this route. Forest land and river recreation users make up the majority of the noncommercial RV and automotive traffic. It is estimated that 70 to 80% of the total traffic on the route is generated from commercial, recreational and administrative access to Federal lands. The remaining portion of vehicle use is through traffic. The average daily traffic volume on Highway 138 in 1990 was 1,534 vehicles per day, of which about 30-45% is truck traffic. The traffic during the summer recreation period of July through September has been counted at 160% of the yearly daily average (or about 2,500 vehicles per day).

The highway is one of three transportation corridors identified in the Umpqua National Forest Land and Resource Management Plan.

Southern Oregon counties and municipalities have targeted tourism as a major contributor to economic development. This economic development strategy, coupled with the facts that the North Umpqua River has been designated a Federal Wild and Scenic River and State Scenic Waterway, and the North Umpqua Highway has been designated a National Scenic Byway will generate more highway use by anglers, rafters, hikers, campers, and sightseers.

The North Umpqua Highway is basically a two-lane highway for east and west bound traffic. The combined width of the two travel lanes varies from 22' to 24' with shoulders on each side that vary from 1' to 3' in width. The highway surface between Steamboat Creek and Boulder Flat Campground is beginning to deteriorate, causing higher maintenance costs. Concerns have been expressed by some members of the public to ODOT regarding the safety of the highway due to the mix of commercial and recreation traffic and access to recreation sites. Based on the poor road conditions The Federal Highway Administration, in cooperation with the Oregon Department of Transportation and the US Forest Service, has recently proposed a road improvement project for Highway 138. The first phase of that project is between Steamboat Creek and Boulder Flat. The project is slated to include: (1) travel lane resurfacing, (2) shoulder width uniformity, (3) some ingress and egress access improvement, (4) establishment

of some left-turn shelter lanes, and passing lanes,(5) rockfall prevention measures, (6) recreation signing, and (7) improved recreation user parking along the highway.

In addition to Highway 138, some private roads, Douglas County roads, BLM roads, and National Forest roads pass through or begin within the Wild and Scenic River corridor. The BLM and National Forest roads include four existing bridges across the North Umpqua River within the corridor. Most of these roads provide local access to campgrounds, administrative sites, and other forest activities. There are four primary (arterial and collector) roads that access large areas of National Forest and BLM land that intersect the corridor. These are Wright Creek Road (#4711), Panther Creek Road (#4714), Steamboat Road (#38), and Copeland Creek Road (#28).

Minerals

The primary economic potential for mineral use in the Wild and Scenic River corridor is the rock resource. At present there are two sites from which rock has already been depleted. There are two active sites, one of which is suitable for building stone only.

There are no active mining operations within the corridor. This is due to a lack of economic mineralization and a modified mineral withdrawal on the US Forest Service land within the corridor. There is some limited recreational gold mining, usually conducted with small dredges or gold pans. Historical and past use of the area within the corridor shows that potential for locatable and leasable minerals, geothermal and oil and gas, is minimal. There is one gas and oil lease on BLM lands within the corridor. Currently there are 26 unpatented mining claims within or adjacent to the corridor.

Energy and Utilization

There are two PP&L power transmission lines which parallel the North Umpqua River. These 230 KV lines run from the Soda Springs hydroelectric power generating station to the Dixonville substation, and supply energy to the regional transportation system. These lines run parallel to the Wild and Scenic River Corridor along the north side of the river, falling within the corridor in some locations and outside in others. They can be seen intermittently from both the river and the highway. Near Bob Butte, the lines diverge with one line turning south and crossing the river, and the other continuing downstream paralleling the North Umpqua Highway. These powerlines are recognized as Utility Corridors in the Umpqua National Forest Land and Resource Management Plan.

In addition to these two power transmission lines, PP&L also operates power distribution lines which run up from Rock Creek to private land near Fall Creek Falls, and a second line which runs down from Soda Springs to Steamboat Inn. These lines supply residential power to the homes and small river communities located in the Wild and Scenic River Corridor.

The corridor has been identified as an avoidance area for additional utilities crossing the river. The Northwest Planning Council has designated the North Umpqua River and all its major tributaries as protected areas. This protected status recommends that no new hydroelectric development be allowed in these areas.

Fire

While Western Oregon has a history of forest fires encompassing thousands of acres of prime forest land, the only recorded major fire in the North Umpqua River Corridor was the lightning caused Apple Creek Fire. This occurred on Forest Service land above Steamboat in 1987 and consumed approximately 2400 acres of timberland.

It is the policy of both agencies to fight wildfire aggressively whether it is inside or outside the Wild and Scenic River Corridor boundary. The BLM operates under a fire protection agreement with the Douglas Forest Protective Association (DFPA). Under this agreement, BLM pays a yearly fee, and for this fee obtains fire protection services. While the DFPA under the protection Agreement has responsibility for fire suppression on BLM lands, the BLM plays a strong support role. The Forest Service maintains its own fire suppression crews and equipment and is responsible for fire suppression on USFS lands.

Congressional Designations

Limpy Rock is a Research Natural Area located on Forest Service land in portions of T26S, R1E and T26S, R2E. This special area encompasses 1879 acres, less than 100 acres of which fall within the Wild and Scenic River Corridor. Established in 1979, it was set aside for educational and scientific research activities and is managed under a visual quality objective of preservation.

Boulder Creek Wilderness: On June 26, 1984, the Oregon Wilderness Act was signed creating the 19,100-acre Boulder Creek Wilderness located entirely within the Umpqua National Forest. A management plan was prepared for the Wilderness in 1989 and provides management direction for the treatment of various resources. Management objectives call for providing a variety of social and managerial settings, and the preservation and restoration of wilderness integrity through non-degradation and enhancement. Near the Soda Springs Powerhouse, the Wild and Scenic River 1/4 mile interim boundary overlaps the southern boundary of the Boulder Creek Wilderness area. Management of this area would follow guidelines calling for preservation of the natural character of these lands consistent with the Wilderness Act of 1964, and the Oregon Wilderness Act of 1984.

Tribal Considerations

The limited amount of ethnographic information available for the North Umpqua River drainage indicates use of the area by two groups: The Southern Molalla and the Upper Umpqua. The ancestors of these two groups were removed to the Grand Ronde and Siletz Reservation in 1856. No traditional use claims have been made by either of these groups. There are no ceded Indian rights

within the North Umpqua River drainage. The geographically closer Cow Creek Band of the Umpqua Tribe of Indians have been informed throughout the Wild and Scenic Rivers process.

CHAPTER III
Alternatives

CHAPTER III Alternatives

Overview of the Alternatives

The alternatives present a variety of ways of responding to the issues. Each alternative is a strategy for managing the North Umpqua Wild and Scenic River. The range of alternatives is designed to represent the range of reasonable responses to the issues.

Alternative A emphasizes natural enhancement of the Outstandingly Remarkable Values (fishery, water quality and quantity, recreation, scenery and cultural resources), while calling for less overall use of the corridor. **Alternative B** is the No Action alternative. This alternative protects the ORV's and significant values while having only the voluntary boating guidelines and maximum facility capacity to restrict recreation use. **Alternative B1** attempts to maintain existing recreational use of the corridor - particularly boating use - as defined by use levels measured in 1990. This is the Current Use Alternative. Developments proposed under this alternative would serve to better accommodate already existing levels of use. All the ORV's and significant values in the corridor will continue to be maintained or enhanced. **Alternative C**, while allowing a slight increase in recreational use of the corridor, has more restrictions than the No Action alternative to limit use. All the ORV's and significant values in the corridor will continue to be maintained or enhanced. **Alternative D** allows maximum recreational utilization of the corridor. However, the identified Outstandingly Remarkable Values continue to be maintained or enhanced.

Table III-3 shows which projects would be implemented for each of the four alternatives.

The existing interim one-quarter mile boundary is the boundary applied to the No Action alternative (B). For Alternatives A, B1, C, and D, a variable boundary applies which attempts to maximize inclusion of the ORV's within the boundary while not exceeding an average of 320 acres per river mile.

Some elements are common to all five alternatives. These are described in the following section.

Elements Common to All Alternatives

Fish - The fishery in the Wild and Scenic River corridor would continue to be protected. Any activity or project in the Wild and Scenic River corridor or tributary watersheds that may cause adverse consequences to fish or fish habitat, shall identify the existing habitat conditions, the desired future condition, and the risk and magnitude of the consequences. An alternative or alternatives that eliminates or reduces that risk shall be developed. Alternative development and effects discussion shall be conducted using the interdisciplinary process with, or under the direction of a journey-level professional fisheries biologist. Habitat conditions in the North Umpqua River would be maintained or improved.

Cultural Resources - Historic and prehistoric cultural resource sites will be managed in accordance with applicable laws, regulations, and policies. Such management will include appropriate evaluations and necessary mitigation measures for any cultural resources subjected to deterioration.

Water Quality and Quantity - Water quality will meet the Clean Water Act and Oregon Water Quality Standards. Beneficial uses of water will not be impaired.

New major water structures are prohibited. Existing low dams, diversion works, rip-rap, and other structures may be maintained provided the waterway remains natural in appearance. New minor structures may be allowed provided that the area remains natural in appearance, and the structures harmonize with the surrounding environment.

Structures that provide bank stabilization must not affect the free-flowing characteristics nor conflict with the ORV's. No development of hydroelectric power facilities will be permitted.

Riparian objectives will be met on fish habitat streams, and other perennial and seasonal tributaries, according to standards, guidelines and prescriptions of the Umpqua National Forest Land and Resource Management Plan, and Roseburg District Resource Management Plan.

Scenery - Visual Resource Management (VRM) outside the Wild and Scenic River corridor is managed for retention in the greater than 50% slope middle-ground. Partial retention is applied in the less than 50% middleground and all background on Umpqua National Forest Lands and partial retention for both middleground and background on BLM lands. Visual impacts from all new developments will be mitigated. Past visual intrusions may be rehabilitated, restored, or removed. Highway vegetation that limits sight distance may be removed if it is a safety concern. River views may be improved by selectively removing vegetation at strategic locations and vista points.

Roads and Trails - The construction of new roads and trails will take place in the Wild and Scenic River corridor only if it does not degrade or conflict with the ORV's. Existing roads and trails, including Oregon State Highway 138, will be maintained and reconstructed as necessary to provide for the safe and efficient transportation of people, goods, and services along the North Umpqua River corridor.

Wildlife - Provide habitat for viable populations of all existing native and desired non-native vertebrate wildlife species to maintain or enhance the wildlife populations with the corridor. Species listed as threatened, endangered, or sensitive will be managed and protected as per the requirements of the Threatened and Endangered Species Act.

Botanical Resources - Interpretative and educational botanical programs and associated needs will increase along with increasing human impact and conflict. Recreational river use restrictions may be needed to meet the the legal requirements of the Endangered Species Act.

Mining - Under the Wild and Scenic Rivers Act, those rivers designated as Recreation are not withdrawn from mineral entry. Therefore, that portion of the North Umpqua River designated as Wild and Scenic is technically open under the mining laws. However, the North Umpqua Highway, from the Forest boundary to the east line of Section 23, Township 26 South, Range 2 East Willamette Meridian has been withdrawn from mineral entry, 330 feet each side of the centerline of the road, to protect the road-bed. This withdrawal covers the majority of the entire riverbed except for those portions of the River in excess of 330 feet from the centerline of the North Umpqua Highway. Portions of the Wild and Scenic River Corridor were given power site classification (No. 162) on March 3, 1879 (and since amended), by the Secretary of the Interior. Subsequently, Public Law 359, dated August 11, 1955 (69 Stat. 681), was enacted to permit the mining, development, and utilization of the mineral resources of all public lands withdrawn or reserved for power, development and for other purposes, subject to Section 24 fo Federal Powers Act of 1920.

Placer mining is prohibited within a State Scenic Waterway.

While mining is allowed within those portions of the river open to mineral entry, any mining will require NEPA documentation, approval of a Plan of Operation, conformance to State Scenic Waterway regulations, and Section 24 of the Federal Powers Act.

Fire Management - Fire management in the Wild and Scenic River Corridor will be predicated on a policy of aggressive suppression of wildfire while minimizing suppression practices that could cause long-term impacts on the river and its environs. All ground disturbance caused by suppression activity will be mitigated. Presuppression and prevention will be conducted in a manner which reflects management objectives for the river. Prescribed fire may be utilized to reduce fuel buildups and/or to restore or enhance the ecological condition of the river corridor.

Timber Resources - There may be other opportunities to harvest timber within the Wild and Scenic River corridor on a case-by-case basis. Cutting and/or removal of trees on federal lands within the Wild and Scenic River corridor may be allowed if any of the following conditions are met:

1. The vegetation poses a safety hazard along the highway, the river, a trail, powerline, or in a developed use recreation area.

2. The vegetation is located within an easement or right-of-way agreement area, and no suitable alternate route can be found.

3. The vegetation is in the way of a planned facility development or improvement project.

4. The vegetation needs to be cut to enhance a significant or outstandingly remarkable value.

5. A catastrophic natural event (such as wildfire, insect infestation, or blowdown storm) has left large numbers of dead, salvagable trees in the Corridor.

6. An insect infestation threatens adjacent timber lands outside the Corridor.

Additional timber direction can be found in the scenery discussions in the alternative descriptions. Forestry practices on private lands will be governed by the Oregon State Forest Practices Act and the State Scenic Waterway Program.

Description of the Alternatives

Alternative A

This alternative would have the least impacts on the resources, but the greatest impact on traditional river users. Under this alternative lesser pursued activities such as hiking, sightseeing and mountain biking would essentially be unrestricted unless overuse causes degradation of one of the ORV's. Recreational boating, both commercial and private, however, would be seriously restricted, with use levels cut back approximately 20% from current (1990) summer use levels. Less overall use would ease the effects on the river environment. The ORV's of fishery, water quality and quantity, recreation, scenery, and cultural resources would be maintained or enhanced. Recreation as an ORV would have a changed emphasis, however, with fewer people enjoying a recreational experience, but those who have such an experience would enjoy greater solitude. Enhancement measures would be taken to mitigate past or unfavorable impacts in the corridor. See Table III-3 for projects implemented through this alternative.

Cultural Resources - Current levels of cultural resource interpretation would be maintained.

Water Quality and Quantity - The existing high water quality of the North Umpqua River would be maintained. Additional water quality monitoring would be conducted and the results would be analyzed annually.

Scenery - See elements common to all alternatives. There would be no scheduled harvest from within the Wild and Scenic River corridor boundary. Visual Resource Management (VRM) objectives would be full retention within the corridor.

Recreation - The recreational atmosphere could be controlled, with some type of limit placed on virtually all aspects of use. All river users would be impacted (campers/anglers/boaters/hikers, etc.). This restriction of use would result in fewer people using the river; however, those people who do use the area would experience greater solitude and fewer conflicts. All commercial guiding and non-commercial boating use would be controlled by special use permits. Limitations on the number of people using the river would be set, establishing seasonal, peak, area, and user day allotments. Organizational groups would be required to have special use permits. Recreational areas would be upgraded to provide quality facilities, but no new campground facilities would be created. Fewer visitors would be able to experience the controlled recreational opportunities in the river corridor. This alternative makes current voluntary boating guidelines mandatory, develops smaller launch sites rather than larger ones, maintains all facilities, maintains the current level of interpretive signing, and continues the current emphasis on safety concerns. The current emphasis on conversion to barrier-free facilities, public education, and safety concerns within the corridor would be maintained.

Boating guidelines for outfitters/guides and private boaters:

- Limit white water outfitters/guides to 10, May 20 - September 30 (peak periods).
- Allow additional permitted use during off-peak periods (Oct. 1 - May 19).
- Designate specific days and times for launches.
- Designate specific launch sites and take outs.
- Limit number of groups launching per day.
- Limit clients served to 1,500 or less with maximum group size of 20 clients (during peak use periods).
- Allocate specific days to outfitters/guides.
- Restrict total private boaters to 4,000.
- Require a self-issuing no-fee white water permit for all private boaters.

Fishing guides:

- Place all fishing guides under permit.

Private Lands within the Corridor - Under this alternative, 27 small private tracts totalling 538 acres and one private company tract totalling 20 acres fall within the Wild and Scenic River corridor boundary. The river communities

north of Highway 138 at Rock Creek, Frontier Store, Susan Creek Trailer Court, and Dry Creek all fall outside of the corridor boundary. See Table III-1 for more detailed information.

Boundary - A variable boundary which averages one-quarter mile either side of the River would delineate the Wild and Scenic River Corridor. See description on page 69 (Option 2).

Table III-1

Land Ownership by Acres (Alternatives A, B1, C, & D)

	Private Small Tracts			Private Company		State		County		Agency	Total
	Owner/Legal Description	# Acres	# Tracts		Acres		Acres		Acres		
USFS Section	Frank Moore Sec. 9, 26-1	80	1								
	McTaggert Sec. 10, 26-1	10	1								
	Dry Creek Sec.20, 26-2	60	1								
	Subtotal	150	3		0		0		0	7,978	8,128
BLM Section	Sec. 8, 26-2	60	1	Sec. 8, 26-2 Weyerhauser	20	Sec. 23, 26-2	18	Sec. 12, 26-3	149		
	Sec. 17, 26-2	23	5					Sec. 8, 26-2	60		
	Sec. 21, 26-2	212	9					Sec. 17, 26-2	60		
	Sec. 16, 26-2	92	9					Sec. 21, 26-2	9		
								Sec. 22, 26-2	102		
								Sec. 23, 26-2	8		
								Sec. 14, 26-2	10		
	Subtotal	388	24		20		18		398	1,875	2,699
Total		538	27		20		18		398	9,853	10,827

10,827 Acres ÷ 33.8 River Miles = 320 Ac/River Mile

Alternative B

This alternative is designed to meet the requirements of the National Environmental Policy Act regulations to include an alternative of "No Action." The No Action Alternative provides for No Change from the interim management scheme. Under Alternative B, management policy and direction would maintain current emphasis on protection of the ORV's and Significant Values inside the corridor. Recreational use of the corridor would be restricted only by the current voluntary boating guidelines that are in existence, and by the capacity of existing recreation facilities tro accomadate recreation users. Overall use could increase considerably if current recreation use trends continue. See Table III-3 for projects to be implemented in this alternative.

Cultural Resources - Maintain current levels of interpretation.

Water Quality and Quantity - The existing high water quality of the North Umpqua River would be maintained. The water monitoring which is currently being done would be continued.

Scenery - Visual Resource Management (VRM) of the Wild and Scenic River corridor would be guided by existing agency land use plans. On National Forest lands, the VRM objectives would be full retention within the river corridor, and on BLM land the VRM objective would be partial retention. A harvest of approximately 400 MBF per year would be scheduled on the BLM land inside the corridor, Umpqua National Forest harvest would be approximately 500 MBF per year.

Recreation - The opportunity for solitude in a variety of recreation experiences could change depending on use trends. The opportunity to experience solitude at peak times would be dependent upon the unrestricted changes in recreation use. Under interim management, the opportunity to experience solitude has been marginal. Current use is 5000 non-commercial boaters and 2000 commercial boaters (1990 figures).

This alternative maintains the current voluntary guidelines, maintains all existing launch sites and developed sites, follows the current level of interpretive signing, and continues the current emphasis on safety concerns. If recreational use continues to increase at the rate it has prior to interim management, facility and social capacities will be exceeded. Commercial guiding would be controlled by special use permits, however no limits would be placed on the number of clients served. Private boating use will not be limited nor would emphasis be placed on management of this use.

The current emphasis on conversion to barrier-free facilities, public education, and public safety concerns within the corridor will be maintained.

Boating guidelines:

- 20 outfitters/guides under Temporary Special Use Permits.

- No permit required for private boaters.

Fishing guides:

- Fishing guides will continue to be under permit.

