

# No Whisky Thinning Project

## \*Fisheries Biological Evaluation\*

Clackamas River Ranger District  
Mt. Hood National Forest  
Fifth Field Watershed: Middle Clackamas River

Date: 01/04/06

**Table 1.** List of Proposed, Endangered, Threatened, or Sensitive (PETS) Fish and Aquatic Mollusk Species found on the Mt. Hood National Forest and addressed under this Biological Evaluation:

Endangered Species Act Listing by ESU	Date of Listing	Suitable Habitat Present	Species Present	Effects of Actions			
				Alternatives			
				A	B	C	D
<b><u>Threatened</u></b>							
<b>Lower Columbia River steelhead</b> ( <i>Oncorhynchus mykiss</i> )	3/98	No	No	NE	NE	NE	NE
<b>Lower Columbia River chinook</b> ( <i>Oncorhynchus tshawytscha</i> )	3/99	No	No	NE	NE	NE	NE
<b>Columbia River Bull Trout</b> ( <i>Salvelinus confluentus</i> )	6/98	No	No	NE	NE	NE	NE
<b>Middle Columbia River steelhead</b> ( <i>Oncorhynchus mykiss</i> )	3/99	No	No	NE	NE	NE	NE
<b>Upper Willamette River chinook</b> ( <i>Oncorhynchus tshawytscha</i> )	3/99	No	No	NE	NE	NE	NE
<b>Upper Willamette River steelhead</b> ( <i>Oncorhynchus mykiss</i> )	3/98	No	No	NE	NE	NE	NE
<b>Lower Columbia River coho</b> ( <i>Oncorhynchus kisutch</i> )	7/05	No	No	NE	NE	NE	NE
<b><u>Regional Forester's Sensitive Species List</u></b>							
<b>Interior Redband Trout</b> ( <i>Oncorhynchus mykiss spp.</i> )	7/04	No	No	NI	NI	NI	NI
<b>Columbia dusky snail</b> ( <i>Lyogyrus n. sp. 1</i> )	7/04	Yes	Unk	NI	NI	NI	NI
<b>Basalt Juga</b> ( <i>Juga oreobasis n. sp. 2</i> )	01/01	Yes	Unk	NI	NI	NI	NI

**Abbreviations/ Acronyms:**

- NE No Effect
- NLAA May Affect, Not Likely to Adversely Affect
- LAA May Affect, Likely to Adversely Affect
- Unk Species presence unknown but suspected
- NI No Impact
- MIH May impact individuals or habitat, but will not likely contribute to a trend towards Federal listing or loss of viability to the population or species

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## **INTRODUCTION**

Forest management activities that may alter the aquatic habitat or affect individuals or populations of PETS (Proposed, Endangered, Threatened, and Sensitive) fish and aquatic species require a Biological Evaluation to be completed (FSM 2671.44 and FSM 2670.32) as part of the National Environmental Policy Act process to determine their potential effects on sensitive, threatened or endangered species. The Biological Evaluation process (FSM 2672.43) is intended to conduct and document activities necessary to ensure proposed management actions will not likely jeopardize the continued existence or cause adverse modification of habitat for:

- A. Species listed or proposed to be listed as endangered (E) or threatened (T) by the USDI-Fish and Wildlife Service or National Marine Fisheries Service (NOAA Fisheries).
- B. Species listed as sensitive (S) by USDA-Forest Service Region 6.

This Biological Evaluation (BE) addresses a proposal to thin and commercially harvest wood fiber in second growth plantations ranging in age from 40 to 70 years on approximately 1,678 acres within the Middle Clackamas River (formally known as the Lower Clackamas River) fifth-field watershed. The project area is located in the western portion of the Clackamas River Ranger District, Mount Hood National Forest. The objective of this action is to provide forest products, maintain health, vigor, and growth that results in larger wind firm trees, enhance and restore stand diversity, enhance riparian reserves by accelerating the development of mature and late-successional stand conditions, and to accelerate future large woody debris recruitment potential and snag habitat production. Most of the project is covered by the North Fork Clackamas River Watershed Analysis (1996) with the remaining portion of the project covered by the Lower Clackamas River Watershed Analysis (1996). Since then, these two watersheds and several others have been combined into one fifth-field watershed called Middle Clackamas.

This Biological Evaluation addresses all alternatives presented in the No Whisky Thinning Environmental Assessment (EA).

## **PROJECT LOCATION**

The No Whisky project area is located within the North Fork Clackamas and Lower Clackamas River Tribs drainages of the Middle Clackamas fifth-field watershed. The legal description of the project area is Township 4 South, Range 5 East, Sections 15, 16, 17, 20-24, 35, 36, and Township 4 South, Range 6 East, Sections 19 and 31, of the Willamette Meridian, Clackamas County, Oregon.

