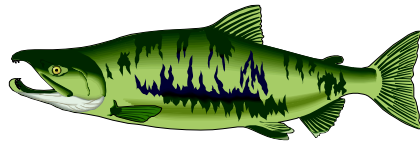


ELK RIVER WATERSHED

ACTION PLAN



Prepared for

The Elk River Watershed Council

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ABSTRACT

The *Elk River Watershed Action Plan* was prepared for the Elk River Watershed Council whose members are dedicated to sustaining the health of their watershed. This document utilizes detailed information about the Elk River watershed from the *Elk River Watershed Assessment* which followed guidelines described in the *Governor's Watershed Enhancement Board's 1999 Draft Oregon Watershed Assessment Manual*. Funding was provided by the Oregon Watershed Enhancement Board, Oregon Department of Environmental Quality, United States Bureau of Land Management, Oregon Department of Agriculture, Curry County Soil and Water Conservation District and Oregon State University Extension Service.

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The completion of the Elk River Watershed Action Plan was accomplished through the combined effort of private citizens, watershed council members, contracted technical specialists, and local state and federal government agencies. The South Coast Watershed Council would like to thank the following people who generously provided time and energy to improve the quality of this Action Plan. Additional people helped whose names are not included below. We also acknowledge them.

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ELK RIVER WATERSHED ASSESSMENT SUMMARY

The following is an abbreviated summary of a much larger, in-depth watershed assessment available from the South Coast Watershed Office.

INTRODUCTION

The Elk River, located primarily in Curry County, drains approximately 92 square miles or 58,678 acres. A small portion of the North Fork extends into Coos County. The Elk is slightly less than 40 miles in length and is among the larger coastal watersheds in southern Oregon (ODFW 1995). Flowing in a westerly direction the Elk empties into the Pacific Ocean just north of the town of Port Orford. Elevations in the watershed range from sea level to approximately 4,080 feet on Iron Mountain. Major tributaries include the North Fork, South Fork, Blackberry Creek, Panther Creek, Butler Creek, and Bald Mountain Creek. The upper portion of the watershed is characterized by steeply sloped forested areas with narrow valleys and tributary streams that have moderately steep to very steep gradient. Grazing, rural residential development and other agricultural uses are the dominant land uses in the lower portion of the watershed. About one-fifth of the Elk River watershed is situated in a designated wilderness area.

History

Most Curry County watersheds have received varying impacts from Euro-American populations during the past 150 years (1850 – 2000). The general landscape pattern for Curry streams and rivers is: timber in the uplands (on public & private industrial timberlands) flowing down onto broader floodplains in the lowlands, where agriculture and some rural residential use predominates. Historically, there are reports of large "drifts" or accumulations of large wood in Elk River. These full-spanning log jams, up to ¼ mile long, would exist for years, and would reconfigure themselves as they moved downstream after winter high water storms.

Elk River residents have battled an invasive shrub, gorse, for most of the 20th century, after it was introduced on the Oregon coast in the late 1800's. Settlement of the Elk River area was triggered by the discovery of gold on the beach near Port Orford in 1853. Mining for gold has been a recreational pursuit for many people in the watershed through the last century and half. The period of extensive logging in the Elk and Sixes area was the 1950's and 60's, when hundreds of millions of board feet were harvested in the drainage. At one time there were 14 active saw mills in the Port Orford / Elk River area. A few pioneer families settled in the lowlands and many of these Elk River ranches have remained in the family for several generations. Reports of chum and silver (coho) salmon in the lower Elk River were common in earlier years.

Watershed Issues

The Elk River Watershed Council identified noxious weed invasion and channel modification as their primary concerns for the watershed, related to land uses.

Ecoregions

Coastal Lowlands make up 11 percent of the watershed. Gradients are fairly low, fog and strong winds are common, and rainfall averages 60-85" per year. Strong beaver populations, especially beaver dams, are expected in Coastal Lowland streams.

Southern Oregon Coastal Mountains make up 90 percent of the watershed, with steep to very steep gradients, high rates of erosion, and high stream densities. Rainfall averages 79-140" per year. High winds, landslides and fires are expected natural disturbances.

