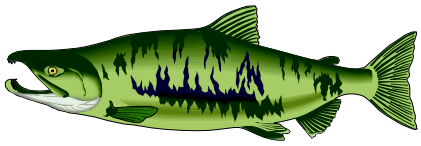
HUNTER CREEK WATERSHED

ACTION PLAN



Prepared for

The Hunter Creek Watershed Council

Prepared by

Chris Massingill
Mainstream Contracting
South Coast Watershed Council

September 2001

South Coast Watershed Council
PO Box 666
Gold Beach, Oregon 97444
(541) 247-2755

TABLE OF CONTENTS

ABSTRACT

The *Hunter Creek Watershed Action Plan* was prepared for the Hunter Creek Watershed Council whose members are dedicated to sustaining the health of their watershed. This document utilizes detailed information about the Hunter Creek watershed gathered in the *Hunter Creek 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.

ACKNOWLEDGEMENTS

The completion of the *Hunter Creek Watershed Action Plant* 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 the Assessment and Action Plan. Additional people helped whose names are not included below. We also acknowledge them.

CONTRIBUTORS

Mike Maguire	South Coast Watershed Council
Harry Hoogesteger	South Coast Watershed Council
Cindy Ricks Myers	South Coast Watershed Council
Matt Swanson	South Coast Watershed Council
Connie Risley	United States Forest Service
Frank Burris	Oregon State University Extension Service
Dale Stewart	United States Bureau of Land Management
Todd Confer	Oregon Department of Fish and Wildlife
Kathy Wiggins	Oregon Department of Forestry
Bruce Follansbee	Lower Rogue Watershed Council
Russ Stauff	Oregon Department of Fish and Wildlife
Lloyd Van Gordon	Oregon Department of Water Resources
Clayton Barber	Oregon Department of Fish and Wildlife
Bob Van Leer	Citizen of Hunter Creek

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 Hunter Creek watershed drains approximately 28,405 acres or 44.4 square miles of land. Hunter Creek is situated entirely within Curry County and is among the smaller watersheds on the southern Oregon coast. Flowing in a westerly direction Hunter Creek crosses Highway 101 and drains into the Pacific Ocean just south of the community of Gold Beach. Elevations in the watershed range from sea level to approximately 3,558 feet on Sugarloaf Mountain. Major tributaries include the North Fork and Big South Fork. 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 gradients. Rural residential development and agricultural uses are dominant in the lower portion of the watershed. Over 60% of the watershed is in private ownership. Subwatersheds identified for the Assessment and Action Plan are Big South Fork Hunter, North Fork Hunter, Upper Hunter Mainstem, Middle Hunter Mainstem and the Lower Hunter Mainstem.

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. In the 1930's there were only about 20 people living up Hunter Creek, and it was considered "out in the backcountry" from Gold Beach. Hunter Creek saw extensive logging of the watershed in the 1950's and 60's. The first major timber sale in the watershed was for 33 million board feet in 1955. At one time there were 17 active sawmills in the Gold Beach / Hunter Creek area, including a veneer mill in the Hunter Creek estuary. A series of "truck" farms and small ranches were the predominant settlements in the lowlands of the watershed for most of the 20th century, followed in recent years by more rural residential use, and some light industry development (Freeman Marine, Curry County Road Dept shops).

Watershed Issues

The Hunter Creek Watershed Council identified a number of watershed issues related to land use practices. Forestry issues - timber harvest and loss of large wood are listed, as well as grazing use and, commercial and residential development. Mining of gravel and minerals, water rights, recreational use, and an extensive road network are also of concern.

Ecoregions

The Hunter Creek watershed is comprised of three different ecoregions. Coastal Lowlands comprise 12 percent of the watershed. Low gradient streams, marshes, bogs, sloughs and beaver dams are expected. Fire is uncommon, though when it occurs, it is typically stand replacing. High winds and wind-thrown timber are common.

Southern Oregon Coastal Mountains make up 44 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. Coastal Siskiyous make up 44 percent of the watershed, with habitat similar to Southern Oregon Coastal Mountains, and some serpentine soil types.

Channel Habitat Types

Of the 74 miles of stream assessed for channel habitat types, 55 percent of those stream miles are steep to very steep confined channels. Moderate gradient, moderately confined (MM) channels make up two percent of the total, and low gradient moderately confined (LM) channels 9 percent. LM and MM channels are considered highly responsive to both land use impacts and restoration efforts.

Fish and Fish Habitat Assessment

Aquatic habitat surveys were conducted in the Big South Fork, mainstem Hunter and North Fork Hunter in 1992. No data is available for number of complex pools or key pieces of large wood. In the surveyed reaches, shade values were high and bank erosion generally low. Pool habitat, while common, was of lower quality than desirable. Large wood was generally lacking, and spawning habitat in riffles was of moderate quality.