The proposed treatment area is located within five subwatersheds of the North Fork Clackamas River and one subwatershed of the Middle Clackamas River. The total area of the six subwatersheds associated with the No Whisky Project is 32,537 acres. The

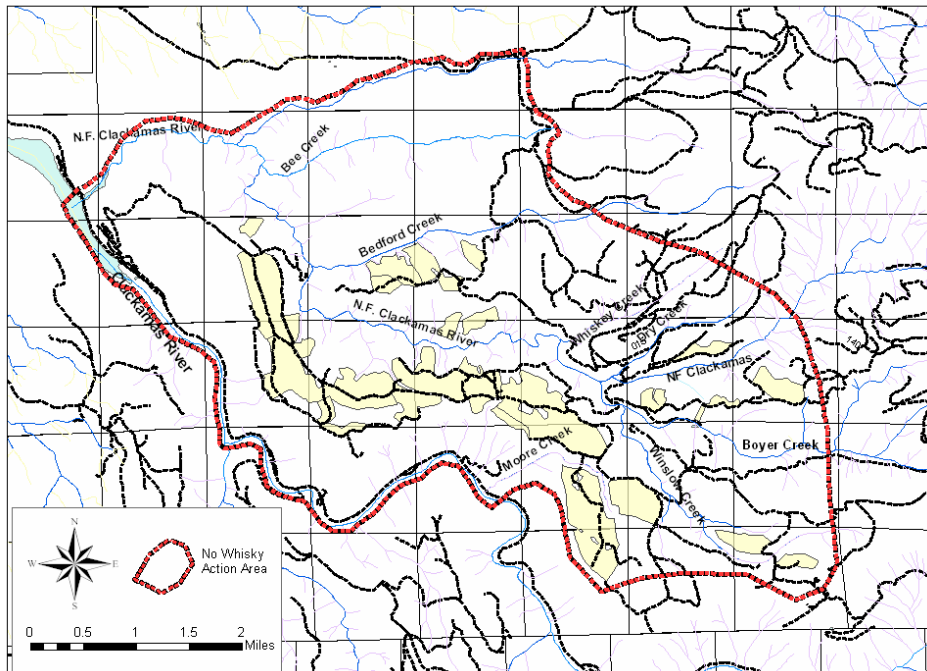
area of the five subwatersheds within the North Fork Clackamas drainage is 16,293 acres and includes: Lower North Fork Clackamas, Upper North Fork Clackamas, Bedford Creek, Boyer Creek, and Winslow Creek. The area that the Lower Clackamas Tribs. subwatershed encompasses 16,24 acres.

The Middle Clackamas River is a designated Tier I, Key Watershed under the Northwest Forest Plan while the North Fork of the Clackamas River is designated a non-Key Watershed. These watersheds support populations of spring chinook salmon, winter steelhead, and coho salmon downstream of the proposed project areas. All of the watersheds within the project area support populations of resident cutthroat and rainbow trout.

## PROJECT/ACTION AREA

The Action Area is defined for ESA purposes as “all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action” (50 CFR 402). For purpose of this BE, the No Whisky Action Area has been defined as the areas within the North Fork Clackamas River including: the Upper and Lower North Fork Clackamas River, Bedford Creek, Boyer Creek, and Winslow Creek, and areas within the mainstem Clackamas River that includes the Lower Clackamas River Tributary subwatersheds from Moore Creek RM 38.5 to the confluence of the North Fork Clackamas River with North Fork Reservoir. The project action area will extend downstream for a distance of approximately 2.0 river miles in all of these streams. Downstream of this point it is believed any potential indirect effects to PETS species from implementing this project would be not measurable and insignificant.

### No Whisky Action Area



### **North Fork of the Clackamas River**

The North Fork Clackamas River watershed lies in western Oregon on the west slope of the Cascade Range. The watershed is approximately 20,000 acres (32 square miles) in size and is bisected by the North Fork of the Clackamas River. The North Fork watershed is divided into seven subwatersheds ranging in size from 1,113 acres to 4,796 acres. There is a mix of ownership in the watershed with the majority of the land (67%) administered by the Mt. Hood National Forest. The Bureau of Land Management (BLM) administers approximately 3% of the watershed, while private timber company holdings account for 30% of the land base.

The North Fork is a major flow contributor to the Clackamas River entering the mainstem at river mile (RM) 31.5, approximately 1.5 miles above the North Fork Dam. The North Fork flows in a westerly direction for approximately 13.8 miles from its headwaters at Squaw Mountain T4S, R6E, Sec. 16, (elevation 4,700 feet) to its confluence with the slackwater of North Fork Reservoir of the Clackamas River (elevation 660 feet). The very large drainage area of this stream, combined with high relief topography of the mainstem and its tributaries, indicate a high energy, flashy flow regime with a wide variation between seasonal flows. The watershed is dominated by mid seral forests of Douglas-fir and western hemlock in the western half, Pacific silver fir forests in the eastern half and a minor amount of mountain hemlock on the eastern border.