Private Lands within the Corridor - Under this alternative, 63 small private tracts totalling 696 acres and portions of four private company tracts totalling 39 acres fall within the river corridor. The river communities at Rock Creek, Frontier Store, Susan Creek Trailer Court, and Dry Creek all fall within the corridor boundary. See Table III-2 for more detailed information.

Boundary - A uniform one-quarter mile boundary would delineate the Wild and Scenic River Corridor. See descriptions on page 69 (Option 1).

Table III-2

Land Ownership by Acres (Alternative B)

	Private Small Tracts			Private Company		State		County		Agency	Total
	Owner/Legal Description	# Acres	# Tracts		Acres		Acres		Acres		
USFS Section	Frank Moore Sec. 9, 26-1	70	1								
	McTaggert Sec. 10, 26-1	10	1								
	Aymond Sec. 21, 26-2	23	2								
	Rone Secs. 23 & 26, 26-2	13	1								
	Dry Creek Sec. 20, 26-2	51	1								
	Subtotal	**167**	**6**							**7,961**	**8,128**
BLM Section	Sec. 1, 26-3	60	16	Sec. 8, 26-2 Weyerhauser	20	Sec. 1, 26-3	14	Sec. 12,25 6-3	226		
	Sec. 12, 26-2	30	2	Sec. 18, 26-2 Weyerhauser	10	Sec. 23, 26-2	18	Sec. 8, 26-3	60		
	Sec. 8, 26-2	20	1			Sec. 24, 26-2 (Entire 37 acres is the river itself. Already accounted for in the 204 acres of River Acres)	37	Sec. 17, 26-2	60		
	Sec. 17,26-2	52	6	Sec. 22, 26-2 Roseburg Resources	5			Sec. 21, 26-2	9		
	Sec. 16, 26-2	138	20	Sec. 24, 26-2 Champion	4			Sec. 22, 26-2	102		
	Sec. 21, 26-2	185	9					Sec. 14, 26-2	10		
	Sec. 23, 26-2	14	2			Total Non River Acres - 32 acres	32	Sec. 23, 26-2	8		
	Sec. 13, 26-2	30	1								
	Subtotal	**529**	**57**		**39**		**32**		**475**	**1,446**	**2,688**
Total		**696**	**63**		**39**		**32**		**475**	**9407**	**10,816**

10,816 Acres ÷ 33.8 River Miles = 320 Ac/River Mile

Alternative B1

This alternative would have slightly more impact on the resources than Alternative A would have because there would be 20% more boaters. Under this alternative, lesser pursued activities such as hiking, sightseeing and mountain biking would essentially be unrestricted unless monitoring indicates that overuse is causing degradation of one of the ORV's. Recreational boating both commercial and private would be held at 1990 levels. If demand for boating increases above the 1990 levels, it would become necessary to implement management techniques which would restrict the number to 1990 levels. The ORV's of fishery, water, recreation, scenery and cultural would be maintained. Recreation, as an ORV, would continue to emphasize camping, boating, fishing and sightseeing, but additional emphasis would be put on other activities such as mountain biking, hiking, wildlife viewing, etc. Recreationists would have a somewhat enhanced recreation experience in that proposed management actions would help to alleviate some of the identified 1990 conflicts between user groups. Existing recreation facilities would be upgraded and improved to better accommodate existing users. Some new developments would also be made to reduce user conflicts and to mitigate unfavorable impacts in the corridor. The level of development would be between that proposed under Alternative A and Alternative C, and the specific project proposals can be seen in Table III-3.

Cultural Resources - Current levels of cultural resource interpretation would be maintained.

Water Quality and Quantity - The existing high quality of the North Umpqua River would be maintained. The water monitoring which is currently being done would continue.

Scenery - See elements common to all alternatives. There would be no scheduled harvest from within the Wild and Scenic River Corridor boundary. Visual Resource Management (VRM) objectives would be full retention within the corridor.

Recreation - The opportunity for solitude in a variety of recreation experiences will remain the same as it was in 1990. The recreational atmosphere may be controlled to maintain existing recreational use of the Corridor, particularly boating use, as defined by use levels measured in 1990. Through an increased effort in education combined with the proposed developments in this alternative, the conflict occurrences should be reduced. Limits for commercial and non-commercial use would be set at 1990 levels. Commercial use would be controlled by special use permits. Organizational groups would be placed under permit. This alternative will maintain, improve and reconstruct existing recreational facilities, infrastructures, and trails. As the need arises, existing facilities would be enlarged, but no new facilities would be created. The same number of visitors that we had in 1990 would be able to experience the controlled recreation experience in the river corridor. This alternative converts the voluntary boating guidelines to mandatory. It improves boater access at launch sites/takeouts, and constructs additional launch sites as needed to resolve user conflicts. An interpretive plan that was designed will be implemented, that would educate

the users towards responsible use and understanding of the ORV's. An increased emphasis would be placed on safety concerns. Increase emphasis on conversion to barrier free facilities and trails.

Boating guidelines for outfitter/guides and private boaters:

- Limit outfitter/guides to 16 (active guides in 1990), May 20-September 30.
- Allow additional permitted use during off-peak periods (October 1 - May 19).
- Designated specific launch days, times and sites if needed to regulate use.
- Limit the groups size to 25.
- Limit the number of groups launching per day if needed to regulate use.
- Limit the number of clients served by outfitter/guides to 2,000.
- Restrict total white water user days to 7,000 (5,000 non-commercial, 2,000 commercial).
- If use levels stay at or below 5,000 (private boaters), no permitting will be necessary.

Fishing guides:

- Place all fishing guides under permit.

Private Lands within the Corridor - Under this alternative, 27 small private tracts totaling 538 acres and one private company tract totaling 20 acres fall within the Wild and Scenic River corridor boundary. The river communities north of Highway 138 at Rock Creek, Frontier Store, Susan Creek Trailer Court, and Dry Creek all fall outside of the Wild and Scenic Corridor boundary, but are contained within the State Scenic Waterway boundary. See Table III-1 for more detailed information.

Boundary - A variable boundary which averages one-quarter mile either side of the River would delineate the Wild and Scenic River Corridor. See description on page 69 (Option 2).

Alternative C

This alternative allows a moderate increase in recreation utilization of the corridor. Recreational boating would be allowed to increase above the current levels (based on 1990 summer use figures) by approximately 25% at which time an assessment would be made to determine if additional restrictions are necessary. Under this alternative, lesser pursued activities such as hiking, sightseeing, and mountain biking would essentially be unrestricted unless monitoring indicates that is causing degradation of one of the ORV's. If the demand for boating increases above 25% from the 1990 level (2,500 commercial, 6,250 non-commercial) it will be necessary to evaluate monitoring techniques that are necessary. This alternative will maintain and or improve the ORV's of fisheries, water, recreation, scenery, and cultural. Recreationists could have an enhanced recreation experience in that proposed management actions would help to alleviate some of the identified 1990 conflicts between user groups. Existing recreation facilities would be upgraded and improved to better accommodate user increases. Some new developments would also be made to reduce user conflicts and to mitigate unfavorable impacts in the corridor. See Table III-3 for projects to be implemented under this alternative.

Cultural Resources - Where significant cultural resources exist in high density recreation use areas, opportunities for interpretation will be pursued. A monitoring plan will be developed and implemented to address the effects of natural processes and increased recreation use on cultural resource sites. A Class III cultural resource inventory will be conducted in the corridor to locate additional cultural resource sites.

Water Quality and Quantity - The existing high water quality of the North Umpqua River would be maintained. The water monitoring which is currently being done would continue.

Scenery - See elements common to all alternatives. There would be no scheduled harvest form within the Wild and Scenic River Corridor boundary. Visual Resource Management (VRM) objectives would be full retention within the corridor.

Recreation - A moderate increase in the number of recreation users will reduce the opportunity for solitude, but would allow a greater number of people to use the river corridor. Improved management and enforcement will regulate the increased numbers of recreationists. Through an increased effort in education combined with the proposed developments in this alternative, the conflict occurrences should be reduced. A monitoring process will be used that will trigger an evaluation of commercial and non-commercial increases and associated conflicts. Commercial use would be controlled by special use permits. Organizational groups would be placed under permit. This alternative will maintain, improve and reconstruct existing recreational facilities, infrastructures, and trails. As the need arises existing facilities would be enlarged, but no new campgrounds will be developed in the corridor. This alternative converts the voluntary boating guidelines to mandatory. It improves boater access at launch sites/takeouts, and constructs additional launch sites as needed to resolve

user conflicts. An interpretive plan should be designed and implemented, that would educate the users towards responsible use and understanding of the ORV's. An increased emphasis would be placed on safety concerns. Increased emphasis on conversion to barrier free facilities and trails.

Boating guidelines for outfitter/guides and private boaters:

- Limit outfitter/guides to 15, May 20 - September 30.
- Allow additional permitted use during off-peak periods (October 1 - May 19).
- Limit the groups size to 20.
- Limit the number of clients served by outfitters/guides to 2,500.
- Restrict total white water user days to 8,750 (6,250 non-commercial, 2,500 commercial).
- If use levels stay at or below 6,250 (private boaters), no permitting will be necessary.
- Implement a multi-year river outfitter/guide permit system.

Fishing guides:

- Place all fishing guides under permit.

Private Lands within the Corridor - Under this alternative, 27 small private tracts totaling 538 acres and one private company tract totaling 20 acres fall within the Wild and Scenic River corridor boundary. The river communities north of Highway 138 at Rock Creek, Frontier Store, Susan Creek Trailer Court, and Dry Creek all fall outside of the Wild and Scenic River Corridor boundary, but are contained within the State Scenic Waterway boundary. See Table III-1 for more detailed information.

Boundary - A variable boundary which averages one-quarter mile either side of the River would delineate the Wild and Scenic River Corridor. See description on page 69 (Option 2).

Alternative D

This alternative would maximize the recreational utilization of the corridor while maintaining the ORV's of fishery, water quality and quantity, scenery, and cultural resources. Lesser pursued activities such as hiking, sightseeing and mountain biking would essentially be unrestricted unless overuse becomes a problem. If the demand for boating increases above 50% from the 1990 level (3,000

commercial, 7,500 non-commercial) it will be necessary to evaluate monitoring factors such as capacities, conflict occurrences and implement management techniques that are necessary. Existing recreation facilities would be upgraded and improved to better accommodate user increases. New developments would also be made to reduce user conflicts and to mitigate unfavorable impacts in the corridor. See Table III-3 for projects to be implemented under this alternative.

Cultural Resources - Opportunities to interpret significant cultural resources wherever they exist within the river corridor will be pursued. All cultural resource sites will be evaluated to determine their extent and significance. A cultural resource management plan will be developed and implemented.

Water Quality and Quantity - The existing high water quality of the North Umpqua River would be maintained. Additional water quality monitoring would be conducted and results would be analyzed annually.

Scenery - There would be no scheduled harvest from within the Wild and Scenic River corridor boundary. Visual Resource Management (VRM) objectives would be full retention within the river corridor.

Recreation - Emphasis will be placed on improving recreational developments, increasing carrying capacity, and accommodating the maximum number of visitors the corridor can handle. The LAC process will be implemented to monitor and regulate impacts. Future developments and management activities will be mitigated in order to minimize visibility from the river or Highway 138. River corridor access will be improved providing greater accessibility to Outstandingly Remarkable Values and Significant Values, thereby improving educational, interpretative and recreational opportunities. A sharp increase in numbers of recreation users will reduce the opportunity for solitude, but will allow the largest number of users to have a variety of recreational experiences in the Wild and Scenic Corridor. Additional outfitter-guide permits will be issued both during peak and non-peak times. A greater number of conflicts between recreation user groups, and recreationists and private land owners can be expected, resulting in a commensurate need for more law enforcement. Better access to the river and additional developed camping facilities will be provided. The desired future condition under this alternative would be maximum recreational utilization of the river corridor. All river guidelines and restrictions would be mandatory. Additional river segment restrictions may be needed to alleviate future conflicts, as use increases. Where opportunities exist, campgrounds will be expanded and additional campground facilities developed.

Boating guidelines for outfitters/guides and private boaters:

- Limit outfitters/guides to 30, May 20 - September 30.
- Allow additional permitted use during off-peak period (October 1 - May 19).
- Limit the group size to 35.
- Limit the number of clients served by outfitters/guides to 3,000.
- Restrict total white water user days to 10,500 (7,500 non-commercial, 3,000 commercial).
- Require a self-issuing, no fee, white water permit for all boaters. Progress to the next Management Technique when necessary to resolve conflicts.
- Implement a multi-year river outfitter/guide permit system.

Fishing guides:

- All fishing guides will be required to have a special use permit.

An increased emphasis on conversion to barrier-free facilities, interpretative signing, public education, and safety concerns within the corridor will be maintained.

Boundary - A variable boundary which averages one-quarter mile wither side of the River would delineate the Wild and Scenic River Corridor. See description on page 69 (Option 2).

Private Lands within the Corridor - Under this alternative 27 small private tracts totalling 538 acres and one private company tract totalling 20 acres fall within the Wild and Scenic River corridor boundary. The river communities north of Highway 138 at Rock Creek, Frontier Store, Susan Creek Trailer Court, and Dry Creek all fall outside of the corridor boundary. See Table III-3 for more detailed information.

Boundary Process

One of the objectives of this plan was to delineate a Wild and Scenic River boundary. The first step in the boundary process was to obtain complete photo coverage of the Wild and Scenic River corridor. The river was flown and photographed in 1989. Next, with the aid of agency specialists an attempt was made to identify all significant resource values in the corridor which might be appropriate for inclusion within the boundary. Lastly, an intensive survey of the corridor was done to identify the viewshed both from the river and from State Highway 138. Photographs were taken from key view points along the highway and the river in the summer of 1990. Each time a photo was taken, notes were

made by the observer of what could be seen when looking off in the direction of the photograph, and a compass bearing was taken which was later transferred to a resource area map. From this information it was possible to develop a very detailed viewshed map of what could and could not be seen from both the highway and the river. This information along with the earlier information gathered to identify other significant resource sites then became the basis for delineating a Wild and Scenic River boundary which attempted to maximize inclusion of the outstandingly remarkable values within that boundary. A constraint that guided this process was the legislative mandate which required that the boundary not encompass on average more than 320 acres per river mile.

Option 1

With this boundary option, the North Umpqua Wild and Scenic River would continue to be managed within the present one-quarter mile boundary that is coincident with the State Scenic Waterway, Douglas County Park and Public Recreation Area, and Bureau of Land Management's (BLM) Special Management Area and ACEC boundary. This interim federal boundary was delineated without regard for the outstandingly remarkable values established by the Wild and Scenic Rivers Act and would provide for the least protection of these. This alternative creates a rigid boundary that was not delineated on the basis of the ORV's. It also includes no additional visually sensitive private lands outside the one-quarter mile boundary.

Option 2

This option responds to the legislative mandate that the Outstandingly Remarkable Values will be maintained and/or enhanced, while constraining the acreage within the boundary to an average of 320 acres per river mile. This option is a variation of Option 1, in that while the average distance between the Wild and Scenic River corridor boundary and the river is one-quarter mile, the actual distance may deviate considerably from this in order to maximize inclusion of the outstandingly remarkable values and other significant values. For instance, this option goes well beyond the one-quarter mile boundary: 1) to include a number of existing recreation facilities (ie: Susan Creek Indian Mounds, Fall Creek Falls); 2) to capture visually sensitive pubic and private tracts (ie: by Bob Butte); and 3) to include portions of significant tributaries located within or adjacent to private lands (ie: Bogus Creek). Conversely, this variable boundary constricts to less than one-quarter mile in some areas (ie: on the north side of the highway by the BLM-Forest Service boundary, and by several unseen river communities) where these areas are not highly visible from the river, and where no other outstandingly remarkable values are present.

Project Proposals

A number of recreation projects have been identified for implementation by Alternatives A, B, B1, C and D. The justification/rationale for these projects falls into one or more of eight categories which are listed below:

1. (H) Health and Sanitation
2. (S) Safety
3. (C) User Conflict Resolution
4. (I) Visitor Interpretation
5. (U) User Service and Convenience
6. (P) ORV Protection and/or Enhancement
7. (M) Infrastructure Improvement and/or Maintenance
8. (A) Conversion to Barrier Free Accessibility

Table III-3 shows which projects would be recommended for implementation and projected time frames and also shows the justification/rationale for each project. Projects are broken into two catagories; A shows existing facilities and the type of improvements, B shows proposed new developments, the location and type of project. When possible, priority will be given to implementing projects that accomplish the objectives of achieving the desired future condition and enhancing the ORV's. These proposals attempt to identify major projects that could resolve current and projected needs. As public expectations and needs change, other projects that have not been identified here, may be implemented using the Desired Future Condition as a guideline. Conversely, some projects identified here may not be implemented because of changing needs and priorities.

Specific project implementation and development would be based on the availability of funding. Federal agencies involved will make every effort to identify opportunities for partnerships that would reduce the actual cost to the government. Appendix B contains a project description for each project listed in Table III-3. Prior to implementation of any of these projects, additional site specific National Environmental Policy Act (NEPA) analysis will be done.

For all river segments, State and County agencies shall be notified of project level planning activities on National Forest and Bureau of Land Management lands within the Corridor to assure coordination of management actions with State Scenic Waterway requirements.

Table III-3

Project Proposals

	Justification/ Rationale[2]	Project Implementation Time Table[1]	Alternatives				
			A	B	B1	C	D
A. EXISTING SITE IMPROVEMENTS							
1. Boulder Flat- rafting and picnic facilities	S, C, I, U	0-2	Y	N	Y	Y	Y
2. Umpqua Rocks Geologic- interpretative area	I	2-5	Y	Y	Y	Y	Y
3. Eagle Rock Campground- toilet facilities	H, A, P	2-5	Y	Y	Y	Y	Y
4. Horseshoe Bend Campground							
Beaver Flat Loop- access, trail, platform	A, U	5+	N	Y	Y	Y	Y
Deer Flat Reservation Area- accessibility	A	5+	Y	Y	Y	Y	Y
Water system improvements	H, U, M	5+	Y	Y	Y	Y	Y
Electrical system upgrade	S, U, M	5+	N	Y	Y	Y	Y
5. Apple Creek Campground							
paving	P, H, U, A	2-5	Y	N	N	Y*	Y
toilets	H, I, U	2-5	Y	Y	Y	Y	Y
6. Steamboat Recreation Area							
Island Campground- accessibility improvements	U, P, A	5+	N	Y	Y	Y	Y
Gravel Bin Rafting Facility- parking, toilets	H, S, I, P	2-5	Y	Y	Y	Y	Y
Mott Trailhead- interpretative display	I	2-5	Y	Y	Y	Y	Y
Steamboat Reservation Area- well, electricity	H, U, C	5+	N	N	N	Y	Y
Riverview Trail- improvements	S, U	0-2	Y	N	Y	Y	Y
Canton Creek Campground- accessible toilet	H, U, A, S	5+	N	Y	Y	Y	Y
Highway 138 & F.S. Road 38 Area- Rehabilitation	S, P	5+	Y	N	Y	Y	Y
7. Wright Creek Area							
Bogus Creek Raft Launch Site- toilet	S, I, H	0-2	Y	Y	Y	Y	Y
Bogus Creek Campground- accessibility improvements	M, A, U	5+	Y	Y	Y	Y	Y
Wright Creek Trailhead							
parking	S, U, I	5+	Y	Y	Y	Y	Y
equestrian	S, U, I	5+	N	N	N	Y*	Y*

[1]Estimated number of years.

