

Water and Soils

Fiscal Year 2000 Summary



Water

The East Fork Coquille Water Quality Restoration Plan has been completed and forwarded to Department of Environmental Quality (DEQ), and the Big Creek (Middle Fork Coquille) and Upper Smith River (Umpqua, shared with Roseburg BLM) are nearly complete. This represents 4 of 32 stream segments (13%) that were listed by DEQ for temperature exceedances during the summer in District watersheds (See Table 7).

In the South Coast Basin, continuous summer period stream water temperatures were measured at 10 sites and “all in one day” low flows at 9 sites to determine general baseline conditions for the 303(d) Big Creek Water Quality Restoration Plan development. Similarly, water temperatures and low flows were measured for the “in progress” 303(d) Water Quality Restoration Plans including North Fork Coquille (10 temperature and 10 low flow sites), South Fork Coquille (6 temperature and 6 low flow sites) and the North Fork Chetco (9 temperature and 9 low flow sites). Total water monitoring activity associated with 303(d) plan development in the South Coast Basin on the District included 35 temperature sites and 34 low flow sites for a total of 69 sites.

In the Umpqua Basin, continuous summer period stream water temperatures were measured at 12 sites and “all in one day” low flows at 12 sites to determine general baseline conditions for the 303(d) West Fork Smith River Water Quality Restoration Plan development.

Streamflow and temperature were measured at eight small forested gaging stations for long-term trends. These stations are distributed throughout the Oregon Coast and Siskiyou Mountains physiographic provinces. They have been operated under a cooperative agreement with Douglas and Coos Counties and the Oregon Water Resources Department.

Table 7. Coos Bay District Water Quality Management Plans Status

Basin <i>Umpqua</i> Sub <i>Umpqua</i>			
Name & Description	Parameter	Criteria/Season	Field Office/Status
Buck Creek Mouth to West Fork	Temperature	Rearing 64 F / Summer	Umpqua/ Addition ¹
Herb Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition
Paradise Creek Mouth to East/ West Forks	Temperature	Rearing 64 F / Summer	Umpqua
Russel Creek (Smith River) Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition
Smith River, West Fork Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition
Soup Creek Mouth to North Fork	Temperature	Rearing 64 F / Summer	Umpqua/ Addition
South Sisters Creek (Smith River) Mouth to headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition/ Near Completion
Basin <i>South Coast</i> Sub <i>Chetco</i>			
Name & Description	Parameter	Criteria/Season	Field Office/Status
Alder Creek Mouth to headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition
Belieu Creek Mouth to headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood/ Addition
Big Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood/ Near Completion
Bravo Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood/ In Progress
Burnt Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition
Cedar Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition
Cherry Creek Mouth to Little Cherry	Temperature	Rearing 64 F / Summer	Umpqua/ In Progress

Chetco River, North Fork Mouth to Bravo Creek	Temperature	Rearing 64 F / Summer	Myrtlewood/ In Progress
Coquille River, East Fork Mouth to Lost Creek	Temperature	Rearing 64 F / Summer	Myrtlewood/ Completed
Table 7. Coos Bay District Water Quality Management Plans Status (continued)			
Basin <i>South Coast</i> Sub <i>Chetco</i>			
Name & Description	Parameter	Criteria/Season	Field Office/Status
Coquille River, North Fork Mouth to Middle Creek	Temperature	Rearing 64 F / Summer	Umpqua/ In Progress
Coquille River, North Fork Middle Creek to Little North	Temperature	Rearing 64 F / Summer	Umpqua/ In Progress
Dement Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood/ In Progress
Elk Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood/ Addition Completed
Hunter Creek Mouth to RM 16.5	Temperature	Rearing 64 F / Summer	Myrtlewood
Lower Rock Creek Mouth to headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood
Middle Creek Mouth to headwaters	Temperature	Rearing 64 F / Summer	Umpqua/Addition In Progress
New River Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood
Pistol River Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood
Rock Creek (Middle Fork near Remote) Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood
Rowland Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood/ In Progress
Salmon Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood/ In Progress
Sandy Creek Mouth to ~ RM 5	Temperature	Rearing 64 F / Summer	Myrtlewood

Sixes River Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Myrtlewood
Tioga Creek Mouth to Headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition
Woodward Creek Mouth to headwaters	Temperature	Rearing 64 F / Summer	Umpqua/ Addition

¹ New segments identified on DEQ's final 1996-1998 303(d) listing.

Automated precipitation equipment was maintained at two long-term recording sites.

Hydrology specialists completed detailed surveying and assessment at five existing and discontinued water gauging stations in support of the regional curves project. The purpose was to create products that indicate hydrologic and geomorphological relationships for ungauged watersheds that will be useful in watershed restoration and evaluating flood risk.