The North Fork watershed experienced a succession of large, stand replacement fires in the early 1900's, creating a predominance of uniform mid seral habitat in both riparian and up slope areas. Currently, 15% of the total North Fork watershed is in an early seral condition, 77% in mid seral, and 8% in late seral. The intensity of the fires coupled with salvage logging left very few remnant structures (trees, down wood) in the existing Riparian Reserves. Today, the Riparian Reserves in the watershed are composed of 8% early seral, 80% mid seral and 12% late seral stands.

The North Fork watershed contains 5.4 miles of anadromous streams, 32 miles of resident fish bearing streams, and 77 miles of non-fish bearing streams. A 50-foot falls at RM 2.4 of the North Fork Clackamas River, above the confluence with Bee Creek is a migration barrier for anadromous fish. All 5.4 miles of anadromous habitat are located on private and BLM land adjacent to the Forest Service boundary. Fish species that occur in the mainstem of North Fork up to the barrier falls include late and early run coho salmon, winter steelhead, spring chinook salmon, resident rainbow trout, and resident cutthroat trout. Above the barrier falls, native populations of resident rainbow and cutthroat trout occupy the mainstem of North Fork and its major tributaries Bedford, Boyer, and Winslow Creeks. Other fish occupying the watershed include large-scale suckers, sculpin, longnose dace, and pacific lamprey.

### **Lower North Fork Clackamas River**

The Lower North Fork Clackamas River subwatershed is 4,796 acres. The watershed includes the lower 6.8 miles of the mainstem North Fork from its confluence with the Clackamas River to Boyer Creek. The 7.5 square mile watershed has approximately 22.2 miles of streams.

Eighteen units are located completely or partially within the Lower North Fork Clackamas River subwatershed (1,2,3,4,5,6,9,10,11,12a,12b,15,34,35,37,38,and 39). Thinning is proposed for approximately 673 acres. Approximately 14.3 acres of Riparian Reserve thinning along streams is proposed within six units. The nearest occurrence of any PETS fish habitat to a proposed unit within the Lower North Fork subwatershed is 0.3 mile. The nearest occurrence of PETS fish habitat to any unit where riparian thinning will take place is 1.5 miles.

**Streams Potentially Affected by Riparian Reserve Harvest**

Unit #	Acres within watershed	Riparian Reserve Entry <i>acres</i>	Length of non fish-bearing streams <i>feet</i>	Length of Fish-bearing streams <i>feet</i>	Downstream Distance to Nearest PETS Habitat <i>miles</i>
4	16	3.7	1190	0	1.5
5	16	1	275	0	1.6
10	72	3.9	3015	0	2.7
12a	97.2	2.3	1160	0	3.0
13	21	3.0	1900	980	2.7
35	21	0.4	597	0	2.8

**Upper North Fork Clackamas River**

The Upper North Fork Clackamas River subwatershed is 4,926 acres. The watershed includes the mainstem North Fork from Boyer Creek RM 6.8 to the headwaters. The 7.7 square mile watershed includes approximately 41.6 stream miles.

Thinning is proposed on approximately 76.7 acres within four units of the Upper North Fork Clackamas subwatershed (21, 24, 25, and 31). There will be no entry into any Riparian Reserve along streams under any of the action alternatives. The nearest occurrence of any proposed unit to PETS fish species or habitat is 5.6 miles downstream of the project area.

**Bedford Creek**

The Bedford Creek subwatershed encompasses 1,896 acres. The 2.96 square mile watershed contains a total of 9.1 miles of streams that includes Bedford Creek and a number of small first order non-fish bearing tributaries. There is approximately 4.2 miles of fish bearing stream within the watershed. Bedford Creek is a second order tributary to the North Fork Clackamas River. The headwaters originate from underground springs located in T4S, R5E, Sec. 7 (elevation 3,200 ft.) and flows in a westerly direction for 5.2 miles to its confluence with the North Fork at RM 2.7 (elevation 1,360 ft.). Private land holdings account for approximately 1,022 acres of the watershed. Stream gradient is fairly high ranging from 3% near the mouth to 9% in the headwaters. Instream habitat is composed mainly of riffles with pools being less frequent in the upper reaches. The average channel width ranges from six to nine feet with cobble and gravel being the dominant substrates. Fish species that occur within the Bedford Creek subwatershed include resident rainbow and cutthroat trout. No ESA listed fish species occur within the Bedford Creek subwatershed. The majority of the Bedford Creek watershed has been heavily influenced by fire and timber harvest. Riparian vegetation throughout the watershed is primarily mid seral stage.

Four units (36, 38, 39, and 40) totaling 147 acres are located within the Bedford Creek subwatershed. The upland portion of the Riparian Reserve along Bedford Creek will be entered in three units (36, 38, and 39). Approximately 23.7 acres of the dry upland portion of the Riparian Reserve is proposed for thinning. The nearest occurrence of PETS fish species or habitat occurs 1.6 miles downstream of the proposed units.