Channel Habitat Types

Thirty-five miles of stream were classified for channel habitat types, with nearly half rated as highly responsive. Twenty-six percent of the stream length was identified as low gradient/moderate confinement, three percent as moderate gradient/moderate confinement, and fifteen percent floodplain channel. Floodplain channels are very responsive to disturbance and often migrate laterally.

Fish and Fish Habitat Assessment

No stream habitat survey data is available for private lands in the Elk River watershed. Twelve barriers to fish migration are identified in the watershed, and all are located in the Lower Mainstem and Coastal Area. Five culverts are identified as adult barriers, six as juvenile barriers, and one as an uncertain juvenile barrier.

Chinook, coho and steelhead are distributed throughout the mainstem and in the lower ends of all major tributaries, except the South Fork. Steelhead have broader distribution in the North Fork, Panther, Bald Mountain and Butler creeks. Cutthroat distribution is watershed wide.

A fish hatchery is located near the border of the Middle Elk mainstem and has a considerable impact on fish populations in the watershed. Policies are in place to minimize wild and hatchery stock interactions.

Water Quality Assessment

Elk River water quality is moderately impaired for fecal coliform bacteria, as measured at the Highway 101 bridge. Elk River, Butler Creek and Bald Mountain Creek are 303(d) listed for temperature, with Elk and Bald Mountain under investigation for habitat modification.

Indian, Henry, Chapman and Camp Creeks have maximum temperatures below the 64 degree standard. All tributaries in the Lower Elk watershed has low flows compared to the mainstem. Bagley Creek, Cedar Creek, and Swamp Creek all exceed the 64 degree standard. Mainstem temperatures are in the mid 60's to low 70's (7-day maximum).

Wetland Characterization and Functional Assessment

An estimated 435 acres of wetlands were assessed in the Elk River watershed. This acreage was within 27 wetlands. Two-thirds of the identified wetlands have a high degree of alteration, and most are in the Coastal Area (87%) and Lower Mainstem (13%). Agricultural lands and rural residential areas typically buffer wetlands. Eighty percent of the surveyed wetlands are connected to another waterbody. The wetland survey was conducted using aerial photographs and field checks are recommended.

Hydrologic Condition Assessment

This assessment is based on runoff estimates for various landuses and soil cover conditions. Peak flow enhancement is an increase in the strongest, and potentially most destructive, part of the flood curve.

The North and South Forks have more than thirty-five percent of their area in transient snow zones. This may indicated a higher risk of peak flow enhancement (increased stream power) due to timber harvest. The North and South Forks are also rated as moderate risk for peak flow enhancement due to forest roads. All other subwatersheds are rated low risk for forest roads. The hydrologic assessment for agriculture/range use applied only to Elk Coastal and the Lower Mainstem and ranked low to moderate. Risk of peak flow enhancement due to rural roads also ranked low in these two subwatersheds.

All of the roads rankings need to be re-assessed to incorporate revised road data. Road drainage and ditched/draind wetlands (flow alteration) is not addressed in this assessment.

Water Use

In the Elk River, approximately eleven percent of out-of-stream rights are junior to the 1964 in-stream right. Water is over-allocated in all subwatersheds from May to October, with higher over-allocation in Elk River above Butler Creek, and on Blackberry Creek. Consumptive use is very low for the entire Elk watershed and only the lower mainstem in July has potential for returning water to the stream through conservation efforts.

Sediment

The assessment of sediment process in the Elk River focuses on the density of roads built on slopes greater that 50 percent, and the density of stream/road crossings. These rankings are relative to all South Coast subwatersheds. Lower density rankings are assumed to have less potential for contributing sediment than high rankings. Elk Coastal subwatershed is ranked low density for roads on steep slopes and low density for stream crossings. The Lower Elk Mainstem is ranked moderate density for both categories.