[2]Justification/Rationale
H = Health and Sanitation
U = User Service and Convenience

Table III-3 (Continued)

Project Proposals

	Justification/ Rationale[2]	Project Implementation Time Table[1]	Alternatives				
			A	B	B1	C	D
A. IMPROVEMENTS (Continued)							
8. Fall Creek Area Trailhead- paving	U, P	2-5	Y	Y	Y	Y	Y
9. North Umpqua Trail							
Mott and Fox Segments- bridges	M, U, S	2-5	Y	Y	Y	Y	Y
Williams Trail	U, I	5+	N	N	N	N	Y*
10. Susan Creek Falls barrier free trail	A, I	2-5	Y	Y	Y	Y	Y
11. Susan Creek Campground Expansion							
15 RV site at East end		5+	N	N	N	Y*	N
5-8 walk-in tent sites at West end		2-5	N	N	N	Y	Y
12. Susan Creek Campground Restroom Facility	H, U, M	0-2	Y	Y	Y	Y	Y
13. Group Reservation Area At Susan Creek	U, C, P	2-5	N	N	N	Y	Y
14. Cable Crossing Takeout	U, H	5+	N	N	N	Y*	Y*
15. Swiftwater/Rock Creek		2-5			Y		
Day Use Area - North Bank	U, A, I	0-2	Y	Y	Y	Y	Y
16. Scenic Quality							
Rehabilitation, screens, restoration inventory	P, U	5+	Y	N	Y	Y	Y
Scenic Enhancement	U	2-5	Y	N	Y	Y	Y

[1]Estimated number of years.

[2]Justification/Rationale
- H = Health and Sanitation
- S = Safety
- C = User Conflict Resolution
- I = Visitor Interpretation
- U = User Service and Convenience
- P = ORV Protection and/or Enhancement
- M = Infrastructure Improvement and/or Maintenance
- A = Conversion to Barrier Free Accessibility

* Projects which are not currently needed given existing demand, and/or current level of conflict. Should demand grow with changing needs, or should conflicts arise which could be alleviated by project implementation, then the project would be done.

Table III-3 (Continued)

Project Proposals

	Justification/ Rationale[2]	Project Implementation Time Table[1]	Alternatives				
			A	B	B1	C	D
B. NEW PROJECTS							
1. Soda Springs rafting facilities	C, I, U	5+	N	N	N	Y	Y
2. Marsters Bridge Trailhead - parking and toilet	U, H, P, I	2-5	N	Y	N	Y*	Y
3. Dry Creek Wayside							
paving, toilet, interpretive exhibits		2-5	N	N	N	Y	Y
day use area, trail to River		2-5	N	N	N	Y	Y
4. Horseshoe Bend Area							
Old Growth Grove spur trail	U, I	2-5	N	N	Y	Y	Y
Calf Creek trailhead parking and toilet	H, I, U	5+	Y	Y	Y	Y	Y
Horseshoe Bend rafting picnic sites and toilet	H, C, I, U	2-5	N	N	N	Y	Y
Horseshoe Bend Campground							
Deer Flat Reservation Area pavilion	U	5+	N	N	N	Y*	Y
Beaver Flat full service improvements	P, U	5+	N	N	N	Y*	Y
5. Apple Creek area - interpretive sign, trail	U, I	2-5	N	N	N	Y	Y
Panther trailhead - toilet	H, I, U	5+	Y	Y	Y	Y	Y
6. Old Growth Grove trail	U, I	2-5	N	N	Y	Y	Y
7. Wright Creek Trailhead	S, U, I	5+	Y	Y	Y	Y	Y
8. Fall Creek Area							
Jobe Garden extension trail	U, I	2-5	N	N	N	Y	Y
9. North Umpqua Trail							
Eagle Creek Bridge	U, S	2-5	Y	Y	Y	Y	Y
Thunder Creek Falls trail construction	U, I	5+	N	N	N	N	Y
Cougar Falls trail construction	U, I	5+	N	N	N	N	Y
10. Suspension footbridge at Susan Creek	U, P	5+	N	N	N	Y*	Y*
11. North Umpqua Trail Primitive Campsite	C, U	0-2	N	N	N	Y*	Y
12. Scenic Vista spur trails	U, P	0-2	Y	Y	Y	Y	Y
13. Swiftwater/Rock Creek		2-5					Y
Equestrian facilities	C, U	5+	N	N	N	Y*	Y*
14. Waste water dump station	U, H	2-5	Y	Y	Y	Y	Y
15. Interpretive talk amphitheater (Horseshoe Bend)	U, I	5+	N	N	N	N	N
16. Baker County Park conversion to overnight facility	U, C		N	N	N	Y*	Y*

[1] Estimated number of years.

[2] Justification/Rationale
H = Health and Sanitation
S = Safety
C = User Conflict Resolution
I = Visitor Interpretation
U = User Service and Convenience
P = ORV Protection and/or Enhancement
M = Infrastructure Improvement and/or Maintenance
A = Conversion to Barrier Free Accessibility

* Projects which are not currently needed given existing demand, and/or current level of conflict. Should demand grow with changing needs, or should conflicts arise which could be alleviated by project implementation, then the project would be done.

Alternatives Considered but Eliminated from Further Consideration

Some alternatives that were proposed were considered but were not included in the final array of alternatives. These alternatives and a brief explanation of why they were not included are described below.

1. An alternative was considered which included all lands that were visible from either the river or the highway. This alternative would haveincorporated all of the viewshed within the Wild and Scenic River Corridorboundary. This would have greatly increased the total number of acres withinthe Wild and Scenic River boundary since there are seen lands which were identified in the viewshed analysis that were more than 5 miles from the river. This alternative would have resulted in a total acreage for the corridor which greatly exceeded the 320 acres per river mile that was mandated by the Wild and Scenic Rivers Act. Scenic areas in the background can be adequately protected under existing visual management guidelines. For this reason, this alternative was not pursued.

2. An alternative was considered which included lands on either side of all major tributaries to the North Umpqua River. The rationale was that if water quality and quantity, and fisheries are recognized outstandingly remarkable values (ORV's) for the North Umpqua Wild and Scenic River, then these values need to be maintained and/or enhanced in these tributaries as well as in the main stem of the North Umpqua River. This alternative would have also greatly increased the number of acres incorporated into the Wild and Scenic River Corridor boundary because some of these main tributaries originate as much as 20 miles from their confluence with the North Umpqua River. It was felt that this approach would violate the intent of the Wild and Scenic Rivers Act which specifically stated that the boundary should incorporate no more than the 320 acres per river mile. Given this acreage constraint, the planning team attempted to identify the most critical 320 acres per river mile and develop a boundary that would maximize the benefit to the recognized ORV's while staying within the 320-acre constraint.

3. An alternative was considered which would have removed unseen islands from the Wild and Scenic River boundary even though they were within one-quarter mile of the river and were encircled by seen areas. The rationale here was that by excluding these unseen islands, the boundary could be extended outward to encompass some of the more distant seen areas. The decision was made that the lands identified for the river corridor had to be contiguous and that these islands would be included in the boundary if a viewshed behind these islands was considered important enough for inclusion. Just because some of the lands within the corridor cannot be seen does not mean that they do not contribute to the quality of one or more of the other ORV's.

CHAPTER IV
Environmental Consequences

CHAPTER IV Environmental Consequences

This section analyzes the potential consequences of implementation of the alternatives.

Water

Different numbers of boaters, anglers, swimmers, and campers, as well as construction activities and traffic associated with these users, may affect water-borne bacteria and nutrients like nitrogen and phosphorus in the North Umpqua River. Algae and acidity (pH), turbidity or clarity of the water, sediment suspended in runoff, and petroleum and other chemicals could also be introduced or affected.

Swimming and other in-water recreation, like floating or wading, are the recreation activities most likely to increase bacteria and nutrients in water. Fish cleaning can also introduce entrails as food and bacteria sources. The cool water of the North Umpqua river (it seldom exceeds 65 degrees Fahrenheit even in summer) both discourages swimming and slows bacteria growth. Most researchers have found little correlation between numbers of recreationists and bacteria counts, except where swimmers are confined in high numbers.

Nutrients, algae and acidity can change when recreationists urinate or defecate in or near the water, or litter and fish are discarded. This risk of this kind of contamination is likely if toilets and litter facilities are not convenient where use is heaviest. Finally, the risk of turbidity and suspended sediment in water is higher when ground is disturbed during the construction of campgrounds, toilets and other facilities. Normally, seeding and mulching can prevent erosion except in cases where storms come before erosion control is in place, or when such measures are not used.

Risk of spilling fuel and other hazardous materials increases as traffic along the river increases. Some materials dissolve in water, while others (like diesel and other petroleum products) float on the surface until they are gradually mixed. Fish and aquatic life are present all year in the river and it's tributaries at many life stages. Aquatic life, including adult summer steelhead and spring chinook, are especially vulnerable in late summer when little flow is available to dilute chemicals.

No changes are expected in river flow, water temperature, or beneficial uses of the water such as fish habitat, visual appearance, or potability.

None of the alternatives affect activities outside the river corridor. Timber harvest on National Forest, BLM and private lands can affect the timing of runoff and water quality of the North Umpqua River. Under the Clean Water Act and Oregon's

Umpqua Basin water quality standards, the beneficial uses of the North Umpqua Wild and Scenic River must be maintained. Environmental analyses for timber harvest on National Forest and BLM must designate practices to protect those uses, including fish habitat, potable water sources, and the water's appearance for human recreation. The final environmental impact statement for the 1990 Umpqua National Forest Management Plan estimates that the planned 1991-2000 timber harvest will produce slightly less sediment in the North Umpqua's watershed than previous rates of cutting. In practical terms, this is no change in a sediment index that indicates annual risk of erosion and landslides. Water quality effects are greatest during extreme flooding, when natural and human-caused effects are hard to separate. During large storms (every 5 years or more), streams flood out of their banks and channel bottoms are made. Beds and banks are scoured from some channel segments and deposited in pools and bars downstream. The bottom and bank habitat for fish and other aquatic life is drastically altered. Culverts plug and road fills fail from high water, landslides and channel debris torrents. Streams often widen, undercutting hillslopes and roads. These effects are greater after timber harvest and road construction.

Outside of the Wild and Scenic River Corridor, harvest and road construction is expected to cause about 4 times the erosion and landslides that an uncut forest would produce, but about the same as experienced during the last major storms in the early 1970's and 80's. If harvest reductions were to occur on the Umpqua National Forest (similar to Alternative J in the 1990 FEIS), about 3 times the uncut forest erosion will occur. These effects will be the same in all alternatives of the Wild and Scenic River Management Plan. The 1990 Umpqua National Forest Management Plan FEIS has a more complete discussion of water quality effects from timber harvest and other activities outside the river corridor.

Alternative A - Less Use at Peak Times. A total of 5,500 commercially guided and private rafter/boaters is estimated in this alternative, which means that about 75% of the current users would be on the river annually. The same number and placement of toilets would exist along the river. Since bacteria from human users is probably not detectable now, no improvement in water quality is expected from less use by recreationists. No new construction of campgrounds or other facilities is planned, and no change in the risk of erosion and turbidity in the North Umpqua is expected. The risk of hazardous material spills decreases with less traffic. Angler effects on water quality may be similar to that of other river users.

Alternative B - Currently, about 7,000 rafters and boaters use the North Umpqua River each year. Under the No Action alternative it is difficult to speculate about the environmental consequences based on boating use because it is impossible to predict what future unregulated boating use will be. If boating use levels remain near the current use level, no increase in bacteria or nutrients is expected. When the presently planned additional sites (and toilets) are added. A moderate,

but temporary, increase in the risk of erosion and turbidity may occur with the additional facility construction. No increase in spills is expected. If boating use levels decrease, consequences resulting from boating use would approach those described under Alternative A. If, on the other hand, boating use levels increase towards those levels described under Alternative D, environmental consequences resulting from boating use would approach, or possibly even surpass those consequences described under Alternative D.

Alternative B1 - Currently about 7,000 rafters and boaters use the North Umpqua River each year. With boating use levels remaining at near current use levels, no increase in bacteria or nutrients should occur. A moderate, but temporary, increase in the risk of erosion and turbidity may occur with the potential maintenance/construction of facilities along the corridor. No increase in spills is expected.

Alternative C - More Use. About 8,250 rafters and boaters are planned, a 25% increase over current use. The expansion of existing campgrounds probably won't provide more access to toilets along the river (more toilets will be available in the same locations), and a slight increase in bacteria and nutrients may be expected. A moderate increase in the risk of temporary erosion and turbidity will result from more potential campground construction. A small increase in the risk of spills may accompany more traffic.

Alternative D - Much More Use. A total of 10,500 rafters and boaters will produce about 50% greater use of the river, offset by more access to toilets at more locations along the river. Existing campgrounds would be expanded and new ones constructed, resulting in bacteria effects similar to Alternative C (a slight increase over current conditions). A moderate increase is expected in the risk of temporary erosion and turbidity from potential campground construction. The risk of spills may go up as traffic increases.

Fish

The fisheries resources of the North Umpqua River have been found to constitute an Outstandingly Remarkable Value (ORV) as defined in the Wild and Scenic Rivers Act of 1968. A major factor in that finding is the presence of five or more stocks of wild anadromous fish representing three salmon and two trout species. The productivity and long-term maintenance of these populations of wild fish is dependent, in large part, on the quality and quantity of fresh water habitat. That habitat is the North Umpqua River, most of the major, and many of the minor tributary streams, and in reality all of the land and water in the watershed. The streams connect all the components of the watershed, and because of this inherent connectiveness between land and water, the consequences of all the land and water uses cannot be isolated. Consequently, land and water uses in the entire watershed of the North Umpqua River have the potential to

affect the Outstandingly Remarkable Value that fish and the habitat they depend upon represent. It is beyond the scope of this analysis to determine the site-specific affects of each project, many of which have yet to be identified.

Relationship to FLRMP and FEIS. The Umpqua FLRMP, or Forest Plan, contains goals, management direction, an implementation schedule, estimates of outputs of goods and services, and a monitoring plan. The Umpqua FEIS described the affected environment, discussed a range of alternatives, and described the anticipated consequences of those alternatives. The Forest Plan was derived from one of those alternatives, Alternative N. For the purposes of this assessment for Wild and Scenic River planning, the discussion of the consequences of land management activities in tributary watersheds outside of the Wild and Scenic corridor is tiered to the FLRMP and FEIS, Alternative N. The FEIS, in Chapter IV, concluded that although all alternatives were designed to at least maintain existing habitat quality, a substantial portion of the anadromous fish habitat was well below potential and the assumption that they would maintain existing habitat quality is unproven. It further stated that even though mitigating measures, such as standards and guidelines were incorporated, there is an inherent risk that unanticipated adverse effects to fish and fish habitat could occur. For Alternative N, it concluded that this alternative has a high risk of unanticipated adverse effects to the fisheries resources. It is at the project level that the existing conditions, a range of alternatives, and the site-specific discussion of effects will be analyzed and documented.

Effects Common to all Alternatives - All alternatives rely on existing standards and guidelines from the Umpqua FLRMP and BLM RMP to protect the Fisheries ORV. As previously stated, there is a high risk of unanticipated adverse effects to the fisheries resources which constitute an Outstandingly Remarkable Value of the designated Wild and Scenic River. Management activities within the corridor have little potential for major adverse consequences. Land and water uses outside the corridor, but within the tributary watersheds, have the greatest potential to effect the Fisheries ORV. The quantity and quality of habitat both in the river and the tributary streams is the primary factor affected by land management activities. Timber harvest and associated activities, such as road construction, have the greatest potential to affect the quality and quantity of fish habitat in the North Umpqua watershed. The Pacific Power hydroelectric project also has the potential to affect habitat quality as does reconstruction, maintenance, and use of Highway 138. A reduction in habitat quality or quantity, when spread over a large enough area for a sufficient amount of time, will nearly always result in a decline and loss of viable populations of one or more stocks of fish. The three major categories of effects are direct, indirect, and cumulative. Within these three categories, there are two sub-categories, physical and biological.

Direct Affects - *Sediment*: Increases in sediment to streams above naturally occurring rates resultant from management activities often occurs. Erosion from disturbed ground in harvest units and resultant from road construction

and use are outside the corridor the most common sources. The frequency of landslides and debris torrents commonly increases with timber harvest, roading, and hydropower canals in steep terrain and with certain soil types. Mining and even fish enhancement activities can also increase sediment input to streams, but at the present level of activity at a much lower magnitude than timber harvest and road construction.

There are a number of direct effects to fish and fish habitat resultant from sediment. At high levels, sediment can abrade gill filaments in young fish. Sediment can fill gravel pore spaces reducing water circulation necessary for egg survival and development. Sediment can also retard emergence of young fish after hatching. Sediment can also fill spaces between cobbles that are used as over-winter habitat for young fish. The young fish must maintain themselves in the current, thereby reducing survival. At high levels, sediment can cause a change in adult migration behavior, possibly delaying runs of fish such that they do not arrive at optimal spawning grounds at the correct time, if at all. Depending on the magnitude, timing, and other factors, the impact of the above direct effects to the fisheries resource could range from negligible to catastrophic.

Temperature: Salmon and trout are cold-water fish. Warming of streams affects these fish directly by increasing respiration and metabolic rate resulting in stress. Stress increases susceptibility to disease, decreases growth rate and increases mortality. Stream temperatures can be affected by removal of shade, stream channel changes (widening and shallowing), and reduction in gravel deposition. Many land management activities have the potential to cause increases in stream temperatures.

Recreation Use: Some types of recreation use, such as swimming, angling, and boating, can directly affect over-summering adult spring chinook and summer steelhead. Additionally, illegal poaching and harassment of these vulnerable and highly visible fish can occur. The effects of recreational use can range from nuisance to a serious reduction of spawning adults which can lead to greatly reduced production of some stocks of fish.

Mining: Mineral extraction has the potential to directly affect fish habitat. Placer mining for gold in streams tributary to the North Umpqua can displace and adversely impact habitat, generate sediment and destroy streamside vegetation. Gravel mining from streams can impact instream habitat, streamside vegetation and reduce movement of gravel downstream. Hardrock mining is presently of little importance in the affected watersheds, although it has potential should mineral prices increase. In addition to problems associated with placer mining, acid and heavy metal pollution is possible with hardrock mining.

Stream Enhancement: Stream enhancement activities have several direct effects on fish and fish habitat, some positive, some adverse. Most activities involve the use of heavy equipment along the streambanks and within the stream

channel. This type of work has the potential to destabilize streambanks increases sediment input, and to mechanically destroy young fish. Additionally, the use of explosives to create pool habitat can cause very high mortality in the vicinity. On the positive side, stream enhancement can greatly increase habitat quantity and quality in severely degraded stream segments. In the long run, properly designed enhancement projects can substantially increase productivity of anadromous fish.

Gravel Deposition: Construction of the dams associated with hydropower projects precludes normal bedload movement through the North Umpqua River system. Gravel deposition, particularly in the upper reaches of the Wild and Scenic corridor, is most likely reduced from preproject levels. Gravel deposits are critical for wild spring chinook spawning and may be a limiting factor in the production of this species.

Large Wood: Stable pieces of large wood in the stream channels are one of the primary habitat producing components in the tributary streams to the North Umpqua River. The affect that management activities have on large wood is how they influence input. The direct affect of lowered large wood input is lower habitat quality. As complexity and diversity of habitat is reduced, fish production is also reduced.

Peak Flows: Peak flow increases over the natural rates can occur as a result of timber harvest and road construction. The cause of increased peak flows is usually the result of concentrated activities in a watershed over time. Direct effects can occur to fish and fish habitat. High peak flows are generally unpredictable, as are the effects, because it usually results from winter precipitation patterns. Direct effects can include scouring eggs from gravel, increasing sediment from roads, bank erosion, land slides, and harvest units, and removing habitat forming elements such as large wood and boulders. The potential for substantial reductions in fish production exists when peak flows increases occur. The result of these effects can remain for many decades.