**Streams Potentially Affected by Riparian Reserve Harvest**

Unit #	Acres within watershed	Riparian Reserve Entry <i>acres</i>	Length of non fish-bearing streams <i>feet</i>	Length of Fish-bearing streams <i>feet</i>	Downstream Distance to Nearest PETS Habitat <i>miles</i>
36	23.6	2.9	1356	0	2.5
38	41.7	9.5	1830	940	2.0
39	53	11.3	1070	1676	1.6

**Boyer Creek**

The Boyer Creek subwatershed is 3,362 acres. The 5.25 square mile watershed contains approximately 20.6 total miles of streams that includes Boyer Creek and a number of unnamed first and second order non-fish bearing tributaries. There is approximately 7.0 miles of fish bearing streams within the watershed. Boyer Creek is a third order tributary to the North Fork Clackamas River. It is the largest fish-bearing tributary entering the North Fork. The headwaters originate from underground springs located in T4S, R6E, Sec. 30 (elevation 2,840 ft.) and flows in a westerly direction for 4.6 miles to its confluence with the North Fork at RM 6.8 (elevation 1,960 ft.). Approximately 55 acres of the watershed is on private land. Stream gradient ranges from 7% at the mouth to 3% in the headwaters. Instream habitat is composed of 16% pools. The average channel width ranges from 6 to 13 feet with dominant substrate consisting of cobble/gravel. Fish species that occur within the Boyer Creek subwatershed include resident rainbow and cutthroat trout. The majority of the Boyer Creek watershed like the other subwatersheds in the North Fork drainage has been heavily influenced by past fire history, timber harvest, cattle grazing, and road building. Riparian vegetation throughout the watershed is primarily mid seral stage. Alders make up 31% of the overall riparian vegetation, the highest amount compared to the other subwatersheds in the North Fork drainage.

Thinning is proposed on approximately 73.8 acres within the Boyer Creek subwatershed. Four units (21, 23, 24, and 25) are completely or partially within the Boyer Creek drainage. Entry into the upland portions of Riparian Reserves along streams is proposed for 2.3 acres within three units of the watershed. The nearest occurrence of PETS species or habitat to any proposed unit within the Boyer Creek subwatershed is 5.4 miles.

**Streams Potentially Affected by Riparian Reserve Harvest**

Unit #	Acres within watershed	Riparian Reserve Entry <i>acres</i>	Length of non fish-bearing streams <i>feet</i>	Length of Fish-bearing streams <i>feet</i>	Downstream Distance to Nearest PETS Habitat <i>miles</i>
21	8.9	0.2	0.0	0.0	5.4
23	5.0	1.9	572	465	6.1
25	32.1	0.2	650	0.0	7.1

### Winslow Creek

The Winslow Creek basin is located south of the Boyer Creek drainage. The subwatershed is 1,313 acres in size and is located entirely on Forest Service land. The 2.05 square mile watershed contains approximately 6.05 total stream miles, 2.9 miles of stream are fish bearing. Winslow Creek is a second order tributary to Boyer Creek. The headwaters originate from underground springs located in T4S, R6E, Sec. 31 (elevation 2,600 ft.) and flow in a westerly direction for 2.5 miles to its confluence with Boyer Creek at RM 0.4 (elevation 1,600 ft.). Stream gradient averages 5% percent. The dominant substrate is gravel with some bedrock. Winslow Creek averages 9.5 feet in width. Fish species that occur within the Winslow Creek subwatershed include resident rainbow and cutthroat trout. The majority of the watershed like the other subwatersheds in the North Fork drainage has been heavily influenced by past fire history, timber harvest, and road building. Riparian vegetation throughout the watershed is primarily mid seral stage.

Three units totaling approximately 111 acres is proposed for thinning within the Winslow Creek subwatershed. Entry into the Riparian Reserve along streams within the watershed will occur within 4.9 acres of two units. The nearest occurrence of PETS fish species or habitat is 6.3 miles downstream of any proposed unit.

#### Streams Potentially Affected by Riparian Reserve Harvest

Unit #	Acres within watershed	Riparian Reserve Entry <i>acres</i>	Length of non fish-bearing streams <i>feet</i>	Length of Fish-bearing streams <i>feet</i>	Downstream Distance to Nearest PETS Habitat <i>miles</i>
17	39.7	4.5	1540	760	6.3
19	45.0	0.4	2400	0.0	6.7
20	26.0	0.0	NA	NA	7.5

### Lower Clackamas River Tributaries

The Lower Clackamas Tributaries watershed covers 16,243.5 acres and is made up of a number of small, high-gradient first and second order tributaries that flow into the mainstem Clackamas River. All of the small streams associated with the No Whisky Thinning Project are non fish bearing streams that flow into the Clackamas River between RM 38.5 and 38.1. All of these streams are located along the north side of the mainstem Clackamas.

