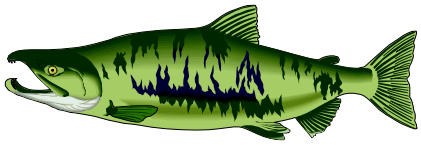
WINCHUCK RIVER WATERSHED

ACTION PLAN



Prepared for

The Winchuck River Watershed Council

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ABSTRACT

The *Winchuck River Watershed Action Plan* was prepared for the Winchuck River Watershed Council whose members are dedicated to sustaining the health of their watershed. This document utilizes detailed information about the Winchuck River watershed from the *Winchuck 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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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 Winchuck River watershed drains approximately 45,631 acres or 71.4 square miles of land. This coastal river is among the smaller watersheds on the southern Oregon coast. The Winchuck is situated primarily within Curry County with some subwatersheds extending into California's Del Norte County including the South Fork, Middle Winchuck Mainstem, and Bear Creek. Flowing in a westerly direction the Winchuck River crosses Highway 101 and drains into the Pacific Ocean about a half-mile north of the Oregon/California border and approximately five miles south of Brookings, Oregon. Elevations in the watershed range from sea level to approximately 2,925 feet on Mount Emily. Major tributaries include Fourth of July Creek, East Fork, Wheeler Creek, Bear Creek, and the South Fork. The upper portion of the basin 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 dominant in the lower portion of the basin. Approximately 71% of the watershed is in public ownership.

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 into broader floodplains in the lowlands, where agriculture and some rural residential use predominates. In the Winchuck Basin, the first reported Euro-American presence was explorer Jedediah Smith's camp at the mouth of the Winchuck during his epic overland voyage through Oregon in 1828. The Winchuck basin was heavily logged in the 1950's and 60's. As late as 1961, there were only a handful of families living up the Winchuck River, and road up the river was not paved until 1975. Some gold mining was reported in the Mt. Emily area in the early 1900's.

Watershed issues

The Winchuck Watershed Council identified the following issues of concern related to land use: rural residential - housing development, loss of riparian vegetation, water use and pesticides; predators on juvenile fish; road networks; recreational use - fishing, stream fords; and sediment loads affecting fish habitat.

Ecoregions

The Winchuck watershed contains three different ecoregions. The Southern Oregon Coastal Mountains make up 5 percent of the basin, 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.

The Coastal Siskiyous make up 47 percent of the watershed, with habitat very similar to Southern Oregon Coastal Mountains. The Redwood Zone (47%) represents a typically

northern California ecoregion with moderate stream and side slope gradients, and supports redwood forests.

Channel Habitat Types

The Winchuck has approximately 50 miles of streams on non-National Forest land assessed for channel type. Eleven miles are identified as highly responsive/sensitive stream types including estuary, floodplain, and low gradient/moderately confined reaches. The watershed contains a high amount of low gradient confined reaches associated with inner gorge landscape features, especially in the upper watershed.

Fish and Fish Habitat Assessment

Chinook and coho are present in the mainstem Winchuck as well as all major tributaries. Steelhead share similar distribution, with ranges extending slightly higher into upper watersheds. Hatchery influence is minimal, with higher stocking rates in the 1980's and 90's. Stream habitat survey data may be available from California Fish and Game, as well as the US Forest Service.

Ten barriers to fish migration are identified, all in the lower subwatersheds. Three are listed as adult barriers, three as juvenile barriers, three as adult restricted, and one uncertain adult restricted.

Water Quality Assessment

Water quality in the Winchuck is listed as moderately impaired for fecal coliform bacteria, typically at high flows. The Winchuck mainstem, from the mouth to East Fork/Wheeler Creek, is on the 303(d) list for temperature and is being investigated for sediment. Wheeler Creek and the East Fork are being investigated for temperature and sediment, and Deer Creek for sediment only.

Fourth of July Creek, Wheeler Creek, and the East Fork Winchuck all have 7-day max temperatures ranging in the low to mid 60's. The mainstem Winchuck ranges from mid 60's to low 70's. Chlorophyll levels are the highest of any South Coast watershed, and biological oxygen demand (BOD) values are the second highest.

Wetland Characterization and Functional Assessment

An estimated 42 acres of wetlands were assessed in the Winchuck River watershed, divided into 12 wetlands. Forty-eight percent have a high degree of alteration, and forty percent moderate. Of these 12 wetlands, one has low restoration potential, two could be protected in their present state, and nine have some restoration potential (mostly riparian). Rural residential development (61%) and agriculture (27%) typically buffer wetlands. More than two-thirds of the wetlands are connected to another waterbody, and nearly all occur in the Lower Mainstem subwatershed.

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.

Risk of peak flow enhancement due to agricultural use is rated low in the South Fork and moderate to low in the Lower and Middle Winchuck Mainstem. Risk due to rural roads is rated low in the Lower and Middle Winchuck Mainstem and moderate on the South Fork. Risk of peak flow enhancement due to forest roads is rated low.