WATERSHED SYNTHESIS

The Elk River watershed is contained in the Southern Oregon Coastal Mountains. Natural erosion rates are high in the upper watershed and quite low in the lower watershed. A large percentage of the watershed is within National Forest management, and includes the southern portion of the Grassy Knob Wilderness Area. Gold was discovered in the Elk watershed in the 1850's, which combined with active logging caused considerable impact to the river. Up to 15 mills were active at one time for the timber industry, and placer and hydraulic mining were common in the upper watershed. European Beach grass was introduced in the 1930's. Agricultural development in the lower watershed resulted in removal of large log "drifts", loss of wetlands and reduction of riparian vegetation.

The US Forest Service has completed a thorough watershed analysis of the Elk River watershed within its management. Many surveys completed for this assessment, but stopped at the National Forest boundary, are available in that analysis.

Sediment concerns include high sediment yield in Bald Mountain Creek as well as numerous steep roads in unstable soils in Purple Mountain Creek (Middle Mainstem). Both of these areas have diorite soils, though they are less exposed in the Bald Mountain sub-watershed. Elk River has very steep slopes in portions of the watershed, some of the steepest in Curry County. In the Lower Elk Mainstem, densities of road crossings are ranked as moderate to high, and densities of roads on steep slopes are moderate.

The Elk River has a very high percentage of highly responsive/sensitive channel types including estuary, active floodplain, low gradient moderately confined and moderate gradient moderately confined channels. More than five miles are within the low gradient confined type, mostly in the Lower Elk Mainstem.

For hydrology issues, the risk of peak flow enhancement (increased stream power) due to agricultural use is rated as moderate to low for both the Lower Elk Mainstem and Elk Coastal Area. North Fork and South Fork Elk have moderate to moderate-high risks of peak flow enhancement due to forest roads, and an unknown risk due to timber harvest and rain on snow interactions. All other watersheds are low risk relative to timber harvest and forest roads. Risk of peak flow enhancement is low for rural roads throughout the watershed.

Fish use is considerable in the Elk River watershed, with steelhead, coho and chinook using a large amount of the watershed. Coho do spawn in the mainstem Elk, but have little over-wintering habitat available to them. Coho numbers were historically more than 20 times what they are now, and chum salmon were reported historically. The Elk River Fish Hatchery has operated since 1969, has an unknown impact on the water quantity, water quality and fish ecology of the watershed.

Riparian vegetation in the lower watershed is heavily impacted with gorse and Himalayan blackberry. Two-thirds of the lower mainstem is in pioneer and brush communities with little to offer for stream shade and large wood.

Water use issues in the watershed are minor, and the in-stream water right - though younger than most - is usually met. The largest user of water in the watershed is the Elk River Fish Hatchery.

Water quality is limited for temperature and habitat modifications in the mainstem as well as Bald Mountain Creek. Butler Creek is listed for temperature. Water quality is the best of any stream in Curry County. Temperatures in the mainstem are warm to very warm and tributaries are generally cool. Water in the Lower Elk Mainstem warms 3-4 degrees between the National Forest Boundary and Bagley Creek.

Wetlands are all located in the Lower Elk Mainstem and Coastal Area, with 434 acres in 27 different ID's. More than two thirds have high levels of alteration, though 65 acres near the dunes may have some potential for restoration.

Elk River has considerable recreational use both by campers, fisherman, and miners. Commercial and recreational mining have an unknown effect on water quality, relative to heavy metal contamination. Bagley Creek is reported as possible coho habitat with restoration potential.

Limiting factors to fish production and water quality in the Elk River appear to be weak riparian cover (especially in the lower sections), sediment sources (present and potential), high water temperatures, and noxious weed invasions impacting riparian plants.

SUBWATERSHED SUMMARIES

Elk Coastal Area

The Elk Coastal Area is contained within the Coastal Lowlands ecoregion and is used primarily as agricultural lands (76%), with some forestry (23%). During recent history (150 years) the lower Elk channel has been straightened, vegetation has been altered both by removal and introduced species, and the channel is now confined to one portion of the floodplain. The lower Elk mainstem and its tributaries have a very high percentage of high response channels (responsive to both disturbance and recovery), less than a mile of low gradient confined channel, and one mile of hillslope confined channel.