Ten units are located completely or partially within the Lower Clackamas River Tributaries subwatershed. Approximately 592 acres are proposed for thinning. There will be no entry into any Riparian Reserves along streams within this subwatershed.

### ACTIVITIES COMMON TO ALL ACTION ALTERNATIVES

The following project elements are common to all of the project action alternatives:

#### Timber Felling

Felling of the timber will be accomplished by hand felling or the use of a mechanical harvester/processor. Hand felling will be utilized on ground that is too steep for harvesters to operate on (generally on slopes greater than 40%). The use of mechanical

harvester/processors will be permitted on slopes up to 40%. Harvesters will be required to work on a layer of residual slash placed in the harvester path prior to advancing the equipment. To reduce the risk of erosion harvesters will be restricted to operate only during the dry season (May 31 to November 1). This restriction may be waived if soils are dry or frozen.

Variable density thinning prescriptions would be designed to enhance or restore biological diversity on approximately 1,633 acres of Matrix Land.. Thinning would generally remove the smaller trees, leaving a relative density (RD) of 25 to 35, which is approximately 120 to 150 square feet of basal area per acre. The silvicultural prescription would be developed to refine the number and types of trees to be retained based on the needs of each stand.

### **Yarding**

Yarding will be accomplished utilizing a combination of mechanical harvester, forwarders, tractor, skyline, and helicopter logging systems. All ground based tractor operations will take place on slopes averaging less than 30% to avoid the risk of damage to soil and water resources. Mechanical harvesters will be permitted on slopes up to 40%. No operation of ground-based yarding equipment will be permitted between November 1 and May 31 to reduce the risk of soil compaction and erosion. This restriction may be waived if soils are dry or frozen or if operators switch to skyline or other non-ground based systems.

All skyline yarding will incorporate one end or full suspension if needed, such as when yarding over a stream channel or seep. Yarding corridors will be approximately 15 feet to 20 feet wide and 100 feet apart. Cut logs would be hauled by cable upslope, and downslope, to landing locations on the existing road systems.

The Forest Service will designate landing locations in areas where there are resource concerns (such as within Riparian Reserves). Landings located by the purchaser will be approved by the USFS. Landings in Riparian Reserves would be located on existing roadways not requiring expansion of the road prism, or on existing landings that require only minimum reconstruction (clearing vegetation generated from earlier entries, sloping for drainage, or surfacing for erosion control purposes) to be made suitable for use. Landings located within Riparian Reserves will be at least 100 feet from any stream. The size and number of landings will be kept to the minimum required to harvest the units.

The use of designated skid trails and/or forwarder paths will help to minimize detrimental soil compaction within the project area. Existing skid trails from prior entry in the project area will be used whenever feasible. Following harvest activities, effective ground cover will be provided on ground based skid roads that have a potential for erosion problems. Water bars and/or cross ditches will be installed where needed to disperse water and control surface run-off.

### **Road Maintenance**

Maintenance to the existing system roads prior to hauling will include placement of new aggregate surfacing where necessary to upgrade the quality of the road bed and to



improve road drainage, spot patching, sealing, brushing, and ditch cleanout where needed. Ditch cleanout would be the removal of any material that may have slid into the ditch line that could impede the drainage capability. Existing ditch line vegetation would be maintained whenever possible to reduce the risk of erosion. Road construction or maintenance will be restricted to the dry season between June 1 and October 31 unless unusually dry conditions permit activities outside this window.

Reusing an old temporary road that runs alongside unit 21 is proposed under all of the action alternatives. Re-opening this road will consist of removing a berm currently blocking vehicle access, brushing overgrown areas, blading, and spot rocking where needed.

### **Log Haul**

The haul route will be along both aggregate and paved surface roads. The network of aggregate surfaced roads along the route are level two and level three system roads, where the ditches are maintained and vegetated. However, these roads will be reconstructed prior to project use where necessary to strengthen or stabilize any identified problem areas. Haul will occur along the 4610, 4611, 4612, and 4614 road systems. The haul route will cross seven perennial streams where resident fish species are present. There are no crossings along aggregate surface roads over PETS fish habitat on the haul routes. The nearest aggregate surface stream crossing is over 2.5 miles upstream of any occurrence of PETS fish species or their habitat.

Haul on these roads is not seasonally restricted. During the wet season, log haul would only be permitted on asphalt and rocked roads when conditions would prevent sediment delivery to streams. Haul will be stopped only if there is rutting of the road surface or a noticeable increase in the turbidity of water draining to the road ditches or at stream crossings. Haul activity will be monitored by timber sale officer assigned to the project.

### **Fuels Treatment**

Fuels treatment following completion of harvest activities will consist of burning landing debris where needed to reduce fire hazard. No other burning or slash treatment is planned.