Soils, hydrology and fisheries specialists collected turbidity data in accordance with DEQ turbidity standards. Such compliance monitoring included above and below measurements during construction at stream culvert installations or replacements, removal of culverts during road decommissioning and bank stabilization projects.

The Hydrologists and Soil Scientists were actively involved with field review, unit design and stream buffer width determinations for commercial thinning and regeneration harvest units proposed in both matrix and Late-Successional Reserve (LSR) land allocations across the District.

So far, 17,317 miles of streams have been reviewed and densified where necessary in the hydrography Geographic Information System (GIS) theme update (streams and hydrology/fisheries attributes). This difficult project is about 60 percent complete.

A Student Career Employment Program (SCEP) hydrologist is being trained under the direction of the senior hydrologist.

Watershed restoration training enabled BLM specialists to evaluate streams more proficiently and identify reference sites and conditions, as well as aid in design of projects.

Soils

The District decommissioned 20.5 miles of roads, either through rock berm closures, gates, or by fully decommissioning the road surface. Work was located across all three counties within the District.

Road surfaces have been improved on 0.62 miles for drainage to reduce sediment delivery in the North Fork Chetco Key Watershed. This was done in conjunction with road decommissioning

work.

A new type of erosion control method (Sedimats and dry mulch) was applied to disturbed areas and in streambeds to capture sediment during project implementation.

An assessment of the winged sub-soiler attachment was conducted on JITW projects to determine the effectiveness of implement and operator use.

Soil Scientists monitored the impact of low ground pressure equipment within a commercial thinning sale for compaction and disturbance levels. Limitations based on soil moisture were added to the contract to prevent late spring and early fall harvesting that could increase levels of compaction above RMP guidelines.

Soil Scientist, Silviculturists, Wildlife Biologists and Fuel Specialist worked together as an IDT to facilitate machine piling of slash in lieu of broadcast burning to accomplish site preparation needs.

Waste and borrow areas were designated on numerous projects and road maintenance sites for stable placement of end hauled materials. Waste areas associated with timber sale or private party crossings were conducted through on-site visits, aerial photo interpretation and slope stability modeling.

Soil Scientists and Hydrologists attended several conferences and workshops to increase skills and knowledge levels for erosion control, large wood function in streams and ecosystem restoration.

Projects were monitored during and after implementation to ensure project construction in compliance with planned designs, as well as to evaluate new techniques and procedures.

Summary Information for Fiscal Year 1996-1999

Water temperature was measured at 47 sites in 1999, and approximately 94 sites in the 1996-1998 period in support of assessment for watershed analysis, riparian plan monitoring or 303(d) Water Quality Restoration Plan Development. Low flows were measured at 19 sites and relative humidity at 4 sites in 1999 in support of Water Quality Restoration Plan development. Continuous streamflow and temperature were measured at eight small forested gaging stations in 1999 and seven in the 1996-1998 period. All gaging stations consist of small house structures, which were totally rebuilt and instrumented with updated equipment in FY 98. Automated precipitation equipment was maintained at two long-term recording sites from 1996-1999. Four additional project or special assessment precipitation sites for watershed analysis and slide hazard studies were developed and maintained during FY 88. Two monitoring studies were completed evaluating the effects on water quality from aerial fertilization of timber stands during 1996-1997.

The District completed updating the streams lakes and ponds GIS layer in 15 fifth field watersheds for a total of 7,993 miles in 1999 and 4,010 stream miles in 1998.

Several sites were monitored to determine the levels of compaction from past and current

activities in forest stands. Several active slides were monitored for movement. Compliance monitoring for turbidity was completed at a number of culvert replacement and instream restoration projects. Other project monitoring was completed in accordance with the RMP Appendix L Monitoring Plan including evaluation of timber sales and other project activities.

Municipal Watersheds

The District has lands within two municipal watersheds. The city of Myrtle Point has a community water system within the North Fork Coquille watershed (83,865 BLM acres) and serves approximately 1,100 residences. The city of Coquille at times uses the Coquille watershed as a reserve source (157,931 BLM acres) and serves approximately 1,800 residences. These sources are filtered and pumped from river alluvium. No reports of contamination or water quality violations from BLM lands have been received.

Updated Stream Information

The District completed updating a portion of the streams, lakes, and ponds GIS themes as shown in Table 8. The streams, lakes, and ponds linework has been reviewed and edited in 17 fifth field watersheds. Streams have been added on private lands in the watershed from USGS cartography files and imagery based methods, except where noted. Selected fish attributes have been recorded with the coverages, except where noted.