All of the roads rankings need to be re-assessed to incorporate revised road data. Flow alteration (road drainage, ditched/drained wetlands, etc.) is not addressed in this assessment.

Water Use

Nearly a quarter of water rights are junior to the 1964 in-stream water right. All subwatersheds are over-allocated for the months of May, June, September and October. Only the lower Winchuck mainstem in August is identified as an in-stream flow restoration possibility through conservation efforts.

Sediment

The assessment of sediment processes in the Winchuck River focuses on the density of roads built on slopes greater than 50 percent, and the density of stream/road crossings. These rankings are relative to all South Coast subwatersheds.

Both the Lower Winchuck and South Fork are ranked low to moderate for density of roads on steep slopes and density of stream crossings. The Middle Winchuck Mainstem is rated moderate for roads and crossings. Bear subwatershed is rated moderate for roads on steep slopes, but not rated for crossing density due to lack of data beyond the California border.

WATERSHED SYNTHESIS

The Winchuck watershed is contained within three different ecoregions: Coastal Siskiyous (47%) and Southern Oregon Coastal Mountains (5%), with steep slopes and high sediment production, and the Redwood Zone (48%), with moderate gradients, potential for redwood forests, and more days of fog. Forestry use is dominant, with only the Lower Winchuck Mainstem (29%), South Fork Winchuck (7%) and the Middle Fork Winchuck (2%) showing agricultural/rural residential use. The Forest Service manages a large percentage of the upper watershed, and Simpson Timber owns the majority of the watershed within California.

The Winchuck has been mined for gold in the Mt. Emily area, and has been extensively logged. Only 5 homes were present in 1961, with a much larger number now. Agricultural lands include a few lily fields. The Winchuck estuary was filled by the Highway 101 improvement project in the 1950's.

Sediment is a concern in the Winchuck watershed, with high sediment soil types, steep inner gorge features and active land use. In 1986, a large slide in the Wheeler Creek

subwatershed contributed huge amounts of sediment to the system, and is still delivering fine materials. The Middle Winchuck Mainstem is ranked moderate density for road crossings and moderate density for roads on steep slopes. Bear Creek is ranked moderate density for roads on steep slopes.

A hydrologic assessment of the Winchuck watershed rated the Lower and Middle Winchuck subwatersheds as moderate for risk of peak flow enhancement (increased stream power) due to agricultural use. The South Fork Winchuck rated moderate risk due to rural roads. All sub-watersheds rated low risk for peak flow enhancement due to timber harvest and forest roads.

Channel habitat typing was done only on non-USFS property and totaled just over 50 miles. Of this length, more than eleven miles are in high response reaches, and 6 miles in low gradient confined reaches. Low gradient channels within inner gorges are a common feature in this watershed, especially in the upper reaches.

Steelhead and cutthroat trout are found throughout the watershed, Chinook and coho use the mainstem and all the major tributaries, with the South Fork being the primary coho spawning area. The mainstem has been significantly modified, including the estuary, which is simplified and small. The watershed has numerous fish passage barriers.

Riparian vegetation is poorly understood in the Winchuck, and surveys are needed. Alder is prevalent on the lower South Fork.

Water use is not a large issue in the Winchuck now, though it could be with continued development. A large in-stream right is in place, with 23 percent of the remaining rights junior.

The mainstem of the Winchuck is on the Department of Environmental Quality 303(d) listed for temperature from the mouth to the East Fork. The same reach, as well as Wheeler Creek, is under investigation for sediment limitations. The East Fork is being investigated for temperature. Fecal coliform bacteria and phosphates are moderately impaired, dissolved oxygen levels are low, biological oxygen demand is high, and chlorophyll readings are the highest of all Curry County streams. Water temperatures (7-day maximums) are cool to warm, with the highest reading 70.3 degrees F. The tributaries generally cool mainstem temperatures in the lower watershed.

All wetlands are in the lower watershed, with less than half highly altered. Nine show potential for restoration.

Limiting factors to fish production in the Winchuck watershed appear to be sediment sources and transport, lack of large wood, estuary conditions, water temperature and chemistry, and barriers to fish migration.

SUBWATERSHED SUMMARIES

Lower Winchuck Mainstem

The Lower Winchuck Mainstem is contained within the Redwood Zone (58%) and the Southern Oregon Coastal Mountains (42%). Most of this subwatershed is privately owned, with nearly 30 percent in agricultural use. Ten of the twelve wetlands in the Winchuck watershed are in this area. Most are connected, and most are buffered by rural surroundings.

Channel habitat typing of 13 miles shows 1 mile of estuary channel, 3.5 miles of floodplain channel, 0.3 mile of low gradient confined channel, and 0.6 mile of low gradient moderate confined channel.

Coho and chinook use the mainstem channel. Steelhead access the mainstem and two of the larger tributaries. Three barriers to adult migration are reported, as well as three barriers to juvenile migration (one uncertain).

Water quality is moderately impaired for fecal coliform bacteria, mostly during high stream flow events. The Winchuck mainstem from the mouth to the East Fork is on the Department of Environment Quality 303(d) list for temperature and is being investigated for sediment concerns. Water use issues are minor in the Winchuck.