## **DESCRIPTION OF ALTERNATIVES**

### **Alternative A - No Action**

Under the No-action alternative, current management plans would continue to guide management of the project area. No timber harvest or other associated actions would be implemented to accomplish project goals.

### **Alternative B**

Alternative B would thin and harvest wood fiber from approximately 1,678 acres (1633 acres of matrix land and 45 acres of the dry upland portion of riparian reserves). Approximately 1,367 acres will be logged with ground-based equipment, 246 acres will

be skyline logged, and 65 acres will be logged by helicopter. The silvicultural prescription would be developed to refine the number and types of trees to be retained based on the needs of each stand. Variable density thinning prescriptions would be designed to enhance or restore biological diversity. Thinning would generally remove the smaller trees, leaving a relative density (RD) of 25 to 35, which is approximately 120 to 150 square feet of basal area per acre.

The silvicultural prescription would be adjusted in riparian reserves to create conditions suitable for maximum diameter growth and enhance the potential for large wood recruitment. The intention is to enhance riparian reserves by accelerating the development of mature and late-successional stand conditions. Riparian thinning would generally remove the smaller trees, leaving a relative density (RD) of 20 to 35, which is approximately 110 to 150 square feet of basal area per acre. For this project, riparian reserve widths are 180 feet for non-fish-bearing streams and 360 feet for fish-bearing streams.

No-harvest buffers will be established along the active channels of all perennial and intermittent streams and all seeps and springs. The no-harvest buffer widths will be a minimum of 50 feet along perennial stream channels and a minimum of 30 ft. along the channels of all intermittent streams. Larger buffer widths may be needed on a site-specific basis to prevent any increase in sediment delivery rates or a decrease in stream shading. No harvesting equipment will be allowed to operate within this area. Buffer width design will take into account the stream influence zone, steepness of slope, size and location of trees, orientation of the site to the sun (aspect), slope stability, and stream bank stability. No-cut areas will include any buffer of hardwood vegetation occurring along the stream bank. No-cut buffers will generally be at the top of slope breaks on steeper ground and would circumvent all wet areas to achieve aquatic conservation strategy objectives and maintain canopy cover along riparian areas. Falling trees for skyline corridors would be avoided, but where necessary the material would be left as woody debris.

For the next 50 ft. adjacent to the no-harvest buffers along perennial and intermittent streams, only low impact harvesting equipment such as, but not limited to, mechanical harvesters or skyline systems (suspension yarding), which have minimal ground disturbance would be allowed. Mechanical harvesting equipment would be required to operate on slash-covered paths. Trees in this zone would be directionally felled away from the no-harvest buffer to minimize the disturbance to the forest floor.

No cut areas along seeps, springs, and wet areas would extend to the outer limits of riparian vegetation and would include the first row of coniferous trees. There are some small seeps and wet areas that are too small to show on project maps or have not been verified in the field. These areas would also be excluded from harvest.

Existing system roads, closed temporary roads from previous entries, and new temporary roads will provide access to the project area. Approximately 2,550 feet of previously used temporary roads will be re-opened and 7,755 feet of new temporary roads will be constructed under this alternative. Re-opening old temporary roads will consist of

removing any gates or berms blocking vehicle access, brushing overgrown areas, blading, and spot rocking where needed.

The new temporary roads will be of native surface and located along ridge tops, outside of any Riparian Reserve. No temporary road will cross any stream channel. Following harvest activities these roads will be obliterated and revegetated.

Commercial thinning will be accomplished utilizing a combination of mechanical harvester, forwarders, tractor, skyline, and helicopter logging systems. The seasonal operation for ground-based equipment will be between May 31 and November 1. All ground based tractor operations will take place on slopes averaging less than 30% to avoid the risk of damage to soil and water resources. Mechanical harvesters will be permitted on slopes up to 40% and will be operating within the stream influence zone (one site potential tree height ~ 180 ft.) on units where there will be entry into Riparian Reserves. Harvesters operating within the Riparian Reserves and Matrix Land will be required to work on a layer of residual slash placed in the harvester path prior to advancing the equipment. Harvester travel routes will be limited to one pass over a path whenever possible.

On areas where tractors will be used, skid trails will be located outside of riparian reserves and trees would be directionally felled away from the stream influence zone and winched. All skyline yarding will be one end or full suspension if needed, such as when yarding over a stream channel or seep.

Existing skid trails from prior entry in the project area will be used where possible. Following harvest activities, effective ground cover will be placed on ground based skid roads that have the potential for erosion problems. Water bars and/or cross ditches will be installed where needed to disperse water and control surface run-off.

### **Alternative C**

Alternative C would be similar to B except that no new temporary roads would be constructed. Alternative C would thin and harvest wood fiber from approximately 1,678 acres (1633 acres of matrix land and 45 acres of the dry upland portion of riparian reserves). All silviculture prescriptions will be the same as in Alternative B. Helicopter or other logging systems would be used where needed. Approximately 1,700 feet of old temporary road from a previous entry will be re-opened in unit #21 as in Alternative B. The units that have changed logging systems or roads are #1, #24, #25, #38, and #39. Logging systems under alternative C would include: 1,363 acres of ground based systems, 92 acres skyline, and approximately 223 acres of helicopter logging.