Indirect Effects - *Sediment*: Increased sediment in streams can have indirect effects as well. Increased magnitude and duration of turbidity can substantially reduce the biological productivity of streams. Sediment deposition in riffles can greatly reduce macroinvertebrate production which is used as food by young anadromous fish and deposition in pools can decrease the amount of rearing space. Turbidity can also reduce angler success or even use. This effect can occur in the designated segment, or downstream below the Wild and Scenic boundary where most of the angler effort occurs.

Temperature: Temperature increases below the lethal level can have indirect effects. One documented indirect effect of increasing temperatures is increased intra-specific competition between non-game fish species and juvenile steelhead.

Stream Enhancement: Indirect effects of stream habitat enhancement work is generally positive. The creation of instream structures often leads to increased deposition of bedload material on part of the structure and increased scour on another part. The depositional area is generally more productive for food and the scour area increases the amount of available rearing pool space.

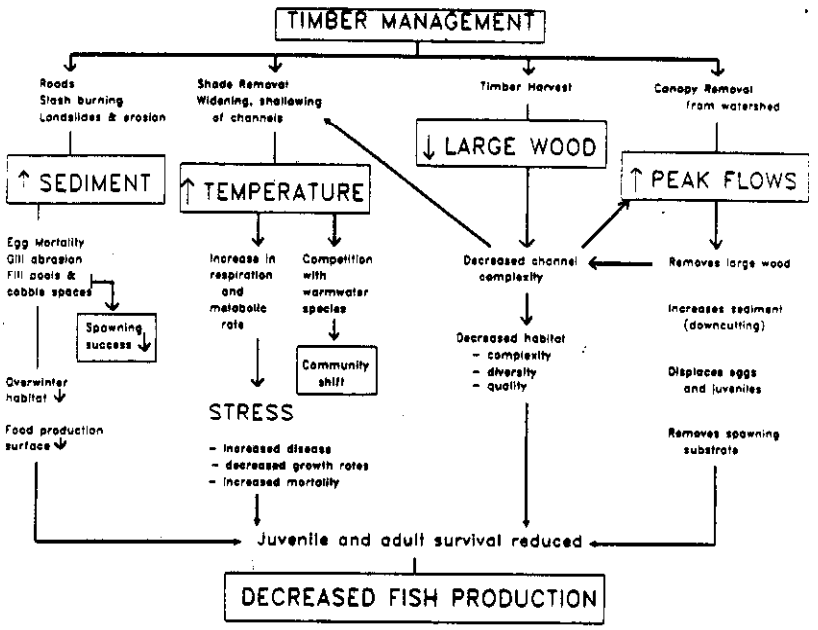
Large Wood: As with direct effects, the main effect of land management activities is a reduction in potential input of large wood. Large wood is a very important component of fish habitat and any reduction in the amount would have indirect effects. These effects include lowered food production due to lessened on-site nutrient cycling and reduction in habitat diversity.

Peak Flow: Increases in peak flows can result in dramatic changes in habitat due to the power of moving water. Indirect effects can range from pools filling with sediment to virtual elimination of all fish habitat resulting from debris torrents scouring out entire stream channels down to bedrock. Increases in peak flows can occur as a result of land management activities and while the predictability is poor, the risk of peak flow damage increases with increased level of activity.

Cumulative Effects - Cumulative effects result from actions which individually are minor, but when added, can result in substantial effects. These actions can occur over a long period of time, or involve a large number of small actions over a short period of time. Most commonly, cumulative effects on fish habitat involve soil and watershed effects, resultant from timber harvest and roading within a watershed. These effects are not limited to actions on Forest Service or BLM lands, but all lands within the watershed.

Peak flow increases are a good example of a cumulative effect. As a higher and higher percentage of watershed is harvested and roaded without allowing time for recovery the risk of higher peak flows increases. The effects to fish and fish habitat are the same direct and indirect effects that have been previously discussed. Another example of a cumulative effect is the reduction over the long term in large wood input to streams. Timber harvest, road construction, and timber salvage can all reduce the source of long-term large wood. Large wood plays an extremely important role in all streams, both in fish bearing streams and the smaller non-fish bearing streams. As with peak flows, the effects of reducing large wood input are discussed in the direct and indirect sections. Figure IV-1 graphically demonstrates the complexity and interactive effects that timber harvest activities potentially have on fish and fish habitat. The direct, indirect, and cumulative effects are analyzed in Federal land use plans and for specific actions such as timber sales. Standards and guidelines and other site-specific mitigating measures are adopted to minimize adverse effects to fish and fish habitat.

Figure IV-1



Effects by Alternative - As discussed previously, the greatest potential for effects to the fisheries ORV is habitat changes resultant from land and water uses that occur outside of the designated Wild and Scenic corridor, but within the North Umpqua River watershed. There are, however, some differences in potential direct effects to wild adult spring chinook and summer steelhead between the alternatives. One potential effect is increased mortality of wild summer steelhead. Despite catch and release regulations for wild fish, there is always some immediate or delayed mortality due to hooking and handling the fish. The primary difference between alternatives is the permitted level of recreation use in the Wild and Scenic River corridor. There is little difference in effects to the inherent productivity of the habitat between the alternatives.

Alternative A - This alternative would permit the least amount of recreation use overall. This alternative would have the least potential effect on the Fisheries ORV. Lowered recreation use may reduce angling pressure which would decrease disturbance to spawning wild spring chinook and over-summering wild adult summer steelhead. Angler harvest of wild summer steelhead may also be reduced. If this reduction occurred, angler induced mortality of wild summer steelhead may also be reduced. Mortality of hatchery summer steelhead may also be reduced, adversely affecting wild/hatchery ratios.

Alternative B - The present level of use will result in some disturbance to spring chinook and summer steelhead. Under this No Action Alternative, it is impossible to predict future recreation use levels. Should these levels decline, consequences approaching those described under Alternative A would be expected. If, on the other hand, use levels increase to levels approaching or even surpassing those

levels projected under Alternative D, then the consequences would be more like those described under Alternative D.

Alternative B1 - This alternative would generally maintian recreation use at 1990 levels. Recreational boating would be restricted to those 1990 levels and angling pressure would remain at close to current levels, which is thought to adequately protect the Fisheries ORV. Some disturbance to spawning adult spring chinook does and would continue to occur from boaters, anglers and others. Angling effort and harvest of summer steelhead could likely remain at current levels with considerable variability depending on run sizes and physical conditions. Angler induced mortality of wild fish would remain at current levels, as would hatchery fish mortality. Changes to the wild hatchery escapement ratio would occur from factors other than the differential mortality rates from angling.

Alternative C - This alternative would permit a slight increase in recreation use over current levels. Campsite use may increase with upgraded and expanded camping facilities. The increased recreation use could result in increased disturbance to spawning and resting adult spring chinook and over-summering adult steelhead. The increased recreational use would likely include increased angling effort and possibly catch of summer steelhead. This increased catch, if it occurred, would likely increase mortality of both hatchery and wild fish. The rate would most likely be much higher for hatchery fish (can be kept) than wild fish (catch and release) under current regulations. The overall result would be reduced total escapement, but possibly improved wild hatchery ratios. Whether the magnitude of lowered escapement would affect the basic productivity and thus result in declining populations is presently unknown.

Alternative D - This alternative would permit a sharp increase in recreation use, including improved access and more developed camping facilities. This greatly increased use could result in a large amount of disturbance to adult spring chinook and summer steelhead. This disturbance could adversely effect spawning success of wild spring chinook and result in a decline of this important species. The increased recreation use would likely include angling pressure and has the highest potential for increased catch. The potential effects are similar to those of Alternative C, only greater. As with C, whether the magnitude of lowered wild and total escapement is sufficient to affect basic productivity is unknown. The risk is greater with Alternative D than with Alternative C. Numerous other biotic and abiotic factors throughout the entire life history ultimately determine run strengths and long-term population stability.

In summary, the main differences between alternatives is the permitted level of recreation use. The primary potential effect of this use is disturbance to adult spring chinook during the over-summering, and particularly spawning period. There is also, a potential disturbance or increased harvest of over-summering wild summer steelhead. None of the alternatives are expected to change basic habitat capability either in the river or the tributary streams. Alternative A and

B1 are very similar with little risk of adverse effects to the fisheries ORV. Alternatives C and D have a slight risk of adverse effects due to disturbance to adult fish and, possibly, increased angling mortality of wild summer steelhead.

Summary - The fisheries resources that constitute an Outstandingly Remarkable Value for the North Umpqua River is the diversity of anadromous salmonid stocks and the numbers of wild summer steelhead. Both are highly dependent on the quality and quantity of habitat, in the river and also in many of its tributaries. Actions proposed under the various alternatives for management within the Wild and Scenic River corridor do not have a high risk of adverse consequences to the fisheries resources. Land and water uses, particularly existing and proposed uses in the North Umpqua watershed outside of the corridor, have the highest potential for adverse consequences to fish and fish habitat. The two uses with the highest potential for degradation of habitat quality and/or quantity is operation of the Pacific Power hydropower project and timber harvest activities. Management direction for land use practices outside of the corridor are tiered to the Umpqua FLRMP and Roseburg BLM MFP. The Forest Goal is "to protect, maintain, and where appropriate, enhance the productivity of fish habitat to provide for populations of resident and anadromous fish for scientific, recreational, and commercial uses, both on and off the Forest." The Umpqua FEIS concluded, however, that Alternative N, the selected alternative, has a high risk of unanticipated adverse effects to the fisheries resources. The FEIS, like this document, are programatic in nature. The discussion of consequences in both are general in nature and based on a number of assumptions, many unproven. Given the widespread reduction of habitat quality in many tributaries, the recent declining trends of most wild stocks, and the proposed levels of timber harvest and roading in the North Umpqua watershed, there is a similarly high risk of unanticipated adverse effects to the fisheries resources. Specific evaluation of the consequences and development of a range of alternatives will be conducted during project level planning which is beyond the scope of this document.

Cultural

The following effects are based on alternatives which have mitigating measures built into them. The unmitigated effects would be that the more people brought into the area and the more development and maintenance work that is done, the greater the impacts to cultural resources.

Alternative A - The deterioration of cultural resources from natural processes such as erosion, weathering, and decay, will continue. Vandalism may increase due to a decreased management presence. Impacts from maintenance and upgrading of recreation sites would be minimized.

Alternative B - Deterioration from natural processes will continue. The loss of cultural resources from vandalism could increase. The loss of values to development and maintenance projects although mitigated, will continue. The additional knowledge gained from mitigation efforts will enhance, to some extent, the resource base.

Alternative B1 and C - Deterioration from natural processes will continue, although stabilization of some sites might result from the implementation of the monitoring plan. Vandalism should decrease due both to increased educational efforts and an increased management presence, such as law enforcement patrols. The loss of values to development and maintenance projects, although mitigated, will increase. This loss, however, will be offset, to some extent, by the knowledge gained from the mitigation and inventory work. This knowledge will be fed back into the interpretation education loop to enhance the visitor experience and educate the public.

Alternative D - The effects of natural processes and vandalism will be much the same as those for Alternative C. There will be a large loss of values due to project work. The knowledge gained from the mitigation and evaluation will be fed back into the system as in Alternative C. However, at some point, critical mass will be reached and mitigating measures will cease to prevent an irreversible deterioration of the cultural resource base. Our ability to preserve a representative example of the cultural resources will be lost.

Recreation

Alternative A - A decrease in the number of recreation users at peak times will provide opportunity for less contacts with other user groups, but will limit the numbers of recreationists. With fewer recreation users in the Wild and Scenic River Corridor, there will be less conflict. However, there will be more regulation and higher use fees for all users. Existing facilities will be maintained, but no new campground facilities will be provided.

Alternative B - Recreation use increases will remain unrestricted. The opportunity to encounter a variety of recreational experiences changes little from the existing situation. The number of permitted boating outfitter-guides stays fixed at the current level of 20, but no limits will be placed on the number of clients served. No limits will be established on boating group size. Private boating use numbers will not be limited, and emphasis will not be placed on management of this use. If use continues to increase, additional conflicts between users will also increase. Voluntary guidelines will remain in effect, and there will be an increased amount of noncompliance.

Alternative B1 - Recreation use will be limited to 1990 levels. The recreational experiences will change little from the existing situation. However, as demand for a limited number of recreational opportunities increases, the recreationists ability to enjoy the Nort Umpqua Corridor could be limited. Emphasis will be placed on management that limits the river users and their associated conflicts. The number of outfitter-guides remains at 16 and limits will be set on clients served. Private boating numbers would be regulated using a variety of techniques. Existing facilities will be maintained and no new campground facilities will be provided. The opportunity for solitude would be much as it was in 1990.

Alternative C - A slight increase in the number of recreation users will decrease the opportunity to minimize social contacts, but will allow a greater number of people to use the WSR corridor for a variety of recreational experiences. During non-peak times, October 1 to May 19, outfitter/guide use would not be limited. River access will be improved, and while no new campgrounds will be developed in the Wild and Scenic River Corridor, existing ones may be upgraded and expanded.

Alternative D - A sharp increase in numbers of recreation users will reduce the opportunity for less social contacts, but will allow the largest number of users to have a variety of recreation experiences in the Wild and Scenic River Corridor. Additional boating outfitter-guide permits will be issued both during peak and non-peak times. A greater number of conflicts between recreation user groups, and recreationists, and private land owners can be expected, resulting in a commensurate need for more law enforcement. Better access to the river and additional developed camping facilities will be provided.

Scenery

Alternatives A, B1, C, and D - The natural appearing landscape within the Wild and Scenic River corridor on these lands will remain largely unchanged, barring unforeseen natural catastrophes. There will be no scheduled harvest of timber from the federal lands within the corridor boundary. Consequently, the mature/old-growth timber type that predominates on the public lands in the corridor will remain essentially unchanged except for the slow process of natural succession. The existing landscape condition on privately owned lands (approximately 7 percent of the corridor) can be expected to change over time on some tracts as trees are harvested for commodity use. Overall the river will maintain its current appearance. Man-made shoreline facilities will remain relatively inconspicuous to boaters and anglers.

Alternative B - Impacts to the Wild and Scenic River corridor on Public Lands will be somewhat greater than for Alternative A, C, and D, on the Forest Service and BLM segments of the corridor where a small annual scheduled harvest of timber will occur. While this harvest would primarily be partial cutting which would not be conspicuous to the average observer, some new logging spurs and landings could be visible from viewpoints along the river or Highway 138. While there would be a slight to moderate negative short-term visual impact due to this limited logging in the corridor, the longer term goal is to maintain a less decadent, more vigorous mature yet natural appearing landscape. On a site specific scale, Alternatives A, B1 and C and their recreation developments and impacts caused by the number of recreationists using the corridor will be similar to existing conditions, or of minor significance. Alternative D will cause greater negative visual impacts on a site specific scale as a greater number of recreationists will be introduced to this presently natural appearing corridor. Alternative B impacts will be based on user trends of increases or decreases.

Vegetation

Alternative A - Impacts to native vegetation would be below current levels and limited primarily to recreation sites and trails. Impacts would be mitigated with the use of aesthetically appropriate fences and barriers to direct foot and vehicle traffic. Disturbed sites would be restored using native vegetation.

Alternative B - Impacts to native vegetation would most likely increase. Impacts would be mitigated. Disturbed sites would be restored using native vegetation. The spread of noxious weeds would be expected to remain at current levels and managed with currently used chemical and biological controls.

Alternative B1 - Impacts to native vegetation would stay at current levels and be limited primarily to recreation sites and trails. Impacts would be mitigated. Disturbed sites would be restored using native vegetation.

Alternatives C and D - Impacts to native vegetation would increase beyond current levels proportional to increases in recreational use and development. Impacts would be expected to occur to native streamside vegetation due to increased fishing and rafting and to native vegetation in recreation sites and along trails with increased development and recreation use. Impacts could be mitigated with public education programs, the use of aesthetically appropriate fences and barriers to direct foot and vehicle traffic, planting native vegetation on disturbed sites, and by initiating a vegetation monitoring program.

Wildlife/Plants

Alternatives A, B, B1, C and D - All threatened, endangered, and sensitive plant and animal species would be managed in accordance with the 1973 Endangered Species Act and USFS and BLM policy. No increase in impacts to threatened, endangered or sensitive plants and animals are anticipated under any of the alternatives.

Socio-Economic

Alternative A - Under this alternative there would be a slight negative impact on timber related employment because there would be no scheduled harvest within the Wild and Scenic River Corridor boundary. Approximately 900,000 board feet per year that under existing plans would be cut along the 33.8 mile river segment, would not be cut under this alternative. There would be a slight decrease in revenue to the County as a result. There would also be a slight decrease in employment in the service sector as the number of boaters on the river would decrease approximately 20% from 1990 levels. The effect on the quality of life and the quality of the environment would be positive. Fewer recreational boaters would be able to float in the corridor, but those who did would experience fewer encounters with other boaters. Anglers and campers would experience a slight decrease in the number of encounters with boaters. Likewise other users of the river corridor would experience somewhat greater solitude. There would be little or no effect on the recreation experience for most other recreationists, and the mix of recreational opportunities would remain basically the same as it is now, with perhaps some greater emphasis on non-boating recreation as time goes on.

Alternative B - Under this alternative, there would be no impact on timber related employment because harvest levels would not change from what they have been. Approximately 900,000 board feet would be harvested from the corridor annually. This would provide similar revenues to the County as what has occurred in the past. Service related employment in the corridor would depend on the amount of recreational use that occurs. Since there would be no restriction on the number of clients served by commercial outfitters, or on the number of private boaters floating the river, it's very possible that over a period of time this use would significantly increase, thereby positively affecting jobs in the service sector. Should unrestricted boating use result in increased numbers of boaters, the effect on the quality of life and the effect on the recreational experience could be adverse for those people who are seeking a more secluded recreation experience. This would be particularly so for anglers, some boaters and campers, and home owners along the river. This alternative would offer the same mix of recreational opportunities as the other alternatives.

Alternative B1 - Under this alternative, the effect on timber-related employment would be identical to Alternative A, C and D, because no scheduled harvest of timber would occur within the boundaries of the Wild and Scenic River Corridor. Likewise there would be the same decrease in timber receipt revenues to the County. Since boating use levels would be regulated at 1990 levels, tourist and service related employment would remain much the same as it was in 1990. Recreationists using the river corridor would have a similar experience to the one they encountered in 1990, enhanced somewhat by the renovation and improvement of facilities, and by more opportunity for interpretive education. This alternative would initially offer a similar mix of recreation opportunities as that seen under Alternative B. Over a period of time, there will be a proportionately larger number of non-boating recreationists using the corridor.

Alternative C - Under this alternative the effect on timber-related employment would be identical to Alternatives A, B1, and D. Similarly the same decrease in timber receipt revenues to the County would occur. There would be a small positive effect on service sector jobs as a result of a possible 25% increase (over 1990 levels) in the number of boaters floating the river. With this slightly increased number of boaters on the river, the feeling of isolation and seclusion that one will have on the river and the quality of the experience will be slightly reduced for some users. This will be especially so for anglers, other boaters, rural residents along the river, and campers - especially where put-ins are located near campgrounds. However, improved recreation facilities and greater emphasis on interpretation and education will enhance the recreation experience for most users, and will help to reduce conflicts between these different user groups. Initially, the mix of recreation opportunities may shift slightly towards boating, but when and if the 25% increase boating threshold is reached, the mix will shift back towards other types of recreation.