Chinook and a few coho are present in the lower and middle mainstem Hunter as well as the lower portions of Big and Little South Forks. Winter steelhead occupy all of the lower and middle mainstem reaches, the lower portions of all major tributaries, and the lower end of the upper mainstem. Hunter Creek has been stocked with hatchery fish periodically since 1948. In recent years, there have been fewer releases of hatchery fish.

Three barriers are identified: one certain for juvenile passage, one uncertain for juvenile, and one restricted for adult passage.

Water Quality Assessment

Other than temperature (7-day maximums), no water quality data was available for the Hunter Creek watershed. Hunter Creek is listed by the Department of Environmental Quality (DEQ) as limited for temperature from the mouth to river mile 16.5. The same section is being investigated for sediment, also. All mainstem and North Fork temperature stations report water temperatures greater than 64 degrees. The Big South Fork is cooler than 64 degrees. The upper mainstem, as it comes off of the National Forest is consistently hot (72-75 degrees), and is cooled by the North Fork.

Riparian (Shade) Assessment

Shade assessment data is for non-National Forest land. The highest potential increases in shade are in the 5th and 6th order mainstem reaches, the 4th and 5th order North Fork reaches, and 3rd order Big South Fork reaches. The Big South Fork has the highest potential increase in shade.

Most of the stream miles surveyed, 44 of 69 miles, have alder/hardwood dominated vegetation, and another 10 miles of stream have brush and pioneer vegetation. Less than 4 miles of stream length have high reproduction or mature timber.

Wetland Characterization and Functional Assessment

An estimated 25 acres of wetlands within 8 wetlands are identified in the Hunter Creek watershed, and nearly all are in the lower subwatersheds. Of the wetlands identified, one has no restoration potential, one could be protected in its present state, and six have moderate restoration potential. Nearly all are buffered by rural land use, and most are connected to another waterbody.

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 Upper Hunter Mainstem is rated as a moderate risk of peak flow enhancement due to timber harvest and rain-on-snow events. Agricultural lands were rated moderate to low risk for impacts to hydrology in the Lower Hunter Mainstem. Rural roads in the Lower Hunter Mainstem are a concern and are rated as high risk for potential peak flow enhancement. Risk due to forest roads ranked low in all subwatersheds.

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

Water Use

Consumptive use and out-of-stream use is low in Hunter Creek. Total water rights are over-allocated from May through October. Approximately a quarter of the in-stream rights on Hunter Creek are junior to the 1964 in-stream right.

Sediment

The assessment of sediment processes on the density of roads built on slopes greater than 50 percent and the density of stream/road crossings. Lower density rankings are assumed to have less potential for contributing sediment than high. These rankings are relative to all South Coast subwatersheds.

Upper Hunter Creek and North Fork Hunter are ranked low density for roads on steep slopes and road crossings. Big South Fork and Middle Hunter are low to moderate density for roads on steep slopes, and the Lower Hunter Mainstem is ranked low density.

The Big South Fork has the highest density of stream crossings of any South Coast subwatershed. Lower and Middle Hunter Mainstem are ranked moderate to high density for road crossings.

HUNTER CREEK SYNTHESIS

The Hunter Creek watershed is contained within the Southern Oregon Coastal Mountains, the Coastal Siskiyous, and a small portion of Coastal Lowlands. Gradient are steep to very steep, with high rates of erosion. Portions of the upper Hunter Creek watershed display the "inner gorge" feature similar to those in the Chetco watershed, including serpentine soils and distinctly different forest species. Over 60 percent of the watershed is privately owned, with 97 percent in forestry use.

Hunter Creek saw extensive logging in the 50's and 60's, with as many as 17 active mills in the Gold Beach/Hunter Creek area. Floods of 1955 and 1964 had considerable impact on the watershed and channel. Very large chinook salmon existed in the watershed historically. Rural residential and light industrial development is prevalent in the lower mainstem.

Sediment mobility and sources are a great concern in Hunter Creek. Steep slopes, debris flows and high road crossing densities are common. The Big South Fork of Hunter Creek has the highest density of stream crossings of any South Coast subwatershed. Lower Hunter and Middle Hunter subwatersheds ranked moderate/high for density of stream crossings. Lower Hunter Mainstem ranked moderate for roads on steep slopes. Channel widening is evident is some portions of the watershed, indicating excessive and unstable sediment loads.