Anadromous fish use includes chinook, coho and steelhead in the mainstem channel, at the minimum. Three barriers to juvenile migration are identified, and one barrier to adult migration, all on tributaries to the mainstem. The Elk River Hatchery near River Mile 8 is a large consideration for both fish biology and water use.

Water quality in the Elk Coastal Area is listed as moderately impaired for fecal coliform bacteria, and is on the 303(d) list for water temperature and habitat modification.

Temperatures (degrees F, 7-day maximums) in this area are in the high 60's low 70's. Fourteen wetlands are recorded, with a wide range of alteration and buffers. Soil permeability is varied.

Risk of peak flow enhancement (increased stream power) is rated as low for timber harvest, forest roads and rural roads, and low/moderate for agricultural use. Approximately ten percent of out-of-stream rights are junior to the in-stream right. Most water withdrawn is for the operation of the fish hatchery.

The Elk Coastal Area has low densities of roads on steep slopes and densities of stream crossings. Ranks are assigned relative to all South Coast subwatersheds.

Lower Mainstem Elk

The Lower Mainstem Elk is contained within the Southern Oregon Coastal Mountains (68%) and the Coastal Lowlands (32%). Most of the land area is within forestry land use (76%), with less than a quarter in agricultural/rural use. The US Forest Service administers the upper end of the watershed, including the Grassy Knob Wilderness Area on the northern upper valley. Thirteen wetland areas are identified.

Channel habitat types are mostly confined by hillslopes (12 miles). Five miles are identified as low gradient confined, and more than seven miles are within highly responsive/sensitive reaches. At least nine barriers to fish migration are recorded, all on tributaries to the mainstem. Chinook, and steelhead use the mainstem channel as well as large tributaries in the upper subwatershed. Coho use the same habitat as well as an additional tributary in the lower subwatershed.

Temperatures are limiting here, with readings of high 60's and low 70's. Water heats considerably (3-4 degrees F) in the short reach between the National Forest and Bagley Creek.

Risk of peak flow enhancement (increased stream power) is low relative to timber harvest, forest roads and rural roads. Risk is moderate to low for agricultural use. A high percentage of the subwatershed has soils with low natural infiltration rates.

The Lower Elk Mainstem ranked moderate density for roads on steep slopes and moderate density for road crossings when compared to all South Coast subwatersheds.

Middle Elk Mainstem

The entire Middle Mainstem is contained within the Southern Oregon Coastal Mountains, is entirely forestry use, and is 89% publicly owned. The north side of the valley is within the Grassy Knob Wilderness Area, and the Elk River Hatchery is at the lower end. Channel habitat types were not assessed for this subwatershed, or any above it.

Coho and chinook use the mainstem channel. Steelhead use the mainstem as well as the lower end of the mainstem tributaries. Water temperatures are in the high 60's and low 70's.

The Middle Elk Mainstem rated low risk for peak flow enhancement (increased stream power) due to timber harvest and forest roads. Agricultural use and rural roads are not an issue.

Purple Mountain Creek in the upper end of the subwatershed is producing a high amount of sediment with some long-lasting effects on habitat and channel characteristics downstream. A considerable area of impervious soils is present in the bottom of the valley.

Bald Mountain Creek

The Bald Mountain Creek subwatershed is all contained within the Southern Oregon Coastal Mountains ecoregion and is all in forestry use. Seventy-five percent of the watershed is publicly owned.

Steelhead use the mainstem and lower tributary, and chinook and coho use the lower half of the mainstem. Channel habitat typing was not completed. Water temperature data is available from the Forest Service. A 1990 in-stream water right is held in the watershed.

The sub-watershed is rated as low risk for peak flow enhancement (increased stream power) due to timber harvest and forest roads, and is not rated for agricultural use or rural roads. There is a high percentage of low permeability soils.