Alternative D - Under this alternative the effect on timber-related employment would be identical to Alternative A, B1 and C. Similarly the same decrease in

timber receipt revenues to the County would occur. Assuming that in time boating use levels would increase 50% over 1990 levels, this would have a positive impact on service related jobs in the area. With this increased number of boaters using the river,however, the opportunity for isolation and seclusion along the river would be considerably diminished. There would be more encounters between anglers and boaters, campers and boaters and boaters with themselves. Those recreationists and rural residents seeking a more isolated experience may have to plan their activities at non-peak times, ie: weekdays and off-season. Improved recreation facilities and greater emphasis on interpretation and education will enhance the recreation experience fo many users, and will help to reduce conflicts between different user groups. Still, conflicts are likely to occur between these different groups. There will still be a mixture of recreation opportunities for visitors to the corridor.

Boundary

Alternatives A, B1, C and D - This boundary which is a variable boundary averaging 320 acres per river mile best incorporates the outstandingly remarkable values into the Wild and Scenic River Corridor. This boundary includes several recreation features such as Susan Creek Falls and Fall Creek Falls which lie outside the one-quarter mile State Scenic Waterway boundary. This boundary also best protects the visual quality of the Corridor, because an attempt was made to place the boundary where it would best incorporate and protect the outstandingly remarkable value of scenery. It was also locted to include portions of major tributaries (ie: Bogus Creek and Susan Creek). Because this boundary does not coincide with the State Scenic Waterway boundary which is located one-quarter mile on either side of the river there may be some confusion among members of the public over the dual designation of the river, and the two different boundaries that delineate this corridor.

Alternative B - This boundary coincides exactly with the State Scenic Waterway one-quarter mile boundary, and has served as the interim federal Wild and Scenic River boundary while the River Plan was being developed. While the total acreage encompassed by this boundary is the same as for the boundary under Alternatives A, B1, C and D, this boundary does not take into account outstandingly remarkable values that occur in the corridor but perhaps lie outside this one-quarter mile limit. This boundary does not protect the outstandingly remarkable values to the same degree as the boundary proposed for the other alternatives. Because this boundary does coincide exactly with the State Scenic Waterway boundary, however, this common boundary would limit confusion over the dual designation of the river.

Private Landowners

Common to all - Any development on Private lands within the Wild and Scenic River Corridor and/or the State Scenic Waterway will be regulated by the County Comprehensive Plan, and State law. Private landowners in the Corridor will be required in certain instances to submit a plan and get approval before beginning development or construction work on their property.

Alternative A - Under this alternative, there would be fewer floaters on the River as greater restriction is placed on boating use. Consequently, private landowners in the Corridor and particularly along the River would experience slightly fewer encounters with boaters and boating groups, and there would be slightly less evidence of litter, and fewer cases of boaters inadvertently trespassing on private land. Other recreation activities would remain basically unrestricted, and private landowners would continue to see these uses occurring.

Alternative B - This is the no-action alternative. Under this alternative recreation use, including boating, would remain essentially unrestricted. Depending on future boating use trends, private land owners (particularly those adjacent to the River) could experience about the same level of encounters with boaters, or considerably more encounters (even higher than for Alternative D) if use levels increase dramatically. If use levels were to increase, private landowners along the river bank would probably experience slightly to considerably more evidence of litter along the banks, and inadvertent trespass on their land by boaters. Other recreation activities would remain basically unrestricted as well, and private land owners would continue to see these uses occurring.

Alternative B1 - This is the current use alternative. Under this alternative, boating use would be restricted to 1990 levels while other recreation uses would remain basically unrestricted. Private landowners along the River would experience about the same number of encounters with boaters as they did in 1990. Encounters with other recreation users in the Corridor would very likely increase, as other recreation uses increase somewhat.

Alternative C - Under this alternative, there would be a moderate increase in recreation utilization in the Corridor, with boating use allowed to gradually increase 25% over 1990 levels. Landowners in the Corridor, particularly those living along the River, would probably experience more encounters with boaters floating the River. They may also experience more instances of streamside litter and trespass along their banks. However, intensified efforts towards interpretation and education for all user groups would help to mitigate this potential adverse impact.

Alternative D - Under this alternative, the greatest increase in recreational use of the Corridor would occur with the possible exception of Alternative B (no action). An increase in boating use by as much as 50% would result in the greatest number of encounters between private landowners and boaters. Litter along the banks would very likely increase somewhat, as would the number of incidences of boaters trespassing on private lands. This adverse consequence caused by more boaters on the River would be mitigated to a significant degree through stepped up agency efforts to educate and inform the public about the rights of private landowners.

APPENDIX A
Discussion of Outstandingly Remarkable Resource Values

APPENDIX A Discussion of Outstandingly Remarkable Resource Values

Recreation

Findings: Results of the resource assessment validate the Congressional Record that recreation is an outstandingly remarkable value within the North Umpqua River corridor. The State Parks and Recreation Department finds that recreation qualifies as a special attribute. The area is readily accessible to a broad segment of the population and provides a variety of river-related recreational opportunities such as non-motorized boating activities, fly angling, developed and dispersed camping sites, day use picnic and swimming areas, horse riding and hiking trails, sightseeing, photography, nature study, and scenic driving.

The North Umpqua Highway (State Highway 138) runs parallel to and within one-half mile of the river for its entire length. This highway provides both easy access from Interstate 5 as well as access to the diverse recreational opportunities available within the North Umpqua River corridor and beyond. Significant prehistoric and historic sites and properties, waterfalls, and prominent geologic features are also easily accessible to corridor travelers, providing ample public interpretive opportunities. Additionally, the corridor route serves as the primary access to the Diamond Lake Recreation Area and Crater Lake National Park. Visitors from all over the world travel through the North Umpqua River corridor to enjoy these major destination attractions.

Discussion of Outstandingly Remarkable Value: The North Umpqua Highway (State Highway 138) parallels the North Umpqua River throughout the entire designated segment. This highway has received both national and regional recognition for its exceptional scenic quality and accessibility to a myriad of recreational and interpretive opportunities. The availability of different habitat types present many wildlife viewing opportunities for visitors of the river, thus sightseeing, nature study, and photography are popular activities along the North Umpqua River.

Within the corridor, there are four Douglas County day use sites, seven Forest Service developed campgrounds, one BLM campground, and one BLM day use site, provide for 810 persons at one time, 685 in campgrounds and 125 in day use areas. Three of these campgrounds are non-fee with 26 sites while five are fee areas with 107 sites. Recreation visit totals for these campgrounds have increased 113% from 31,400 in 1985, to 67,005 in 1990. Approximately 40% of campground use is by out of state visitors.

There is a total of 60 miles of hiking trails within the North Umpqua Wild and Scenic River corridor. Trail challenges vary from gentle to most difficult, and opportunities are available to a wide variety of users ranging from non-motorized to motorized.

The North Umpqua Trail parallels Highway 138 on the opposite side of the river for the entire length of the Wild and Scenic River section. This trail begins at the trailhead at Swiftwater Park (beginning of the Wild and Scenic River at Rock Creek)

and when completed will run 79 miles terminating at Maidu Lake. A total of 38.5 miles are located within the Wild and Scenic River corridor boundary, with a total of eight segments and seven trailheads. From west to east the segments are: The Tioga segment, 11 miles; the Fox segment, 5 miles; the Mott segment, a National Recreation Trail, is 5.5 miles; the Panther segment, 5.0 miles; the Calf segment, 3.7 miles; the Marsters segment 3.7 miles; the Jessie Wright Segment, 3.75 miles; and approximately 1 mile of the Boulder Creek segment.

Four accessible waterfalls are located within the North Umpqua Wild and Scenic River corridor, contributing additional variety to the high quality experience available to the river visitor. Two of these, Susan Creek Falls and Fall Creek Falls, a National Recreation Trail, are located in association with special interest interpretive features (Susan Creek Mounds and Fall Creek Petroglyph) and are accessible via trails. The other two (Thunder Creek Falls and Cougar Creek Falls) are not accessible by trail at this time.

Historically, recreational use of the North Umpqua River has been fishing and camping. A major attraction of the river is its summer steelhead run. All but the first 1000 feet of the Wild and Scenic/State Waterway segment has a State of Oregon imposed fly angling only restriction established in 1952. The combination of large and abundant fish, fly angling only, and majestic scenery attracts anglers from all over the world.

Recreational angling resultant from the fisheries resources of the North Umpqua River occurs within and below the designated Wild and Scenic River Corridor. Spring chinook, coho, winter and summer steelhead are all produced in the river. The highest catch and most angling effort for all four species occurs downstream; in the ocean, main Umpqua River, and North Umpqua below Rock Creek.

Within the Wild and Scenic River Corridor, a substantial recreational fishery for all four species exists immediately above Rock Creek. It is the traditional, world-class fly angling for summer steelhead, however, for which the North Umpqua is most acclaimed. Of particular importance is the large, wild population of summer steelhead noted for their size and fighting ability. The North Umpqua is considered by many to be one of the finest rivers in North America for its wild beauty and superb fly fishing. Its summer steelhead fishery has a long tradition, dating back to the 1920's, and has been the subject of numerous books and articles. This fishery, represents about 95% of the on-forest anadromous angling use. The Umpqua is the highest use forest in the Pacific Northwest Region, and the second highest in the entire National Forest system. The economic value of this fishery has been estimated at over $20 million.

The North Umpqua River affords whitewater rafting and kayaking challenges for a variety of boating skill levels. Difficulty Class II to IV rapids provide excellent opportunities for intermediate and advanced floaters. During higher water levels in May and June, several of these rapids become Class IV. Both short and long rafting trips are possible on the river. An average trip lasts 5 to 7 hours, depending upon the stream flow and season. Overnight trips are also possible with camping/ lodging opportunities located within the interim corridor. Commercially guided

whitewater use as well as non-commercial (private) use of the river have been on a constant rise since 1976. For commercial outfitters, the period from 1986 to 1990 showed a 105% increase in client service days from 1030 to 2050. The same period showed a 98% increase for non-commerical users from 2050 to 4000 user days. One rafting user day equals an average of 8 hours spent using the river corridor. The service days and user days shown, actually represent 75% of the actual use totals, due to survey design.

The Umpqua Rocks Special Interest Geologic Area is located within the North Umpqua River corridor, providing a number of opportunities for public interpretation. Traveling from east to west along the river, almost a half million years of geologic and volcanic history of the Cascades can be seen, studied and interpreted.

Scenic

Findings: Results of the resource assessment validate the Congressional Record that scenic quality is an outstandingly remarkable value within the North Umpqua River corridor. The State Parks and Recreation Department finds that scenery qualifies as a special attribute. Historically, the North Umpqua River has been recognized as one of the most scenic and accessible river sections in the western Oregon region. This truly distinctive canyon landscape is generally characterized by the combination of clear jade rushing water and vertical rock cliffs and spires within a mosaic of mountain meadows and Douglas-fir/western hemlock forests.

Due to the exceptionally high quality of scenic views along the corridor route, the North Umpqua Highway (State Highway 138) is listed by the American Automobile Association as a scenic highway, is designated a Discovery Drive Loop Tour Route by the Southwestern Oregon Visitor's Association and was designated as a National Scenic Byway in 1990.

Discussion of Outstandingly Remarkable Value: The landscape character for approximately a quarter to a half mile on each side of the river and highway has been classified and mapped as a Class A or "distinctive" variety class, the highest value bestowed upon the landscape under Forest Service and Bureau of Land Management Visual Management Systems. The existing visual condition (EVC) for the viewshed is inventoried as "Natural Appearing," a condition that is basically dominated by the original, unchanged landscape.

The North Umpqua River has formed a narrow V-shaped canyon between steep forested slopes. The steep slopes of the river canyon are cloaked in lush old growth Douglas-fir forest interspersed with dry-slope grassy openings and a sprinkling of hardwoods. Through the river corridor, the boulders, outcrops and small falls add dimension, form, and contrast to the flowing water. Placid pools reflect the color of sky and streamside vegetation and magnify the effect of autumn color. The adjacent slopes, dotted with broadleaf species, provide a backdrop for the centerpiece of the landscape, the river itself which varies in distance, scale and spatial character. A varied and changing landscape is experienced as one travels through the corridor either via the river or the adjacent state highway.

Adding to the natural scenic quality of the North Umpqua Wild and Scenic corridor, are the locations of numerous prominent geologic features of columnar basalt, large basalt rock cliffs, boulders, and spires which are currently managed as the Umpqua Rocks Geologic Area. Exposed in the river banks, valley walls and road cuts of the North Umpqua Highway is evidence of past environments, cataclysmic volcanic eruptions, earthquakes, and major volcanic events that have occurred within the last two million years. These geologic features add to the visitor's interest in the area and provide for added diversity in the recreational experience. Few river systems in the region expose as much of the volcanic and geologic history of the formation of the Cascades in one nearly straight, east-west dissection.

Existing development within the interim river corridor is subordinate to the existing landscape and does not provide significant visual intrusion from the highway or the river. Seven percent of the total acreage falls within private ownership and is predominantly located within the westernmost 8 miles of the Wild and Scenic River section. Development within the corridor is confined to five small areas and a few isolated settlements. Both residential and commercial uses are present.

There are several clearcut harvest units seen in the canyon foreground as one floats downstream and additional harvested areas can be viewed in the middle ground distance zone. A power transmission line and its associated right-of-way clearing on the north slope of the canyon are intermittently visible from the road and river.

There are six small river communities that lie within the boundaries of the Wild and Scenic River corridor.

The first small community is in the Dry Creek area. This area contains several private business; a log cabin store, a trailer park, and a whitewater rafting outfitter guide shop. Several private residences are also located in this area. A few of the buildings in this community are visible from the river; many are visible from the highway.

Although concealed from the highway, several of the National Forest recreation sites and parking areas are intermittently visible from the river. Evidence of timber salvage activity resulting from a fire in the early 1970's and late 1980's can be seen from both the road and the river in the area of Horseshoe Bend Campground.

The second concentrated area of development is the site of the former Steamboat Ranger Station compound located on the south bank of the river. The State of Oregon Department of Transportation (ODOT) currently occupies the facility under a special use permit from the U.S. Forest Service. Several of the structures are visible from the river and the road. Also included within this general area, but located a slight distance down river from the ODOT complex, is the Steamboat Inn, a recreational resort under a U.S. Forest Service special use permit, that offers food and lodging. This complex of eight existing buildings is partially visible from both the river and the road.

A small area of private ownership is located approximately 2 miles east of the National Forest/BLM boundary and consists of several residences which are partially visible from the river and the road.

The fourth major area of development, a residential trailer court north of the highway, is adjacent to lands managed by the Bureau of Land Management. In this locale, the BLM manages a campground and picnic area on the north side of the river and Douglas County maintains four day use recreation sites. The BLM and Douglas County recreation sites are not highly visible from the road or the river.

The fifth existing development within the Wild and Scenic River corridor includes several homes adjacent to the river, a store, a motel, and two private residences adjacent to the highway at the Frontier Store Site. Ten residences within this general area are visible from the river.

Rock Creek is the sixth and final area of major development within the Wild and Scenic River corridor. Just above the confluence of Rock Creek and the North Umpqua River there is a Douglas Fire Protection Association fire guard station and the water intake for the fish hatchery. Both structures are visible from the south bank of the river.

In addition to these currently developed areas, there are five bridges, 41 miles of non-motorized trails, and 12 developed recreation sites within the River Corridor. With the exception of the historical wooden Mott Bridge, all of the bridges crossing the river are modern concrete structures. One serves the North Umpqua Highway where it crosses to the south side of the river approximately 4 miles west of the upstream terminus of the study area. Another crosses Steamboat Creek. The other three bridges serve secondary forest roads which lie perpendicular to the river and continue south beyond the river corridor.

The North Umpqua Trail is adjacent to the river bank in many locations. Five miles of the existing trail are highly visible from the river and the highway. Portions of the trail located within the Apple fire area and bridge/boardwalk crossings can be seen from both the river and the road.

Fisheries

Findings: Results of the resource assessment validate the Congressional Record that the fisheries resource is an outstandingly remarkable value within the North Umpqua River corridor. The State Parks and Recreation Department finds that fish qualify as a special attribute. Historically, the combination of large summer run steelhead, fly-angling only restriction, and majestic scenery has brought anglers from all over the world to the North Umpqua Corridor.

The river serves as needed habitat for a variety of resident and anadromous fish species including summer and winter steelhead, fall and spring chinook, coho and searun cutthroat and is distinguished from other rivers by the large and consistent numbers of native (non-hatchery) fish in the run. The North Umpqua summer steelhead fishery is considered to be one of the most outstanding on the West Coast.

Discussion of Outstandingly Remarkable Value: The North Umpqua River serves as a travel corridor and necessary spawning and rearing habitat for a number of anadromous and resident fish. None of the fish species inhabiting the North Umpqua River have been classified as threatened or endangered, however, wild coho and searun cutthroat are depressed and may be declining. Coho salmon (*oncorhynchus Kisutch*), chinook (*ohcorhynchus Tschawytscha*), winter and summer steelhead (*oncorhynchus mikiss*), and searun cutthroat make up the anadromous salmonid species which utilize the river during part of their life cycle. Resident trout using the river include cutthroat (*Salmo clarki*), rainbow (*Salmo girdnevi*), brook (*Salvelinus fontinulis*), and brown trout (*Salmo trutta*). Additional species include suckers (*Catostomus Spp.*), dace (*Rhinichthys evermanni*), and redside shiners (*Richardsonius balteatus*).

Spring chinook and summer steelhead are species with distinctive migration patterns. These species occur only in those streams that have deep pools and cool water suitable for adult holding over the summer, often for as long as 5 months. In the fall, spring chinook spawn in the river and some major tributaries. Summer steelhead distribute widely into most major and minor tribuaries to spawn in the winter months. The holding characteristics of the North Umpqua River are a key to the successful existence of spring chinook and summer steelhead runs in the system.

Salmon and steelhead spawned in the North Umpqua River basin not only provide for the on-site fishery but also the downstream and the ocean sport and commercial fisheries.

In summary, the major factors that led to the finding that Fisheries was an Outstandingly Remarkable Value were: 1) the number and diversity of wild anadromous fish species and stocks that are present and their required habitat, 2) the productivity, habitat quality, and resultant abundance of wild and hatchery summer steelhead to support a highly valuable and unique in-river recreational fishery of international stature, and 3) the productivity, habitat, and abundance of wild and hatchery spring chinook to support a regionally important ocean commercial and, ocean and in-river sport fishery, and 4) the presence of wild coho and searun cutthroat trout, two species having exhibited widespread declines throughout their range to such a degree that threatened, endangered, or sensitive status may be warranted. Wild fish depend on habitat quality and quantity throughout every life stage. These factors are not limited to the designated Wild and Scenic River Corridor, rather are representative of the interconnected nature of the entire watershed.

Water Quality and Quantity

Findings: Results of the resource assessment validate the Congressional Record that water quality is is an outstandingly remarkable value within the North Umpqua River corridor. The State Parks and Recreation Department finds that water quality and quantity qualifies as a special attribute. The North Umpqua River sustains a flow of high quality water with very dependable quantity.

Water quality of the river is high, as well as visually clear during the summer season and between high flow stages. Several components combine to produce the high water quality of the river. These attributes are low turbidity (except during peak flow periods), low levels of contaminants and pollutants, cool water temperatures, and stable minimum instream flows. As previously mentioned, the river provides important spawning and rearing habitat for several species of anadromous fish.

Discussion of Outstandingly Remarkable Value: The water quality and quantity of the North Umpqua River is the foundation for the other outstandingly remarkable values. The North Umpqua River produces a steady flow sufficient for both recreational uses and the maintenance of fish and aquatic life. The abundance of summer steelhead and spring chinook attest to the high quality of the water. The aesthetic beauty of the clear jade water, a major component of the North Umpqua River's high water quality, adds to the overall scenic quality of the area.