Risk of peak flow enhancement (increase in the most powerful and potentially destructive part of flood flow) is rated low for timber harvest and forest roads in all subwatersheds except Upper Hunter Mainstem, where more information is needed for rain-on-snow interactions. Risk due to agriculture/rural residential use is rated moderate in the Middle and Lower Hunter Mainstem. Risk due to density of rural roads is high in the Lower Hunter Mainstem.

Channel habitat typing of the private portions of the Hunter Creek watershed revealed more than 60 miles of stream confined by hillslopes, over eight miles in highly responsive/sensitive types, and just over three miles in low gradient confined channels.

Anadromous fish use in Hunter watershed is restricted to the lower end of the mainstem and lower tributaries for chinook and coho, with steelhead extending into the lower North Fork and Upper Hunter Mainstem. Some barriers to migration are recorded, one in Little South Fork and several in the Lower Hunter Mainstem. Limited ODFW stream survey data available from 1992 shows a general lack of wood, less than desirable pool quality, and moderate riffle habitat for spawning.

A survey of riparian vegetation reported a small amount of mature timber within the riparian area and seven miles of brush and pioneer species on the mainstem. Big South Fork has the highest potential for increases in shade. Heating within the Forest Boundary (serpentine gorge) may reduce the impact of increased shade in the lower portions of the mainstem.

Water use issues are fairly minor in Hunter Creek, with just over 1 cfs allocated as out-of-stream rights, and 7 cfs as in-stream right. The in-stream right is senior to twenty percent of the out-of-stream rights. Wells are numerous in the rural residential areas.

The Hunter Creek Mainstem is on the DEQ 303(d) list as water quality limited from the mouth to River Mile 16.5, and is being investigated for sedimentation. Water temperatures (7-day maximums) increase 10 to 14 degrees before leaving the National Forest Boundary, and are cooled somewhat at the confluence with the North Fork. Septic tanks may be impacting water quality, though no data is currently available.

Hunter Creek has 25 acres of wetlands, almost exclusively in the lower watershed. Most are buffered by rural development, and most are altered. Six have restoration potential.

Limiting factors to fish production in the Hunter Creek watershed appear to be sediment transport and storage, lack of large wood, simplified and reduced estuary habitat, and high water temperatures.

SUBWATERSHED SUMMARIES

Upper Hunter Mainstem

The Upper Hunter Creek mainstem is mostly in the Coastal Siskyous ecoregion, with the lower 20 percent in the Southern Oregon Coastal Mountains. Most of the subwatershed is Forest Service managed, and all is in forestry use.

Coho and chinook are absent, with only a small portion just above the North Fork confluence used by steelhead. No unnatural barriers to migration are recorded in the private/BLM sections. All channels are confined by hillslopes.

Shade is assessed to the forest boundary only, and shows moderate potential increases. Just above the boundary is a "heating reach" about 3 miles in length. Water temperatures rise 10-14 degrees F in this section of serpentine soils, bedrock and boulders. The upper Hunter mainstem channel is the warmest water source in the entire watershed and has good large wood recruitment potential.

A large earthflow is active on the lower end of this subwatershed, near the confluence with the North Fork, on the north side. An assessment of sediment ranked this subwatershed low (good) for density of roads on steep slopes and low density for stream crossings, when compared to all of the South Coast. An assessment of hydrology indicates a possible risk of peak flow enhancement (increased stream power) due to forestry use and rain-on-snow event interaction. There are no water use issues or wetlands in this subwatershed.

North Fork Hunter
The North Fork Hunter Creek subwatershed is mostly in the Coastal Siskiyous with a lobe of Southern Oregon Coastal Mountains in the lower end. Ownership is mostly private with some Forest Service managed lands in the upper portion. All is in forestry use. The North Fork has the highest percentage of mature and high reproduction timber stands in the privately owned parts of the watershed, and has considerable amounts of wood in the channel for the lower 2.5 kilometers.

Coho and chinook do not use this tributary and steelhead only the lowest portion. No unnatural barriers to migration are recorded. All channels are confined by hillslopes. Potential shade increases are low in the upper reaches, and moderate in the lower reaches.

An assessment of hydrology ranked the North Fork low density for roads on steep slopes and density of stream crossings. There are no water use issues or wetlands in this subwatershed.

Big South Fork Hunter
The Big South Fork has very steep gradients, is in mostly private ownership, and is extensively logged. The subwatershed is within the Coastal Siskiyous, with a lobe of Southern Oregon Coastal Mountains at the lower end. All channel types are confined by hillslopes.

Chinook, steelhead, and some coho use the lower mile of this tributary. No unnatural barriers are recorded. Big South Fork has the coolest maximum water temperatures recorded in the Hunter Creek system and the highest potential for shade increases. In 1992, ODFW stream surveys recorded high levels of shade on the Big South Fork. Shade assessments in 2001 had very different results, possibly reflecting 1996-97 flood events or forest harvest.