### **Alternative D**

Alternative D would be similar to C except that no riparian reserves would be thinned. Under this alternative approximately 1,633 acres would be thinned. The logging systems would include: 1,348 acres of ground based logging systems, 83 acres of skyline, and 202 acres utilizing helicopter logging systems. The units with these changes are #4, #5, #10,

#12a, #13, #17, #19, #21, #23, #25, #35, #36, #38, and #39. The silviculture prescriptions will remain the same for Matrix Land as prescribed alternatives B and C. No new temporary roads will be built. Approximately 1,700 feet of old temporary road will be re-opened to access unit #24.

## **COMPARISON OF ENVIRONMENTAL CONSEQUENCES BY ALTERNATIVE**

The potential effects to water quality and fisheries for Alternative C and D would be less than that of Alternative B. These alternatives do not include any new temporary road construction; therefore there would be no risk of erosion or sediment entering streams due to the construction of temporary roads. There would be slightly less risk of erosion from harvest operations under alternative C since helicopter logging would be used instead of ground based or skyline yarding systems on parts of some units. Because of less ground disturbance, the chance of sediment reaching the stream channel is even less likely than Alternative B. There would be even less risk of erosion or sediment entering streams from harvest operations under alternative D since there would be no entry into the Riparian Reserves.

## **INTERRELATED OR INTERDEPENDENT ACTIONS**

Secondary impacts include interrelated projects that have no independent utility apart from the proposed action, and interdependent projects that are a part of a larger action and depend on the larger action for justification.

There are no interrelated or interdependent actions for the proposed action.

## **PRESENCE OF PETS FISH AND AQUATIC SPECIES WITHIN OR DOWNSTREAM OF THE ACTION AREA**

**Columbia River Bull Trout** (*Salvelinus confluentus*) - (Threatened) Bull trout were once prolific in the Clackamas River system. At present, they are believed to be extinct. Adult bull trout that occurred in the Clackamas River exhibited a fluvial life history character, maintaining residence in the main river and larger tributaries. It is quite likely that adult bull trout in the Clackamas River migrated to the Willamette and Columbia Rivers prior to construction of River Mill Dam. Adult bull trout would reside in the mainstem and larger tributaries until their spawning period during mid-August through September, at which time they would migrate upstream to smaller tributaries to spawn.

U.S. Forest Service fisheries biologists conduct fisheries sampling on an annual basis on many streams throughout the Clackamas River watershed upstream of North Fork Reservoir. To date, these sampling efforts have never yielded capture of bull trout. After several years of intensive sampling, U.S. Forest Service fisheries biologists believe that bull trout in the Clackamas River are considered to be "functionally extinct."

**Lower Columbia River Steelhead** (*Oncorhynchus mykiss*) - (Threatened) Adult steelhead migrate into the waters of the Clackamas River drainage above North Fork Dam primarily during April through June with peak migration occurring in May.

Spawning occurs during the months of April through June in the Upper Clackamas River and during the months of March through June in the Oak Grove Fork. Steelhead use the majority of the mainstem Clackamas and major tributaries such as the South Fork of the Clackamas River, Fish Creek, Roaring River, Oak Grove Fork, Collawash River, and the Hot Springs Fork of the Collawash as spawning and rearing habitat. Winter steelhead fry emerge between late June and late July and rear in freshwater habitat for one to three years. Smolt emigration takes place March through June during spring freshets.

LCR steelhead and their designated critical habitat occur up to RM 2.4 in the North Fork and within the mainstem Clackamas River. LCR steelhead do not occur in any of the stream reaches that flow within proposed units of the No Whisky Project. The nearest occurrence of LCR steelhead is over 1.5 miles downstream of any unit with a proposal to enter a streamside Riparian Reserve.

**Upper Willamette River Spring Chinook (*Oncorhynchus tshawytscha*) - (Threatened)**  
Upper Willamette River spring chinook salmon occur in the Clackamas River. The ESU consists of both naturally spawning and hatchery produced fish. These spring chinook enter the Clackamas basin from April through August and spawn from September through early October with peak spawning occurring the 3<sup>rd</sup> week in September. These fish primarily spawn and rear in the mainstem Clackamas River and larger tributaries.

Adults in the lower Clackamas drainage spawn in lower Clear Creek, Deep Creek, and Eagle Creek, below River Mill Dam and between River Mill and Faraday diversion dams. Spawning in the upper Clackamas drainage has been observed in the mainstem Clackamas from the head of North Fork Reservoir upstream to Big Bottom, the Collawash River, Hot Springs Fork of the Collawash River, lower Fish Creek, Roaring River, and the first 0.4-mile of the South Fork Clackamas River.