In nearly all respects, the water quality of the North Umpqua River is high. Analysis of the chemical qualities of the water indicates that it is soft (less than 75 mg/l hardness as CaCo3), has low alkalinity, is poorly bufferred, and has low indicators of pollution. Tests conducted in connection with public drinking water sources also showed low indicators of soil surface bacteria and no mammalian contamination. With the exception of lead and flouride, levels of heavy metals, nitrates, and organic hydrocarbons were undetectable.

Summer maximum water temperatures of the North Umpqua River are routinely 10 degrees cooler than many of its tributaries (60-65 degrees F in the river as compared to 70-75 degrees F in tributaries). With the exception of peak flow periods, water turbidity is also quite low.

The very low concentration of suspended sediment (165 mg/1) in the North Umpqua River is attributed to the large holding capacity of the volcanic soils at the headwaters of the river and the undisturbed forest cover along the banks of the river and its tributaries. These characteristics are unique to the North Umpqua River as compared with other rivers in the Umpqua Basin.

The North Umpqua River is one of few Pacific Northwest streams with high summer water yields. Unlike many other western rivers, the North Umpqua maintains a stable flow well above the State established minimum perennial streamflows (600 cfs). The average annual discharge at the gauge station above Copeland Creek is 1,503 cfs and 2,257 cfs at the station located above Rock Creek. The lowest flows occur from August through October, however, they are usually more than adequate to meet State minimum flow requirements.

Cultural

Findings: The Congressional Record did not include cultural resources as an outstandingly remarkable value. However, results of the resource assessment, including information only recently obtained from archaeological excavations along the North Umpqua, indicate that prehistoric cultural resources are an outstandingly remarkable value and that historic cultural resources are a significant value within

the river corridor. The State Parks and Recreation Department finds that cultural resources do not qualify as a special attribute.

Although an intensive, systematic inventory has not been completed within the corridor, 35 prehistoric and 3 historic cultural properties have been recorded. Twelve of the prehistoric sites have been evaluated to determine if they are eligible for inclusion in the National Register of Historic Places. One of these, the Susan Creek Indian Mounds, is listed on the National Register of Historic Places. Ten of the remaining sites have been determined eligible, and one ineligible. The historic Mott Bridge has been determined eligible and is also listed as an an Oregon Historic Civil Engineering Landmark. All cultural properties are protected under existing authorities.

Discussion of Outstandingly Remarkable Value: The North Umpqua River was used by prehistoric peoples for more than 6,000 years. Radiocarbon dating places prehistoric occupation as early as 6,300 years ago, while stratigraphic dating indicates that the occupation pre-dated the eruption of Mt. Mazama 6,800 years ago. This long period of occupation resulted in the formation of a number of sites within the corridor that have unusual characteristics when compared with other sites in the region. Most archaeological sites in the region that have been recorded and investigated are upland lithic scatters essentially devoid of features and radiocarbon datable components. However, numerous sites located on terraces and benches, adjacent to the river contain such features as housepits, burial pits, hearths, and living surfaces, often associated with datable charcoal. These characteristics are generally the result of a more intensive occupation of riverine terraces and benches than is found elsewhere.

The prehistoric archaeological resources of the North Umpqua River taken as a group are extremely important to understanding the prehistory of southwestern Oregon. In the latest synthesis of Oregon prehistory, Mel Aikens of the University of Oregon has pointed out that southwestern Oregon is the area least known archaeologically and that it is Oregon's last archaeological frontier. A recent doctoral dissertation by Brian O'Neill has defined a Late Archaic occupation, the Narrows Phase, that is found along the main stem and North Umpqua rivers and is named for a site just downstream from the corridor. Archaeological sites on the North Umpqua are, thus, critical to understanding and further defining the Narrows Phase and its relationship to the earlier Falls Phase on the South Umpqua River and the Rogue phases of the Rogue River drainage.

The Prehistoric archaeological resources within the corridor provide a rare opportunity to study the effects of cataclysmic environmental change on human populations, a subject that has considerable human interest value. When the final eruption of Mt. Mazama occurred, about 6,800 years ago, a considerable area around the caldera was immediately changed. The upper North Umpqua River landscape was covered with a layer of airborne ash at least as far downstream as Dry Creek. A cloud of superheated gas and ash flowed across Diamond Lake and down the North Umpqua River to the Toketee Falls area, denuding the forest and killing whatever plant and animal life happened to be in the way. Subsequent flood events carried ash and pumice further downstream, blanketing theretofore

untouched terraces. Drainages were choked with ash and their gravel beds became silted over, altering fish spawning grounds. The aboriginal survivors of the event were forced to adapt to this devastation. Archaeological sites on the river terraces between Swiftwater and Medicine Creek preserve the record of these adaptations. Mazama ash serves as a cap over the early occupations, allowing for pre- and post-eruption comparisons. It also serves as a time marker with which to gauge the successes and failures of human endeavors, to gauge the malleability of the human spirit.

Of special historical interest is the Steamboat area within the North Umpqua River corridor. Visitors were initially drawn to the area because of the excellent fish resources. The first known fish camp constructed on the river in the 1920's was located in this vicinity.

Stretching across the North Umpqua River near Steamboat is the historic Mott Bridge, a recognized Oregon Historic Civil Engineering Landmark. Constructed by the Civilian Conservation Corps in 1935-36, the Mott Bridge is one of three such structures built at the time in the Pacific Northwest. It initially provided access to the Gordon Recreation Area, and later to the Steamboat Ranger Station.

The bridge was named for Major Jordan Laurence Mott, a nationally known author and sports enthusiast who frequented the North Umpqua River area for may year. Known as the "Millionaire Reporter," Mott authored a number of books and articles on the outdoors and heavily campaigned for conservation of wildlife and other natural resources. In 1929 the Mott family established a fishing camp at the site of the former Steamboat Ranger Station.

Another historic site of particular interest within the interim river corridor is the Zane Grey fishing camp located near the mouth of Fisher Creek. In an effort to maintain the high quality of fishing and solitude on the North Umpqua, the author was known to have often referred to the Rogue River when describing his outdoor experiences on the North Umpqua River. In 1934, Grey wrote about the North Umpqua River in a campaign attempt to promote a conservation ethic in protecting the fishery resource.

Wildlife

Findings: The Congressional Record did not recognize wildlife as outstandingly remarkable. Results of the resource assessment indicate that although wildlife is significant, it is not an outstandingly remarkable value within the North Umpqua River corridor. The State Parks and Recreation Department finds that wildlife does not qualify as a special attribute.

Wildlife resources within the North Umpqua River interim corridor are typical of faunal species found within other river systems in the southwestern Oregon region. Although the river offers a variety of aquatic and terrestrial habitats, the area does not contain nationally or regionally important or unique habitats or populations of wildlife species. Existing management standards and guidelines fully protect all threatened and endangered wildlife species.

Discussion of Significant (not outstandingly remarkable) Value: Lands within the North Umpqua River interim corridor provide habitat for a number of southwestern Oregon wildlife species. Riparian habitats along the North Umpqua River provide the needed food, water, and shelter to attract a diverse wildlife community. Big game species include blacktail deer *(Odecolius hemionus)*, black bear (*Ursus americanus)*, and Roosevelt elk (*Cervus elaphus*). Upland game and nongame species are also abundant in numbers and varieties. The large, old growth timber found along the river provides excellent habitat for cavity-dependent species and raptors.

The River Corridor contains a relatively large, contiguous block of unfragmented old growth Douglas-fir forest and is prime habitat for the northern spotted owl (*Strix occidentalis*) (Federally listed as a threatened species) and other species of birds, mammals, and amphibians associated with this ecosystem. Several spotted owl nesting territories encompass both sides of the North Umpqua River. Although considered significant, the presence of the northern spotted owl is not unique to the southwestern Oregon region.

The osprey (*Pandion haliaetus*) is another old growth ecosystem associate that occupies the North Umpqua River. The old growth paralleling the river provides large dominant snags and broken-top live trees required for nesting. The clear water of the North Umpqua River allows for visibility and capture of fish during their annual season of occupation. Although considered rare by most fish and wildlife agencies, the osprey was never listed in the Federal Register of Threatened and Endangered Species. There are an estimated 15 occupied nesting territories along the North Umpqua River corridor.

During the fall and winter months, bald eagles (*Haliaeetus leucocephalus*) (listed on the Federal Threatened Species List) have been known to visit the North Umpqua River. Utilizing the river as a staging area or migration corridor in route to other wintering sites, their presence in the area is apparently only transitory in nature. Although the presence of old growth timber and a healthy fish population provide potential nesting habitat, no bald eagle nesting sites are known to exist within the interim river corridor.

A species of most concern found within the River Corridor is the peregrine falcon (*Falco peregrinus*). Although listed as a Federal Endangered Species, designation of wildlife as an outstandingly remarkable value would not be prudent as it may draw attention to the presence of these birds and possibly jeopardize their existence.

Botanical

Findings: The Congressional Record did not recognize botany as outstandingly remarkable. Results of the resource assessment indicate that botany is not an outstandingly remarkable value within the North Umpqua River corridor. The State Parks and Recreation Department finds that botanical resources do not qualify as a special attribute.

Overall, the composition of vegetational species are typical of the western hemlock vegetation zone and do not represent unique populations or habitats within the

southwestern Oregon region. There are no Federal or State listed or candidate threatened, endangered floral species within the North Umpqua River corridor. Although three plant species listed as special status or sensitive occur within the interim North Umpqua Wild and Scenic River corridor, they are confined to relatively concentrated locations and do not represent diverse or unique populations or communities.

Discussion of Significant (not outstandingly remarkable) Value: The vegetation along the North Umpqua River is located in the western hemlock vegetation zone. Associations of western hemlock (*Tsuga heterophylla*) and western redcedar (*Thuja plicata*) form climax communities throughout the zone. Most of the forested habitat along the North Umpqua is in a subclimax condition dominated by Douglas-fir (*Pseudotsuga menziesii*). The old growth stands of Douglas-fir in the river corridor are not considered to be unique to the southwestern Oregon region.

Regardless of seral stage, forest plant associations follow a moisture gradient. Vegetation communities found at the moist end of the moisture gradient are well represented along the river and its many tributaries. These habitats support a rich variety of understory vegetation which is typically dominated by sword fern (*Polystichum munitum*) and Oregon wood-sorrel (*Oxalis oregana*). Understory vegetation on dry sites within the corridor is characterized by ocean spray (*Holodiscus discolor*), salal (*Gaultheria shallon*) and golden chinquapin (*Castanopsis chrysophylla*). Intermediate along the moisture gradient are understory associations of western rhododendron (*Rhododendron macrophyllum*) and dwarf oregongrape (*Berberis nervosa*). As with the moist forest communities, western hemlock, western redcedar and Douglas-fir dominate the overstory in these locales.

A number of noxious weeds have become established in the North Umpqua River area. These include tansy ragwort (*Senecio jacobaea*), scotch broom (*Cytisus scoparius*), Canada thistle (*Cirsium arvense*), and St. John's-wort (*Hypericum perforatum*).

The three special status plant species that have been located within the North Umpqua River Corridor are: clustered lady's-slipper (*Cypripedium fasciculatum*), branching montia (*Montia diffusa*), and California sword fern (*Polystichum californicum*).

Kalmiopsis (*Kalmiopsis leachiana*), a plant species of special interest, is on the Oregon Natural Heritage Data Base review list. This species is a southwest Oregon endemic known only from the Kalmiopsis Wilderness Area, Siskiyou National Forest, and from certain locations along the North Umpqua River, predominantly within the Limpy Rock Research Natural Area which extends into the quarter-mile interim river corridor. Current management direction provides for maximum protection of the Research Natural Area and all threatened and endangered botanical species.

Air Quality

Findings: The Congressional Record did not recognize air quality as outstandingly remarkable. Results of the resource assessment indicate that air quality is not an outstandingly remarkable value within the North Umpqua River corridor. The State

Parks and Recreation Department finds that air quality does not qualify as a special attribute.

The Air Quality Related Values (AQRVs) within the corridor are not unique to the region and do not meet the criteria for outstandingly remarkable value. The interim river corridor does not have special air quality protection designation (Class I) and there are no at-risk AQRVs within the corridor. There are no Class I areas within 20 miles of the river corridor. While long-distance viewing is an important characteristic of the North Umpqua River, in most cases, the topography of the river corridor restricts view-length to less than 3 miles. Because of this limited view-length, slight changes in visibility would probably go unnoticed.

Discussion of Significant (not outstandingly remarkable) Value: The North Umpqua River Corridor has not designated for air quality protection any differently than the surrounding areas of private and public lands and has not been considered for re-designation (Class I) by the State of Oregon. There are no known human made objects or geologic formations at risk due to atmospheric pollutants within the corridor. Damage to sensitive species from photo-chemical smog has not been recorded within the corridor. There are no known at-risk ponds or lakes within the corridor. There are currently no apparent industrial air pollutants within the corridor.

Air pollution sources such as smoke are the most obvious pollutants that affect visibility. Because short-range viewing is the norm in the corridor, small changes in visibility are not noticeable. Due to good air movement through the corridor, smoke problems are usually localized and of short duration.

Vehicle traffic through the corridor produces chemical pollution that may affect vegetation near the highway. Some amount of vehicle emissions from Interstate 5 traffic may also enter the corridor. Emissions are highest during the dry summer months when vehicle traffic is at its peak and there are no rains to wash out the pollutants. There is no recorded evidence of resource damage related to vehicular emissions in the corridor.

APPENDIX B
Site Specific Project Proposals

APPENDIX B Site Specific Project Proposals Alternatives A, B, B1, C, and D.

The following is a list of proposed River Corridor projects. The projects shown are planned for completion within the next 10 years, under the Forest Service's Capital Investment Plan (CIP), or the Bureau of Land Management's Program Year Budget (PYB). When possible, priority will be given to implementing projects that accomplish the objectives of achieving the desired future condition and enhancing the ORV's. These proposals attempt to identify major projects that could resolve current and projected needs. As public expectations and needs change, other projects that have not been identified here, may be implemented using the Desired Future Condition vision as a guide.

The specific project implementation and development would be based on the availability of funding. Federal agencies involved will make every effort to identify opportunities for partnerships that would reduce the actual cost to the government. Table III-3 contains a list of proposed projects and rationale, for development by Alternative. Projects identified with a * in this table have been identified as projects that are not currently needed. Should demand grow with changing needs, then the project would be done. Projects listed below have been put into two catagories. Those shown as A, are existing facilities scheduled to be upgraded. Those shown as B are new proposed developments. For the majority of these projects, additional NEPA analysis will be done to determine the site specific details.

Recreation Projects

B1 **Soda Springs - Rafting Facility**: Developing this area as a whitewater boating put in would reduce some of the overuse and help decrease conflicts in Boulder Flat Campground. This potential site is currently used as a Pacific Power and Light (PP&L) day use picnic area and trailhead. It could serve as an interpretative facility through a partnership with PP&L, as well as a raft launch. Construct a launch access area, accessible toilet and a parking area. There are several safety problems that will need to be overcome.

A1 **Boulder Flat - Rafting and Picnic Facilities**: Recommend converting east portion of this campground (sites 1-4) to day use only area, combined with a raft launching site and picnic area. Construct a paved 15 car parking lot and river access launch area, an accessible double toilet, changing room, and 2 picnic tables. Reconstruct the interpretative river information display, and protect information from weather damage. Consider one additional campsite to bring campground total to 8 sites on west side. Construct another handicapped accessible double toilet inside the campground to replace the badly deteriorated existing structures.

A2 **Umpqua Rocks Geologic - Interpretative Area:** Currently a roadside pull off and photoview point area. This area has been identified for its interpretative potential due to the unique volcanic formations, Eagle Rock, Old Man-Woman Rock. This area can provide the west-bound traveler the first interpretative look at opportunities within the Wild & Scenic North Umpqua corridor.

A3 **Eagle Rock Campground - Toilet Facilities:** Replacement of deteriorating and non-accessible toilet facilities with two accessible double seat vault toilets. Create accessible campsites and tent pads. Revegetate all disturbed areas.

B2 **Marsters Bridge Trailhead - Parking and Toilet:** Pave access road, renovate, pave, and define parking area. Provide North Umpqua Trail users a single vault handicapped toilet on site. Revegetate areas impacted along river, consider removing old highway bridge abutments. Consider a trailhead map and display showing the entire length (79 miles) of the North Umpqua trail with Jessie Wright and Marsters segments highlighted and enlarged.

B3 **Dry Creek Wayside and Toilet Facility:** This project includes a double vault handicapped toilet, picnic tables, and a 500 foot spur trail to the river. This facility will be complementary to a privately owned log cabin store and trailer park across the highway. The public has shown a need for a rest area here. An interpretative display would provide an overview of the recreational opportunities within the Wild & Scenic River corridor. Oregon Department of Transportation (ODOT) will provide paved parking and pull through area.

Horseshoe Bend Area

B4 *Old Growth Grove - Spur Trail*: Develop a spur trail to the 60 acre old growth grove identified in the Land and Resource Management Plan (LRMP) Chapter IV. This grove can be accessed via the North Umpqua Trail (Marsters Segment) 1 mile east of Calf Creek Road. Construct the loop spur trail for approximately 1/4 mile to incorporate an old growth flat featuring several large diameter Douglas-fir.

B4 *Calf Creek Trailhead - Parking and Toilets*: Design a small parking area and renovate an existing dispersed campsite to accommodate overnight users of North Umpqua Trail and to provide an accessible single vault toilet. This area has been identified as a potential site in the LRMP.

B4 Eliminate overnight use at the Calf Creek confluence with the North Umpqua. Past overnight use of the area has created health hazards. Recommend renovation of parking to accommodate one vehicle for day use only.

B4 *Horseshoe Bend Day Use - Rafting Picnic Sites and Toilets*: Objectives for this project are to develop rafter facilities outside of the improved campground that exists .7 mile downstream. Due to the heavy use in the campground by

rafters, the proposed facilities will potentially reduce rafter/camper conflicts. This site would provide a double toilet handicapped accessible unit, three day use sites with tables/fire rings, and parking area. This 1 acre site will need minor excavation, grading, and clearing. These facilities will compliment the existing launch/takeout with low impact trails. An additional day use rafting site could be located across the river from Horseshoe Bend Campsite 26. This site would provide additional day use facilities that are much needed for rafting group lunch stops. Improvements would include a group picnic and a small restroom facility. Construct spur trail from the Calf Creek segment of the North Umpqua Trail to the Flats. This area is listed as a potential developed site in the LRMP.

A4 *Horseshoe Bend Campground*: The Horseshoe Bend Campground modification project will include: (1) providing handicap accessibility to all facilities in two camping loops, (2) construction of an outdoor pavilion, (3) renovating the existing water system, (4) upgrading the electrical systems in the campground.

A4 *Beaver Flat Loop - Access, Trail, Platform*: This project will pave an existing access trail to the river. The trail will be paved 4 feet wide with turnouts and rest spots for a distance of 400 feet. A fishing/viewing platform will be constructed overlooking the river at the end of the trail. A portion of the pavement around the Beaver Flat comfort station will be replaced to correct an excessive side slope problem. Additional work will be done to the interior of Beaver Flat comfort station to make it accessible to the disabled. This will include installing lower electrical receptacles, shelves and mirrors, and padding the under sink plumbing. Additional handicapped tables and grills will be placed in Beaver Flat to increase availability of sites for disabled people.

A4 *Deer Flat Reservation Area - Accessibility*: An existing comfort station would be modified to accommodate physically challenged individuals. Modifications would include installation of new partitions, toilets, mirrors, doorways, receptacles, drinking fountains, etc. To improve accessibility within the reservation loop, access to the comfort station will be paved. Nine campsites will have accessible tables, grills, and pathways leading to the site from the spur. The pavilion will have handicap tables and unrestricted access.