This subwatershed contributes considerable amounts of sediment to Hunter Creek, with many landslides and road failures. A considerable area of the Big South Fork watershed has soil types with high runoff. Big South Fork has the highest density of road crossings of any South Coast subwatershed and has low/moderate density for roads on slopes greater than 50 percent.

Middle Hunter Mainstem
Nearly the entire Middle Hunter is in the Southern Oregon Coastal Mountains ecoregion with small upper portions in Coastal Siskiyous. Landuse is mostly private industrial timber with a very small amount of agricultural use.

Stream channels have over two miles of highly responsive/sensitive types (low gradient moderate confinement). More than 10 miles are confined by hillslopes. Some coho and chinook use the mainstem to approximately two miles above the confluence with the Big South Fork and the lower end of the Little South Fork. Steelhead use the entire mainstem in this section, as well as the lower end of the two large tributaries. The mainstem in this

subwatershed is important for chinook spawning. Temperatures maintain well through this section.

Large wood is lacking, and channels are wide. Pools are typically shallow and simple due to the amount of sediment moving through the system. Mature timber present on the mainstem below the Big South Fork confluence is a source of large wood.

A large earthflow is present on the mainstem above the Big South confluence, as well as a large area of high runoff soil type. Channel widening is occurring on the mainstem. Middle Hunter subwatershed has a low/moderate density of roads on steep slopes and a moderate to high density of stream crossings.

Consumptive use of water is low in Hunter Creek as is out of stream use. Water rights are over-allocated for May through October, including in-stream rights. One wetland was assessed in this subwatershed, and is rated as functioning.

Lower Hunter Mainstem

Nearly the entire Lower Hunter subwatershed is in the Coastal Uplands ecoregion, with only a small portion in the Southern Oregon Coastal Mountains. Nearly five miles of highly responsive/sensitive channel types were assessed, including 0.8 mile of estuary.

Coho, chinook and steelhead use the mainstem. Several barriers to migration are reported on tributaries. Large wood is lacking. Channels are wide with shallow, simple pools. Water temperatures are very warm at the mouth. Water quality is on the DEQ 303(d) list for temperature and is being investigated for sediment. This reach has high potential increases in shade.

Rural roads are ranked as high risk for peak flow enhancement (increases in stream power). Agricultural lands (12%) ranked moderate to low risk for impacts to hydrology. Lower Hunter is ranked moderate density for roads on steep slopes and moderate to high density for stream crossings.

Consumptive use of water is low in Hunter Creek as is out of stream use. Water rights are over-allocated for May through October, including in-stream rights. Seven out of eight wetlands assessed are in this subwatershed and are mostly buffered by rural land use.

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 Hunter Creek. 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. **Estuary restoration.**
   Where possible, obtain conservation easements or property ownership.
   Expand estuary size and increase complexity, mimicking natural processes of saline water exchange and deposition as much as possible.
   Where possible, limit additional fill materials in the lower floodplain and estuary.

2. **Watershed wide sediment budget and channel morphology.**
   Determine present and potential sediment sources in the watershed.
   Identify transport and storage reaches and trends in channel width changes.
   Identify reaches where large wood is critical to stable sediment storage.
   Identify reaches/locations with possible "management caused" channel instability, i.e. gravel extraction, quarries, road fords, and work to reduce negative effects.

3. **Encourage citizen involvement in water quality, water quantity 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.
   Work with landowners to investigate locations of wells and springs for water quality and quantity concerns.

4. **Mainstem silviculture.**
   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.
   Encourage off-stream watering of livestock.

5. **Assess earthflow areas - road surveys.**
   Determine extent of earthflow areas and degree of stability.
   Determine number of roads and crossings in earthflow areas and assess risk of failure.

6. **Protect old growth riparian forests on the mainstem.**
   Map and protect, where possible, mature and high reproduction forests within the riparian area, for large wood recruitment and high quality shade values.

7. **Monitor water quality.**
   Institute water quality measurements in addition to temperature, to identify limiting factors and provide feedback on restoration efforts.

8. **Big South Fork road survey.**
   Assess Big South Fork subwatershed roads and crossings for suitability, design, and risk of failure.

9. **Protect/maintain upper watershed wetland (from Wetland Assessment), and Hunter Creek Bog.**

10. **Riparian silviculture - upstream of North Fork Hunter confluence.**
    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.

11. **Identify and restore wetlands.**
    Field check all wetlands listed in the Wetland Assessment and assess for functionality.
    Where possible, protect intact wetlands.
    Where possible, restore function, connection to a water body and potential vegetation in less than intact wetlands.