A review of the Middle Fork and East Fork Coquille 5th field watersheds as a sample reveals that the average increase in stream densification during hydrography updates is averaging between 12-20 percent. The GIS streams theme update for the District is about 60 percent complete.

State-listed Clean Water Act 303d Streams

The District lands encompass portions of 32 state-listed 303(d) segments, identified by the DEQ, requiring the development of water quality assessments and water quality management plans. Stream segment name, parameter, criteria, season, responsible Field Office and current plan development status is shown in Table 7.

RMP Modified Site Treatments

Minimize Intensive Burning - Due to a mandated moratorium on burning west of Longitude 120 degrees by the Secretary of Interior this spring, an emphasis was placed on pile burning this year. Within the Myrtlewood Resource Area, of the 107 total acres of site preparation, 81 acres were piled either by hand or machine prior to burning. Piling using a clam shell bucket or a thumb and bucket was used on many acres in the Sandy Creek drainage but not burned until FY 2001. Evaluation of this technique by the Soil Scientist and Silvicultural staff determined that excessive compaction and surface disturbance occurred. Most of the available organic matter was pushed off the top of the soil surface and the majority of woody materials were placed in the piles and burned. Walking the machinery across the slash to minimize compaction did not occur as planned.

As a result, the RMP level of compaction was exceeded on these machine piled units. One large 68 acre unit in the Rock Creek drainage was successfully piled by an operator walking on the slash and piling the larger diameter materials. After the piles were burned in November of 2000 (FY 2001) the soil was inspected and determined to have been burned at a moderate to hot

intensity by the Soil Scientist.

Minimize soil disturbance and erosion - The Soil group coached, trained, and inspected the work accomplished under this year's JITW Road Decommissioning and Improvement project. A sub-soiling implement was used for the fully decommissioned roads and landing areas. The evaluation of this method determined that the depth and lateral fracture of the compacted volume was greater than 80 percent of the treated area. The soil surface was left in a roughened condition that required a more diligent effort to mulch using a mechanical blower/ seeder mulching operation. A blanket of straw mulch 3/4 of an inch over the disturbed areas is recommended.

RMP Best Management Practices

Best Management Practices (also sometimes called design features) are conservation measures that are either preventive, or modify the project in some way to achieve soil protection and meet water quality goals. They are normally developed through the NEPA process, and incorporated in project designs.

Several new types of erosion control methods were tested on projects this year. The first was an instream biodegradable turbidity filter. Water was routed around culvert removals, along roads that were being decommissioned, to reduce plugging and risk of failure. Then an erosion control blanket was laid in the bottom of the stream channel to capture fine sediment when flowing water was returned to the excavated channel grade. (See left photograph below.) This method proved to be effective to remove fine sediment from the water column at periods of normal low flow. This reduced turbidities in both in quantity and duration.

The use of a blown dry straw mulch in place of hydromulch was undertaken this year for the majority of erosion control applications. (See right photograph below.) An overall improvement in surface protection prior to growth of applied grass seed was noted. In some instances seed was applied too late for germination to occur, and the straw mulch was able to provide the required protection.



Table 8. Streams GIS Theme Update Progress		
Watershed (Fifth Field)	Miles Reviewed/ Updated	Needs:
Siltcoos_Frontal (1710020701)	746	State Office okay for ARIMS ¹
Name not assigned (1710030302)	1,361	Checked for ARIMS READY
Middle_Umpqua_Frontal (1710030304)	610	ARIMS READY
Loon_Lake_Camp_Creek (1710030305)	764	ARIMS READY
Upper_Smith_River (1710030306)	1,140	Checked for ARIMS READY
Lower_Smith_River (1710030307)	1,558	State Office okay for ARIMS
Lower_Umpqua_Frontal (1710030308)	721	Checked for ARIMS READY
South_Fork_Coos (1710030401)	1,806	ARIMS READY
Millicoma_River (1710030402)	745	ARIMS READY
Lakeside_Frontal (1710030403)	532	State Office okay for ARIMS
Coos_Bay (1710030404)	1,150	Checked for ARIMS
North_Fork_Coquille (1710030505)	1,063	ARIMS READY
Middle_Main_Coquille (1710030506)	700	ARIMS READY
South_Fork_Coquille (1710030502)	500	Private lands densification, fish info and checked for ARIMS READY
Middle_Fork_Coquille (1710030503)	2,345	Fish info, checked for ARIMS READY
East Fork Coquille (1710030504)	1,140	Fish info, checked for ARIMS READY
Lower_Coquille (1710030507)	436	State Office okay for ARIMS

¹ ARIMS is the BLM's Aquatic Resources Information Management System. It is a stand alone attribute database that links to the GIS streams, lakes and hyd points themes.