B4 *Deer Flat Reservation Area Pavilion*: A 20' x 30' pavilion featuring a native stone fireplace, electrical outlets, and night lights will meet growing demands for this type of facility. Cooking grills and a brick-lined barbecue pit will also be included. The pavilion will be designed free of barriers for handicap access.

A4 *Water System Improvements*: This proposal will provide the campground with well water and abandon the old surface water source from the river. A submersible pump will be installed in an existing well and will be tied into the current treatment system. Approximately 2,000 feet of water distribution line will be replaced along with 17 hydrants. All new hydrants will be

handicapped accessible. Present hydrants have generated user complaints. These water system improvements are necessary to reduce operating expenses under Department of Environmental Quality (DEQ) legal requirements.

A4 *Electrical System Upgrade*: Approximately 750 feet of substandard powerline will be replaced by underground cable which will meet State electrical codes. This will eliminate lines which hang in and rub on trees. Electrical service will be added to 13 campsites in the Beaver Flat Loop. The new service will include 600 feet of underground line and 30 amp service Recreational Vehicle disconnects.

B4 *Beaver Flat - Full Service Improvements:* Recommend full service development for Beaver Flat Loop. As previously mentioned, these improvements would include electrictly at each site, water hydrants, and a shower facility. The public using this campground have frequently requested these improvements.

B5 **Apple Creek Area - Interpretative Sign, Trail**: Consider an interpretative sign in an area that is best suited for public education of the effects of the Apple Wildfire area along Highway 138. Several turnouts between Apple Creek Campground and Horseshoe Bend ridge would be well suited for this sign. Construct a trail opposite Apple Creek Campground north to the existing old North Umpqua Highway. From there, reconstruct and construct a trail using the existing old highway location as much as possible, west 1.25 miles ending at Jack Creek falls (an 80-foot falls).

A5 *Apple Creek Campground - Paving and Toilets*: Pave existing campground road, spurs and parking area. Install one handicapped accessible double vault toilet in Apple Creek Campground. This will replace three badly deteriorated substandard single vault toilets built in the 1950's.

B5 *Panther Trailhead - Toilet*: Recommend a single vault toilet at Panther trailhead to serve the users of the North Umpqua Trail. Consider an interpretative trailhead map and display showing the entire length (79 miles) of the North Umpqua Trail with Panther segment and Calf segments highlighted and enlarged.

Steamboat Recreation Area

A6 *Island Campground - Accessibility Improvements*: This facility's use has increased beyond the recommended carrying capacity. Recommend developing a well for a hand pump water system. Startup a fee system to help manage use. Consider combining sites and developing group camping facilities and develop a vegetation management plan for campsite screening and river bank stabilization. Create handicapped accessible campsites and pave access to accessible toilets.

A6 *Gravel Bin Rafting Facility - Parking, Toilets*: In a challenge cost share project with the Oregon State Highway Department (ODOT), the State will provide gravel parking for about 23 vehicles, signing, and a paved access ramp to the parking area. The Forest Service will provide an accessible toilet, weather proof interpretative information, landscaping, and planting. This heavily used raft facility serves as the main take out for the Soda Springs to Gravel Bin river segment. It is also a put-in for the Gravel Bin to Bogus Creek-Susan Creek segment.

A6 *Mott Trailhead - Interpretive Display*: Currently, this area is used by fly fisherman, trail users, and sightseers. Recommend creation of an interpretative display using an existing rustic 8-panel information booth.

A6 *Steamboat Reservation Area - Well, Electricity*: Recommend additional development of reservation area to encourage outfitter guide use of this facility and to help alleviate overuse of local campgrounds. Construct spur trail to North Umpqua Trail (100 yards). Drill and develop well and install hand pump to provide users with on site water. Install electricity at pavilion. As use of the area increases, so could improvements.

A6 *Riverview Trail - Improvements*: Encourage a variety of recreation opportunities on this historical 1920's highway. Portions of the Boundary Road (Old North Umpqua Highway) could be closed to vehicle traffic to promote mountain bicycle use. This trail, in association with the Mott segment would be a good mountain bicycle loop.

Few opportunities exist within the Wild & Scenic corridor for motorized trail use. This trail (road system) could be used for motorcycle and all terrain vehicle use. Feasibility should be determined for loop trails. Access to these recreation opportunities would be from Williams Creek and Steamboat Inn and Bogus Creek Campground.

A6 *Canton Creek Campground - Accessible Toilet*: Replace existing flush toilet facility when needed. Meet standards that accommodate the disabled. Create accessible campsites and paths. Consider a trail from Canton Creek to Riverview Trail to discourage walking on an unsafe log truck travel route.

A6 *Highway 138 and FS Road 38 - Rehabilitation*: Encourage ODOT to move gravel hopper, and restore visual quality to a hardened use area. Renovate this area after intersection reconstruction to blend the area from the Riverview Trail to the hopper site into the natural surroundings.

Wright Creek Area

A7 *Bogus Creek Raft Launch Site - Toilet*: Replace existing flush toilet with an accessible toilet facility. Consider replacing the existing bulletin board with a

weatherproof interpretative river information display, emphasizing river etiquette and use.

A7 *Bogus Creek Campground - Accessibility, Improvements*: Replace the existing underground pressure tank and iodine treatment system. Convert existing facilities to disabled accessible (toilets, campsites, etc.).

B6 *Old Growth Grove/Trails* - Construct an old growth grove loop trail spur, off of the Mott Trail (Wright Creek Access). The old growth grove identified in the LRMP will serve mountain bicycle users, hikers, and campers. *Bogus Creek Trail* - Construct a trail from Bogus Creek campground to the Riverview Trail (old boundary road).

B7 *Wright Creek Trailhead - Parking, Equestrian*: This trailhead is intended to serve as the western-most Forest Service access to a 79-mile trail that runs parallel to the Wild & Scenic North Umpqua River. It provides horse, hiker, and mountain bicycle access to 16 miles of trail to the west and 68 miles of trail to the east, 5.5 miles of which are National Recreation Trail (NRT).

This area has been identified for site development in the LRMP. Recommend development of an 8- to 10-car parking lot, traffic delineation, traffic barriers, trailhead signing, trail junction signing, a new accessible vault toilet. An interpretative display board could address horse, bicycle, fishermen, and hiker use as well as recreation opportunities in the Wild & Scenic River corridor. Trail map should show entire length of the North Umpqua Trail and highlight the Fox-Tioga and Mott segments.

Fall Creek Area

A8 *Fall Creek Trailhead*: Pave the existing trailhead parking lot. Install parking bumpers.

B8 *Jobs Garden Extension*: This trail is intended to serve hikers using the Fall Creek National Recreation Trail. The project will provide additional opportunity for hikers by adding a loop that will allow for interpretation of a unique geologic area. It will also access one of the two known prehistoric rock art sites in Douglas County. Construct a 1-mile loop trail terminating at the Fall Creek Trailhead.

North Umpqua Trail

B9 *Eagle Creek Bridge*: Construct a 36-foot bridge over Eagle Creek on the Jessie Wright Segment.

A9 *Mott and Fox Segments - Bridges*: Construction and reconstruction of five bridges on the Mott and Fox sections. The Mott is a National Recreation Trail (NRT) 5.5 miles in length and is accessible by hikers, mountain bicycle,

and horseback throughout the entire year. The Fox segment is 5 miles in length and connects the BLM Tioga section (11 miles) from the Forest boundary to the Mott (NRT). The Fox segment needs three bridges, two are under 20 feet in length. The third is 36 feet glue laminated of standard design. The Mott section needs one new bridge (20 foot) over Fisher Creek and a replacement stringer over John Creek.

B9 *Thunder Creek Falls - Trail Construction;* Develop a short spur trail off of the segment to a 100-foot waterfall on Thunder Creek. The .75-mile spur would provide an excellent side trip to the users of the North Umpqua Trail.

B9 *Cougar Falls Trail - Trail Construction:* Conduct feasibility for and develop a 1-mile spur trail that would provide an additional recreational experience at a falls off the North Umpqua Trail

A9 *Williams Trail*: Upgrade this historic trail to a higher maintenance level to offer a diverse motorized recreational experience in the North Umpqua Corridor. Conduct feasibility for most difficult motorized loop trail.

A10 **Susan Creek Falls Trail:** Reconstruct Susan Creek Falls Trail to barrier-free standards to provide access to all.

A11 **Susan Creek Campground Expansion:** It is proposed that additional campsites
be developed next to the existing Susan Creek campground. It is recommended this be done in lieu of new campground development in the corridor.

A12 **Susan Creek Campground Infrastructure and New Restroom Facility**: The existing infrastructure for the Susan Creek restroom is old and falling apart. Maintenance costs are extremely high. The existing restroom is old and does not meet the needs of today's campers. The proposal is to replace the old infrastructure and septic field and to construct a new restroom facility at the same site, which will not only be larger, but will also have hot and cold running water and showers.

A13 **Group Campsite at the Susan Creek White water Staging Area**: There is a growing demand for group reservation camping sites for groups that have come to float the river. The proposal is to rock the existing access into the site, provide one water hook-up, construct a small parking area to accommodate up to six cars, put in some fire rings and picnic tables, and install barricades along the road and parking area so that vehicles are confined to the rocked road surface.

B10 **Suspension Footbridge to Cross River at Susan Creek**: The Tioga section of the North Umpqua Trail is approximately 15 miles long. Because of the length, very few people actually hike the entire trail, preferring to hike out and back from either one end or the other. If a hiking bridge were constructed

at Susan Creek, a point about midpoint between the two trailheads, it would accomplish three purposes: (1) it would allow more people to hike point to point on this section of trail, (2) it would also allow people using the Susan Creek Campground and Picnic Area to cross the river and hike the North Umpqua Trail as a part of their Susan Creek recreation experience, and 3) it would provide fishing access for the south side of the river.

B11 **Primitive Campsite along the North Umpqua Trail**: A primitive campsite should be developed along the North Umpqua Trail on the south side of the river across from the Susan Creek recreation site. This site would be developed for users of the North Umpqua Trail as well as by rafting groups. Development of this site would be minimal and would involve installation of a backcountry toilet and a cleared area for fires.

B12 **North Umpqua Spur Trails to Scenic Vistas and Points of Interest**: Short spur trails off of the North Umpqua Trail which would access points of interest would enhance the quality of the visitor experience on this trail system. A case in point is the Deadline Falls fish viewing trail which was constructed in 1991. As other opportunities present themselves, they should be pursued.

A14 Cable Crossing Whitewater Take-out: This site needs to be monitored for types and amount of use. If this area begins to receive more use as a whitewater take-out area, access to the site will need to be improved and a vault toilet should be placed at the site.

Swiftwater/Rock Creek

B13 *Equestrian Staging Area for North Umpqua Trail*: The recommendation is to construct a horse corral and unloading ramp so that equestrians wishing to use the North Umpqua Trail will have a convenient access point to the trail. The most likely place for such a facility would be on County land to the south of the Swiftwater parking lot. A parking area large enough to accommodate vehicles and horse trailers would need to be constructed.

A15 *Swiftwater Day Use Area (North Bank Kiosk Site)*: The recommendation is to grade and surface the existing parking area on the north bank of the river at Swiftwater Bridge. The area would be landscaped, a few picnic tables would be put in, and the feasibility of constructing a fishing/viewing ramp for the physically challenged would be explored.

B14 **Waste Water Dump Station**: Currently, the only public waste water dump stations are at Diamond Lake and Roseburg. With the heavy RV camping pressure in the corridor there is a need to develop an additional site somewhere midway between these two points which would serve users of both the Forest Service and BLM public lands. There is adequate room at Susan Creek for such a station. Further investigation of this site and perhaps others on or off

Forest Service land need to be done so that one waste dump site could be placed in the river corridor.

B15 **Interpretive Talk Amphitheater:** Construct an amphitheater with fire ring for living history and nature talks for campground visitors. Locate amphitheater and trail to it in Horseshoe Bend Campground.

B16 **Baker County Park day use area.** Of all the day use areas in the River Corridor, this one is best suited for conversion to an overnight facility. if camping demand increases in the Corridor beyond the current campground capacities, conversion of Baker Park to a camping facility would be preferable to developing any new campgrounds in the Corridor.

A16 **Scenic Quality**: Rehabilitation inventory: Inventory all areas needing rehabilitation, screening and landscape restoration. Also identify riparian vegetation and maintain or improve riparian zones. Prioritize scenic enhancement projects, including right-or-way and riparian management for scenic vistas.

APPENDIX C
Glossary

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Affected environment The biological physical, and social environment that will or may be changed by proposed actions.

Allocation system See *River use allocation system.*

Alternative A comprehensive management strategy; when a federal agency is considering an action, NEPA requires the agency to develop and analyze a range of reasonable alternatives, including a "no action" or "no change" alternative. The alternatives must respond to the issues, and must show a reasonable range of actions.

Anadromous fish Those species of fish that mature in the ocean and migrate into freshwater rivers and streams to spawn; an example is salmon.

Background In visual management terminology, refers to the visible terrain beyond the foreground and middleground where individual trees are not visible, but are blended into the total fabric of the stand. Also a portion of a view beyond 3 to 5 miles from the observer, and as far as the eye can detect objects.

Best Management Practices A practice or combination of practices that is determined by a State (or designated area wide planning agency) after problem assessment, examination of alternative practices, and appropriate public participation, to be the most effective, practicable (including technological, economic, and institutional considerations) means of preventing or reducing the amount of pollution generated by nonpoint sources to a level compatible with water quality goals (Federal Register, Volume 40, No. 230 dated 11/28/75).

Big game Large mammals hunted for sport. On the National Forest these include animals such as deer, elk, antelope and bear.

Big game summer range A range, usually at higher elevation, used by deer and elk during the summer. Summer ranges are usually much more extensive than winter ranges.

Big game winter range A range, usually at lower elevation, used by migratory deer and elk during the winter months; usually more clearly defined and smaller than summer ranges.

Biological diversity Terms used in the Plan to provide goals and direction for evaluating the significance of old growth stands, minimizing fragmentation of existing old growth forests, and maintaining many of the structural components of unmanaged stands in managed stands.

Biological evaluation	A specific process required as part of an environmental assessment that evaluates the potential effect of proposed project on Proposed, Endangered, Threatened, and Sensitive species and their habitats.
Board foot (BF)	The amount of wood equivalent to a piece of wood one foot by one foot by one inch thick.
Characteristic landscape	In reference to the USDA Forest Service visual management system; the overall impression created by a landscape's unique combination of visual features (land, vegetation, water, structures) as seen in terms of form, line, color, and texture; synonymous with "visual landscape character."
Clearcutting	The cutting method that describes the silviculture system in which the old crop is cleared over a considerable area at one time.
Climax	The culminating stage in plant succession for a given site where the vegetation has reached a highly stable condition.
Corridor	Land adjacent to the Wild and Scenic River, managed along with the river to maintain and/or enhance the ORVs of the river. Corridor boundaries are delineated by the geography and the ORVs encompassing not more than 320 acres per river mile.
Created opening	An opening in the forest created by the silvicultural practices of final removal harvest of shelterwood, clearcutting, seed tree cutting, or group selection cutting.
Critical Habitat	That habitat which is essential to the conservation of a threatened or endangered species.
Critical Habitat Area	Any area recommended to be reserved for owl habitat as specified in Section 7 of the Endangered Species Act.
Cultural resource	The remains of sites, structures, or objects used by humans in the past--historic or prehistoric.
Cumulative effects or impacts	Cumulative effect or impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or nonfederal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

Decision notice The written record of the decision made after a federal agency completes an environmental assessment. The decision notice chooses one of the alternatives, or a blend of the alternatives, and may be appealed by the public. The Forest Service combines the decision notice with the FONSI (Finding of No Significant Impact) required by NEPA.

Density The number of encounters that occur between river recreationists. A physical concept relating to the idea of the number of people per unit of space.

Designated corridor Both the wild and scenic corridor and the scenic waterway, including all areas that are part of either designation.

Desired future condition A vision of the desired future state of a specific area. Desired future condition gives managers goals for the area, but recognizes the dynamic state of the ecosystem, instead of listing future numerical outputs as goals.

Developed recreation Recreation that requires facilities that, in turn, result in concentrated use of an area. An example of a developed recreation area is a campground facility that might include roads, parking lots, picnic tables, toilets, drinking water, and buildings.

Dispersed recreation A general term referring to recreation use outside developed recreation sites; this includes activities such as scenic driving, hiking, backpacking, hunting, fishing, snowmobiling, horseback riding, cross-country skiing, and recreation in primitive environments.

Diversity The distribution and abundance of different plant and animal communities and species within the area covered by a land and resource management plan.

Dominant Trees with crowns extending above the general level of the crown cover and receiving full light from above and partly from the side; larger than the average trees in the stand, with crowns well developed but possibly somewhat crowded on the sides.

Ecosystem A complete system of organisms considered together with their environment (for example; a marsh, a forest, or a lake).

Effects Environmental changes resulting from a proposed action. Effects and impacts are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic quality, historic, cultural, economic, social, or healthy effects, whether direct, indirect, or cumulative. Effects may also include those resulting from actions that may have both beneficial and detrimental effects, even if on balance the agency believes that the effects will be beneficial.

Endangered species	Any species of animal or plant that is in danger of extinction throughout all or a significant portion of its range. Plant or animal species identified by the Secretary of the Interior as endangered in accordance with the 1973 Endangered Species Act.
Environmental Assessment	The concise public document required by the regulations for implementing the procedural requirements of the National Environmental Policy Act.
Equestrian	Pertaining to horsemen or representing a person on horseback.
Fecal coliform	A bacteria found in the human colon; a fecal coliform count is used as an indicator of fecal contamination, if any, in water.
FERC	Federal Energy Regulatory Commission.
Fisheries habitats	Streams, lakes, and reservoirs that support fish populations.
Floodplain	The lowland and relatively flat area adjoining inland waters, including, at a minimum, that area subject to a 1% or greater chance of flooding in any given year.
Forage	All browse and nonwoody plants that are available to livestock or game animals and used for grazing or harvested for feeding.
Foreground	A term used in visual management to describe the portions of a view between the observer and up to 1/4 to 1/2 mile distant.
FONSI	Finding of No Significant Impact. Required by NEPA when a federal agency prepares an environmental assessment; documents the reasons why the impacts of the proposed action are not significant and, therefore, the agency is not preparing an environmental impact statement.
Forest Service Handbook (FSH)	For Forest Service use, directives that provide detailed instructions on how to proceed with a specialized phase of a program or activity.
Forest Service Manual (FSM)	A system of manuals which provides direction for Forest Service activities.
Free-Flowing	As applied to any river or section of a river, means existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway. The existence, however, of low dams, diversion works, and other minor structures at the time any river is proposed for inclusion in the National Wild and Scenic Rivers System shall not automatically bar its consideration for such inclusion: Provided, that this shall not be construed to authorize, intend, or encourage future construction of such structures within components of the National Wild and Scenic Rivers System.

Forest system roads	Roads that are part of the Forest development transportation system, which includes all existing and planned roads as well as other special and terminal facilities designated as Forest development transportation facilities.
Habitat	The area where a plant or animal lives and grows under natural conditions. Habitat consists of living and non-living attributes and provides all requirements for food and shelter.
Headwaters	The upper tributaries of a river.
Hiding cover	Vegetation that will hide 90% of an adult deer or elk from the view of a human at a distance of 200 feet or less. The distance at which the animal is essentially hidden is called a "sight distance."
Historic site	Site associated with the history, tradition, or cultural heritage of national, state, or local interest and of enough significance to merit preservation or restoration.
Hydrology	The scientific study of the properties distribution and effects of water in the atmosphere, on the earth's surface, and in soil and rocks.
Interdisciplinary Team (IDT)	A group of individuals with different professional resource backgrounds assembled to solve a problem or perform a task. The team is assembled out of recognition that no one scientific discipline is sufficiently broad to adequately solve the problem.
Intermediate	Trees shorter than those in the dominant and codominant classes but have crowns extending into the crown cover formed by dominant and codominant trees; receiving a little direct sunlight from above but none from the sides; usually with small crowns considerably crowded on the sides.
Intermittent stream	A stream that runs water in most months, but does not run water during the dry season during most years.
Issue	A point, matter, or question of public discussion or interest to be addressed or decided through the planning process.
Landscape management	The art and science of planning and administering the use of Forest lands in such ways that the visual effects maintain or upgrade human psychological welfare. The planning and design of the visual aspects of multiple-use land management.
Large woody material	Material greater than 20 inches in diameter and 33 feet in length.