Risk of peak flow enhancement (increased stream power due to land use) is low for timber harvest and rural roads, and moderate to low for agricultural use.

Sediment analysis ranked the Lower Winchuck low to moderate density for roads on steep slopes and stream crossings, when compared to all South Coast subwatersheds.

Middle Winchuck Mainstem

The Middle Winchuck Mainstem is entirely within the Redwood Zone ecoregion, and nearly all in forestry use. Approximately half of the subwatershed is in private ownership. One wetland is found in this area.

Nineteen miles of stream were classified for channel habitat types. More than three and a half miles are identified as highly responsive/sensitive types. Three miles are in low-gradient confined reaches.

Chinook use the mainstem, coho use the mainstem and one tributary, and steelhead use the mainstem and all of the larger tributaries. Three barriers that restrict adult passage are reported, one is uncertain.

Water temperatures (7-day maximums) are in the high 60's and low 70's, and represent the warmest in the watershed.

Risk of peak flow enhancement (increased stream power due to land use) is low for timber harvest and rural roads, and moderate to low for agricultural use.

Sediment analysis ranked the Middle Winchuck moderate density for roads on steep slopes and moderate for stream crossings. Both ratings are a concern for sediment stability.

South Fork Winchuck

The South Fork Winchuck is mostly within the California border and in the Redwood Zone ecoregion. The subwatershed is almost entirely privately owned and has a very small amount of agricultural use in the lower end.

Channel habitat typing in the lower 12 miles shows 2.4 miles of highly responsive/sensitive stream reaches and 1.7 miles of low gradient confined reaches. Old alder stands in the lower reaches are a concern for sediment storage. Large volumes of sediment could be mobilized as trees die out.

Coho distribution is shown for the entire length of the South Fork. Steelhead use nearly the entire length, and chinook distribution is not reported. Barriers to fish migration are not known.

Risk of peak flow enhancement (increased stream power) is rated low for timber harvest and agriculture and moderate for rural residential use.

Sediment analysis ranked the South Fork low to moderate density for roads on steep slopes and road crossings when compared to all South Coast subwatersheds.

Bear Creek

The Bear Creek subwatershed is partly within the California border and is almost entirely in the Redwood Zone ecoregion (99%). Land ownership is mostly federal on both sides of the state border.

Of the seven miles assessed for channel habitat types, no reaches were in high response types, and over three miles are classified as low gradient confined.

Coho and chinook use the lower half of the mainstem Bear Creek and one tributary. Steelhead extend farther into the mainstem and tributary. One barrier to juvenile migration is identified.

Risk of peak flow enhancement (increased stream power) due to timber harvest and forest roads are rated low.

Sediment analysis rated Bear Creek moderate density for roads on steep slopes. Data was not available for stream crossings.

Fourth of July Creek, Wheeler Creek and the East Fork Winchuck

These subwatersheds are all managed by the Forest Service and are a mix of Coastal Siskiyous and Redwood Zone ecoregions.

Coho and chinook use is predominantly in the mainstems and some tributaries. Steelhead distribution is slightly higher and extends into more tributaries. Water is cool in these subwatersheds, especially in Fourth of July Creek.

Risk of peak flow enhancement is low for all land uses. A slide in the upper Wheeler Creek subwatershed in 1996 is contributing considerable amounts of sediment that may be impacting lower Wheeler Creek, as well as the mainstem Winchuck.

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 Winchuck 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. **Expand estuary, restore complexity.**
   Expand estuary size and increase complexity, mimicking natural processes of saline water exchange and deposition as much as possible.

2. **Water quality monitoring.**
   Institute water quality measurements in addition to temperature, to identify limiting factors and provide feedback on restoration efforts, especially in the lower mainstem and estuary.

   Investigate phosphate/nitrate role in algal growth problem.

3. **Develop partnership with Simpson on South Fork.**

4. **Explore constructed wetlands for treatment of runoff.**
   Identify critical areas of runoff from residential, agricultural and rural areas.

   Investigate using constructed wetlands for water treatment.

5. **Riparian silviculture on mainstem and South Fork.**
   Plant 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.

6. **Encourage citizen involvement in water quality and riparian vegetation issues.**
   Work with landowners and residents on protecting riparian vegetation for shade and large wood.

   Work with landowners and residents on protecting water quality from non-point source and point source pollution.

   Offer rewards for good stewardship.

   Encourage off-stream watering.

7. **Stream surveys**
   Assess stream and riparian habitat on private lands.

   Convert and/or interpret US Forest Service stream survey data.

8. **Road surveys on Dean Creek, South Fork, Bear Creek.**
   Assess subwatershed roads and crossings for suitability, design, and risk of failure.

9. **Riparian easements; look for opportunities.**

10. **Address fish passage barriers.**
    Identify, field check and/or restore passage on unnatural barriers to fish migration.

11. **Large wood.**
    Determine need for large wood in tributaries and mainstem for sediment stabilization and fish habitat development.