Blackberry Creek, Panther Creek, South Fork Elk, North Fork Elk, Butler and the Upper Mainstem

These subwatersheds are all contained within the Southern Oregon Coastal Mountains, all in forestry use, and all within National Forest management. Data on riparian cover, channel habitat types and barriers to fish migration exists in the USFS Elk River watershed analysis. Chinook and coho use all but the South Fork Elk River, and steelhead are distributed throughout all of these subwatersheds. Butler Creek is on the 303(d) list as water temperature limited, and also has a high sediment yield.

Red Cedar Creek in the Upper Elk Mainstem is considered a good reference stream. No wetlands were identified in any of these sub-watersheds. All are rated as low risk for peak flow enhancement (increased stream power) due to timber harvest and forest roads, except for the North and South forks which have an unknown risk due to timber harvest and a moderate risk due to forest roads. Risk of peak flow enhancement (increased stream power) due to agriculture and rural roads was not assessed.

All watersheds have a high percentage of low permeability soils. No water issues are reported.

A complete sediment assessment is available in the USFS Elk River watershed analysis. Roads within areas rated as "high" watershed sensitivity are good candidates for removal.

ACTION ITEMS

This list is a product of a synthesis process by natural resource specialists with extensive experience on the South Coast, who reviewed and discussed the watershed assessment for Elk River. Input from watershed councils is also incorporated. Actions are focused on addressing limiting factors and are listed in order of relative importance, based on the impressions of the resource specialists. For a more complete list of restoration, protection, outreach and assessment activities, refer to the Curry Action Plan. All action items are voluntary, with complete respect for private property rights.

- 1. Where possible, reconnect floodplain in Lower mainstem and Bagley Creek.**
- 2. Where possible, reconnect wetlands and estuary habitat.**
 - Expand estuary connection with wetlands - especially Swamp Creek.
 - Protect intact and connected wetlands.
 - Work with landowners for protection/improvement on Vanloo wetlands.
- 3. Restore Bagley Creek (passage, wetlands, and conservation easements).**
 - Where possible, remove or modify fish passage barriers.
 - Improve or stabilize wetland functions.
 - Explore conservation easements on Bagley Creek.
- 4. Where possible, obtain conservation easements on floodplain reaches, lower tributaries, and wetlands.**
- 5. Encourage protection of Copper/Salmon Area.**
- 6. Riparian silviculture - continue efforts on Lower Mainstem, expand into watershed.**
 - Plant/encourage riparian vegetation for shade and large wood values, where appropriate and with proper protection.
 - Encourage natural conifer regeneration where possible.
 - Convert alder dominated stands to conifer, where appropriate.
 - Encourage off-stream watering of livestock.
- 7. Water quality monitoring at hatchery and watershed wide.**
 - Institute water quality measurements at the hatchery and watershed wide, in addition to temperature, to identify limiting factors and provide feedback on restoration efforts.
- 8. Acquire water rights where possible.**
- 9. Beaver - education and outreach**
 - Work with landowners and residents to understand the relationship of beaver populations with wetlands, floodplains and coho habitat.

- 10. Decommission roads, where possible, in areas with high risk of slope failure.**
- 11. Gorse/noxious weeds plan.**
Institute a noxious weed control plan in the watershed with priorities and action areas.
- 12. Add large wood to lower tributaries - Indian Creek, Bagley Creek and Chapman Creek.**
Determine which reaches in Indian, Bagley and Chapman Creeks that would respond to addition of large wood for fish habitat and sediment stabilization, if present amounts are not adequate.
- 13. Restore tributaries and wetlands in coho areas, Lower Mainstem.**
Direct restoration efforts to improving riparian and wetlands function and habitat quality in the Lower Mainstem.
Protect intact habitats, where possible
- 14. Road surveys.**
Assess roads and crossings for suitability, design, and probability and consequences of failure, beginning in high sediment risk areas first.
- 15. Add large wood, particularly in tributaries to the mainstem.**
Identify reaches likely to respond to large wood addition.
Re-create side channel log jams, where possible.
- 16. Support Elk River water gage.**
- 17. Protect tributaries with cool water temperatures.**
- 18. Stream surveys (needed on private land).**
Assess stream habitat on private lands, where possible.
- 19. Use bio-engineering for unavoidable bank stabilization.**