Limits of acceptable change	A concept for managing change in a natural area, based on the premise that ecological and social change will occur as a result of natural and human factors. With the LAC concept, management's goal is to keep the character and amount of change that results from human factors within acceptable levels that are consistent with objectives for the area.
LRMP	Land and Resource Management Plan - Umpqua National Forest, 1990.
Macroinvertebrate	Large aquatic insects generally water-borne.
Management area	An area with similar management objectives and a common management prescription.
Management indicator species	A species selected because its welfare is presumed to be an indicator of the welfare of other species using the same habitat. A species whose condition can be used to assess the impacts of management actions on a particular area.
Management plan	A plan guiding overall management of an area administered by a federal or state agency; plan usually includes objectives, goals, standards and guidelines, management actions, and monitoring plans.
Mass movement	A general term for any of the variety of processes by which large masses of earth material are moved downslope by gravitational forces--either slowly or quickly.
Mature timber	Trees that have attained full development, particularly height, and are in full seed production.
Middleground	A term used in visual management to describe the portions of a view extending from the foreground zone out to 3 to 5 miles from the observer.
Mitigation	Mitigation includes: avoiding the impact altogether by not taking a certain action or parts of an action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impacts by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and compensating for the impact by replacing or providing substitute resources or environments.
Monitoring and evaluation	The periodic evaluation of Plan management practices on a sample basis to determine how well objectives have been met.

Multiple use	The management of all the various renewable surface resources of the National Forest System so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some lands will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land and with consideration being given to the relative values of the various resources; and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.
National Environmental Policy Act	Commonly known as NEPA; became a law in 1969. NEPA is the basic national charter for protection of the environment. The Act requires all federal agencies to consider and analyze all significant environmental impacts of any action proposed by those agencies, to inform and involve the public in the agency's decision making process, and to consider the environmental impacts in the agency's decision making process.
National Scenic Byway	A showcase of outstanding National Forest scenic, recreational, historical, educational, scientific or cultural values which meet the growing demand of driving for pleasure as a significant recreation use.
ODFW	Oregon Department of Fish and Wildlife.
Old growth	Timber stands with the following characteristics: large mature and over-mature trees in the overstory, large standing dead trees (snags), dead and decaying logs on the ground, and a multi-layered canopy with trees of several age classes.
Optimal Cover	Habitat for deer and elk which has tree overstory and understory, shrub and herbaceous layers; the overstory canopy generally exceeding 70% crown closure and dominant trees generally exceed 21 inches d.b.h.; provides snow intercept, thermal cover, and forage.
ORV	See *Outstandingly remarkable values.*
Outstandingly Remarkable Values	Term used in the National Wild and Scenic Rivers Act of 1968; to qualify as outstandingly remarkable, a resource value must be a unique, rare, or exemplary feature that is significant at a regional or national level.
Overstory	That portion of the trees, in a forest or in a stand of more than one story, forming the upper or uppermost canopy; comprised mainly of dominant and codominant trees.
Partial cut	Covers a variety of silvicultural practices where a portion of the stand is removed and a portion is left.

Partial retention See *Visual quality objective.*

Peak flow The highest flow of water attained during a particular flood for a given stream or river.

Perennial stream A stream that flows year round.

Placer mining The extraction of valuable heavy minerals from a mass of sand, gravel, or other similar alluvial material by concentration in running water.

Prehistoric site An area which contains important evidence and remains of the life and activities of early societies which did not record their history.

Programmed timber harvest Harvest of timber in LRMP management areas which has been scheduled to occur on a sustainable basis.

Public involvement A Forest Service and BLM process designed to broaden the information base upon which agency decisions are made by informing the public about agency activities, plan, and decisions, and encouraging public understanding about and participation in the planning processes which lead to final decision making.

Recreation Opportunity Spectrum A framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings activities, and opportunities for obtaining experiences have been arranged along a continuum of spectrum divided into seven classes: Primitive, Semiprimitive Nonmotorized, Semiprimitive Motorized, Roaded Modified, Roaded Natural, Rural, and Urban.

1. **Primitive** - Area is characterized by an essentially unmodified natural environment of fairly large size. Interaction between users is very low and evidence of other users is minimal. The area is managed to be essentially free from evidence of human-induced restrictions and controls. Motorized use within the area is not permitted.

2. **Semiprimitive Nonmotorized** - Area is characterized by a predominately natural or natural-appearing environment of moderate to large size. Interaction between users is low, but there is often evidence of other users. The area is managed in such a way that minimum on-site controls and restrictions may be present, but would be subtle. Motorized recreation use is not permitted, but local roads used for other resource management activities may be present on a limited basis. Use of such roads is restricted to minimize impacts on recreational experience opportunities.

3. **Semiprimitive Motorized** - Area is characterized by a predominately natural or natural-appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. The area is managed in such a way with minimum on-site controls and restrictions. Use of local primitive or collector roads with predominately natural surfaces and trails suitable for motor bikes is permitted.

4. **Roaded Natural** - Area is characterized by predominately natural-appearing environments with moderate evidence of the sights and sounds of human activity. Such evidence usually harmonizes with the natural environment. Interaction between users may be moderate to high, with evidence of other users prevalent. Resource modification and utilization practices are evident. Conventional motorized use is allowed and incorporated into construction standards and design of facilities.

5. **Roaded Modified** - Area is characterized by substantially modified natural environment. Resource modification and utilization practices are to enhance specific recreation activities and to maintain vegetative cover and soil. Sights and sounds of humans are readily evident. Substantially modified natural environment where roads, landings, slash, and debris may be strongly dominant from within, yet remain subordinate from distant sensitive roads and highways.

Rehabilitation — Action taken to restore, protect, or enhance site productivity, water quality, or other resource values over a period of time.

Resident fish — Fish species that complete their entire life cycle in fresh water; non-anadromous fish; an example is brown trout.

Resource assessment — An evaluation of the resources and values associated with a wild and scenic river and the river corridor; the evaluation determines the level of significance of river-related values.

Resource values — A resource, natural or social, that is found in an area; resource values may have varying levels of significance. Examples of resource values are fish and recreation.

Retention — See *Visual quality objective*.

Riparian — Pertaining to areas of land directly influenced by water or influencing water. Riparian areas usually have visible vegetative or physical characteristics reflecting this water influence. Stream sides, lake borders, or marshes are typical riparian areas.

Riparian buffer — Riparian lands that are managed to protect the aquatic and riparian ecosystem; buffer protects water quality and temperature, habitat along the banks, upland habitat for aquatic and riparian species, and some or all of the floodplain.

Riparian management zone	Site-specific boundaries established by the Forest Service or BLM for management practices within riparian areas.
River use allocation system	A system for controlling boating use that limits the total number of boaters on the river, and rations use among boaters. (Boats include rafts, kayaks, and inflatables.)
River use regulation system	A system for controlling boating use that uses a variety of rules; the rules may or may not include limits on the total number of boaters.
Roaded natural	One category on the recreation opportunity spectrum (ROS). "Roaded natural" describes an environment where natural characteristics remain dominant, but there is moderate evidence of human development, and moderate amounts of contact with other people is expected during recreation.
ROS	See *Recreation Opportunity Spectrum.*
Salvage cuttings	Intermediate cuttings made to remove trees that are dead or in imminent danger of being killed by injurious agents.
Scoping	A first step in the NEPA process and in the river planning process. Through scoping, issues, concerns, and their significance are identified and the range of alternatives developed. Scoping is done within the agency, with the public, and with other agencies.
Scheduled Timber Harvest	Any planned timber harvest which would contribute to the Forest or district cut commitment, and would be a part of the long term timber harvest planning base.
Second growth	Forest growth that has become established following some interference, such as cutting, serious fire, or insect attack, with the previous forest crop.
Sedimentation	A process where material carried in suspension by water flows into streams and rivers, increasing turbidity and eventually settling to the bottom.
Selection cutting	The annual or periodic removal of trees (particularly mature trees), individually or in small groups, from an uneven-aged forest.
Sensitive species	Plant or animal species which are susceptible or vulnerable to activity impacts or habitat alterations. Those species that have appeared in the Federal Register as proposed for classification or are under consideration for official listing as endangered or threatened species, that are on an official State list, or that are recognized by the Regional Forester as needing special management to prevent placement on Federal or State lists.
Snag	A standing dead tree.

Social carrying capacity	The level of use that exceeds acceptable levels by the norm of river recreationists. The level of use that impairs or alters human experience.
Socio-economic	Of, or relating to, social or economic factors, or a combination of both social and economic factors.
Spawning gravel	Sorted, clean gravel patches of a size appropriate for the needs of resident or anadromous fish.
Special attributes	Term used in planning for State Scenic Waterways; to qualify as a special attribute, a resource value must be a unique, rare, or exemplary feature that is significant at a regional or national level.
Special Interest Areas	Areas managed to make recreation opportunities available for the understanding of the earth and its geological, historical, archaeological, and botanical features.
Special Wildlife Habitat	A habitat which is unique and has a special function not provided by plant communities or successional stages; includes riparian zones, wetlands, cliffs, talus, and meadows.
Standards and Guidelines	Principles specifying conditions or levels of environmental quality to be achieved.
State Scenic Waterway	Those rivers or sections of rivers designated as State Scenic Waterways by the State of Oregon, either under the voter initiative that established the program in 1970, or under subsequent ballot measures or legislative acts. Parts of the North Umpqua River were designated as a State Scenic Waterway in the Oregon Rivers Initiative, a statewide ballot measure passed in 1988.
Stream buffer	Vegetation left along a stream channel to protect the channel or water from the effects of logging, road building, or other management activity.
Stream class	Classification of streams based on the present and foreseeable uses made of the water, and the potential effects of on-site changes on downstream uses. Four classes are defined: **Class I** - Perennial or intermittent streams that provide a source of water for domestic use; are used by large numbers of anadromous fish or significant sports fish for spawning, rearing or migration and/or are major tributaries to other Class 1 streams. **Class II** - Perennial or intermittent streams that are used by fish for spawning, rearing or migration and/or may be tributaries to Class I streams or other Class II streams. **Class III** - All other perennial streams not meeting higher class criteria.

	Class IV - All other intermittent streams not meeting higher class criteria.
Stream structure	The arrangement of logs, boulders, and meanders which modify the flow of water, thereby causing the formation of pools and gravel bars in streams. Generally, there is a direct relationship between complexity of structure and fish habitat. Complex structure is also an indication of watershed stability.
Substrata	The material forming the underlying layer of streams. Substrates may be bedrock, gravel, boulders, sand, clay, etc.
Suppression	The process of extinguishing or confining fire.
Terminus	The beginning or ending point; in this case, the beginning or ending point of a legally designated corridor, such as the Wild and Scenic North Umpqua River.
Territory	The area which an animal defends, usually during breeding season, against intruders of its own species.
Thermal cover	Cover used by animals to ameliorate effects of weather.
Threatened and Endangered (T&E) Species	See *Threatened species*; see *Endangered species.*
Threatened species	Those plant or animal species likely to become endangered species throughout all or a significant portion of their range within the foreseeable future. (See also Endangered species.)
Travel corridor	A route followed by animals along a belt or band of suitable cover or habitat.
Turbidity	The degree of opaqueness, or cloudiness, produced in water by suspended particulate matter, either organic or inorganic. Measured by light filtration or transmission and expressed in Nephlometric Turbidity Units (NTU's).
Understory	The trees and other woody species growing under a more or less continuous cover of branches and foliage formed collectively by the upper portion of adjacent trees and other woody growth; comprised mainly of intermediate and suppressed trees.
Viewshed	Portion of the forest that is seen from a major travel route or high use location.
VQO	See *Visual Quality Objective*.
Visual Quality Objective	Categories of acceptable landscape alteration measured in degrees of deviation from the natural-appearing landscape.

Preservation (P) - Ecological changes only.

Retention (R) - Management activities should not be evident to the casual Forest visitor.

Partial Retention (PR) - Management activities remain visually subordinate to the characteristic landscape.

Modification (M) - Management activities may dominate the characteristic landscape but must, at the same time, follow naturally established form, line, color, and texture. It should appear as a natural occurrence when viewed in foreground or middleground.

Maximum Modification (MM) - Human activity may dominate the characteristic landscape, but should appear as a natural occurrence when viewed as background.

Enhancement - A short-term management alternative which is done with the express purpose of increasing positive visual variety where little variety now exists.

Visual resource — The composite of basic terrain, geologic features, water features, vegetative patterns, and land use effects that typify a land unit and influence the visual appeal the unit may have for visitors.

Watershed — The entire land area that contributes water to a drainage system or stream.

Wetlands — Areas that are inundated by surface or ground water often enough to support, and usually do support, primarily plants and animals that require saturated or seasonally saturated soil conditions for growth and reproduction.

White water rapids difficulty rating — Class 1: Moving water with a few riffles and small waves. Few or no obstructions. Class 2: Easy rapids with waves up to 3 feet. Wide clear channels are obvious without scouting. Some maneuvering is required.

Class 3: Rapids with high, irregular waves often capable of swamping an open canoe. Narrow passages may require complex maneuvering. *May need to scout from shore.*

Class 4: Long difficult rapids with constricted passages. Requires precise maneuvering in very turbulant waters. *Scouting from shore is often necessary.* Conditions make rescue difficult. Generally not possible for canoes. Boaters in covered canoes and kayaks should be able to Eskimo roll.

Class 5: Extremely difficult, long, and very violent rapids with highly congested routes that should be scouted from shore. Rescue conditions are difficult. Life may be endangered in the event of a mishap. Ability to Eskimo roll is essential.

Class 6: Difficulties of Class 5 carried to the extreme of navigability. Very dangerous. For experts only.

Wild and Scenic River

Those rivers or sections of rivers designated as such by Congressional action under the 1968 Wild and Scenic Rivers Act, as supplemented and amended, or those sections of rivers designated as wild, scenic, or recreational by an act of the legislature of the state or states through which they flow. Wild and scenic rivers may be classified and administered under one or more of the following categories:

1. **Wild River Areas** - Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted.

2. **Scenic River Areas** - Those rivers or sections of rivers that are free of impoundments, with watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

3. **Recreational River Areas** - Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

Winter range

An area used by deer and elk during the winter months; usually at lower elevation and/or on south and west exposures.

Woody material

Organic materials necessary for stream channel stability and maintenance of watershed condition. It includes large logs and root wads.

APPENDIX D
List of Preparers

APPENDIX D List of Preparers

Interdisciplinary Team Members

MARY BRENNAN, Visual Information Assistant
Education: American River College, Sacramento, CA, 1967-1969; San Francisco Art Institute, San Francisco, CA, 1970; Humboldt State College, Arcata, CA, 1971.

Experience: 4 years various positions in recreation, Deschutes National Forest; 5 years as Visual Information Assistant, Umpqua National Forest.

JEFF DOSE, Fisheries Biologist
Education: BS (Fisheries Science), Oregon State University, Corvallis, 1972; MS (Fisheries Science), Oregon State University, Corvallis, 1978.

Experience: Biological technician for the Oregon Department of Fish and Wildlife, Fisheries research Division, 1977 to 1979; fisheries biologist for the Bureau of Land Management, Lewistown District, Phillips Resource Area, Malta, MT, 1979 to 1980; fisheries biologist, Bureau of Land Management, Medford District, Glendale Resource Area, Medford, from 1980 through 1988; joined the Umpqua National Forest as the Forest fisheries biologist in 1988 to present.

DAVE ERICKSON, Recreation Planner
Education: B.S. Albion College, 1966, M.S. (Radiation Biology) University of Pittsburg, 1967, M.S. in Forestry, Colorado State University, 1972.

Experience: Worked for the Bureau of Land Management for 19 years in Colorado and Oregon; all aspects of forest management for 18 years, Outdoor Recreational Planner, one year.

SANDRA FORNEY, Team Leader, Spring 1989 - Spring 1991
Education: BA and MA in Anthropology/Archaeology.

Experience: Archaeologist with National Park Service, Forest Archaeologist/ Interpretive Specialist, Assistant Recreation Staff Officer, Regional Archaeologist.

MIKEAL JONES, Hydrologist
Education: BS (Forestry), University of Arizona, Tucson, 1969; MS (Hydrology), University of Arizona, Tucson, 1974.

Experience: Hydrologist for 3 years in Santiago, Chile; hydrologist for the Shawnee National Forest from 1974 to 1979; joined the Umpqua National Forest in the fall of 1979 as the Forest hydrologist.

GARY MINISZEWSKI, State Scenic Waterway Planner
Education: BA, Geography; MS work at Portland State University.

Experience: Seventeen years experience in land use planning, both urban and natural resource planning. Served as the Oregon State Parks and Recreation consultant to the team.

RONALD J. MURPHY, Recreation/River Planner
Education: BS, Integrated Resource Management, University of Wisconsin, Stevens Point, 1972; MS work (Environmental Interpretation), University of Wisconsin, Stevens Point.

Experience: Worked for city, county, and state parks for 10 years in Wisconsin. Started with the Forest Service in 1975 on the Winema National Forest. Joined the Umpqua National Forest in the spring of 1980 as Recreation Technician. Currently manages the recreation facilities on the North Umpqua River.

JAMES M. STONE, Team Leader, Spring 1991 - Present
Education: BS (Resource Planning), Humboldt State University, Arcata, CA, 1976.

Experience: Sixteen years with the Forest Service. Various jobs have included recreation management/interpretation, Job Corps Counselor, Forest Planning Data Base Manager, Forest Planning ID Team Leader, and Assistant Recreation Staff Officer.

CHUCK TELFORD, Landscape Architect
Education: B.A., Landscape Architecture, University of California, Berkeley.

Experience: Has 23 years experience in outdoor recreation planning, management, and recreation facility design. He served on the Plumas National Forest in California for 11 years and has been involved in recreation planning and visual resource management on the Roseburg District of the Bureau of Land Management for the past 12 years. Currently works as Landscape Architect for the Oregon and Washington offices of the BLM. Member of ID Team from spring 1989 to spring 1991.

APPENDIX E
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APPENDIX E References

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APPENDIX F
Consultation and Assistance from Others

APPENDIX F Consultation and Assistance from Others

The river planning team consulted and/or received assistance from a number of individuals. The team also received considerable input and assistance from other agencies, groups, and numerous individuals. The following agencies, groups, and individuals provided valuable input and assistance to the development of the Environmental Assessment and the River Management Plan for the North Umpqua River.

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List of Those Who Provided Input

This section is a list of names of agencies, organizations, and individuals who provided input to the North Umpqua River Management Plan.

Douglas County
Douglas County Planning Department
Douglas County Parks
Board of County Commissioners of Douglas County
North Umpqua Planning Advisory Commission

State of Oregon
Department of Transportation
Parks and Recreation Department
Department of Fish and Wildlife
Marine Board
Division of State Lands

Division of Forestry
Department of Water Resources

Organizations
Association of O&C Counties
Association of Guides and Packers
Douglas Timber Operators
Friends of the Umpqua
Good Sam Club
Northwest Rafters Association
Oregon Trout
Oregon Rivers Council
Roseburg Rotary Club
Steamboaters
Umpqua Fishermen

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