Upper Willamette River chinook and its critical habitat occur up to RM 2.4 of the North Fork of the Clackamas River and within the mainstem Clackamas River. UWR chinook do not occur within any of the stream reaches that flow through No Whisky units. The nearest occurrence of UWR chinook to any proposed unit within the Clackamas River or North Fork watershed is over one mile.

**Lower Columbia River Fall Chinook (*Oncorhynchus tshawytscha*) (Threatened)**  
The fall chinook within the Clackamas Subbasin are thought to originate from "tule" stock which was first released into the subbasin in 1952 and continued until 1981. Since 1981 no fall chinook have been released into the Clackamas River. However some adult fall chinook released as juveniles above Willamette Falls may have strayed into the Clackamas River.

Historically fall chinook spawned in the mainstem Clackamas River above the present site of the North Fork Dam before its construction. Currently the "tule" stock of fall chinook spawn in the mainstem Clackamas River below River Mill Dam and in the lower reaches of Clear Creek. Fall Chinook spawn late August through September. These fish primarily spawn and rear in the mainstem Clackamas River and larger tributaries and are not found above River Mill Dam. The nearest occurrence of LCR chinook or its critical

habitat to the project area is below River Mill Dam on the mainstem Clackamas River over 10 miles downstream of the No Whisky project area.

**Lower Columbia River Coho Salmon (*Oncorhynchus kisutch*) (Threatened)**

The Clackamas River contains the last important run of wild late-run winter coho in the Columbia Basin. Coho salmon occupy the Clackamas River and the lower reaches of streams in the Upper Clackamas watershed including the lower two miles of the Oak Grove Fork. Adult late-run winter coho enter the Clackamas River from November through February. Spawning occurs mid-January to the end of April with the peak in mid-February. Peak smolt migration takes place in April and May.

Coho salmon occur within the North Fork Clackamas River up to RM 2.4 and in the mainstem Clackamas River. The nearest occurrence of LCR coho salmon to the No Whisky Project area is over 1.5 miles downstream of any thinning unit that has a proposed Riparian Reserve entry.

**Columbia Dusky Snail**

(*Lyogyrus n. sp. 1*)

C3 species *Survey and Manage* (ROD)

*Lyogyrus* occurs in cold, well oxygenated perennial springs and spring outflows in shallow, slow-flowing areas. Most of the Columbia duskysnails found on the forest have been found in slow, clear, cold (<14 Celsius) water of small systems, such as spring, spring outflow and headwater tributaries. The substrate of site ranges from silt to cobble, and there seems to be a strong association with aquatic moss, especially *Fontinalis*. Often the snails are on the “fronds” of this moss in the sample area. There doesn’t appear to be an association with other aquatic macrophytes. *Lyogyrus* has been found on all four districts on the Mt. Hood NF and has a wide distribution across all major watersheds on the forest. Potential habitat for the Columbia Dusky Snail occurs in the Action Area.

**Basalt Juga**

(*Juga Oreobasis n. sp. 2*)

C3 species *Survey and Manage* (ROD)

The basalt Juga occurs sporadically in small, shallow, undisturbed perennial springs and small seeps that flow into the Columbia River. It prefers gravel substrates where *Rorippa* (water cress) is usually present. Occupied springs are often surrounded by basalt talus. The species has been found on sites within the Columbia River Gorge in the Mt. Hood National Forest and Columbia Gorge National Scenic Area. The basalt Juga has never been found within the Clackamas River basin. Potential habitat for the basalt Juga may occur in the Action Area.

## **EFFECTS DETERMINATION**

The effects determination of the No Whisky Thinning Project will be based on project elements of the action alternatives that could have potential direct or indirect impacts on PETS fish and aquatic species or their habitats. These project elements include:

- Timber Felling
- Road maintenance/construction
- Yarding
- Log haul
- Road decommissioning (obliteration)

The analysis of effects focused on relevant habitat indicators that potentially could be affected by these project elements. The relevant habitat indicators include:

- Sediment
- Temperature
- Peak/Base Flow

### **Direct Effects**

Potential direct effects associated with project elements of the No Whisky Thinning Project are:

- Increased levels of fine sediment in local streams generated during road building, road obliteration, logging, and hauling.
- Increase in stream temperature caused by loss of streamside vegetative cover by thinning within Riparian Reserves.
- Increase in peak flows caused by removal of vegetative cover.

To determine potential direct effects to PETS species, each of the relevant habitat indicators was evaluated by proximity to the action area, probability that an effect would occur, and magnitude of the action, if needed.

### **Sediment**

Ground disturbing activities associated with temporary road building, re-opening old temporary roads, and road work along the haul routes within the No Whisky Project Area have been designed to minimize the risk of erosion and the potential for sediment to be transported to streams. Road construction would be restricted to the dry season between June 1 and October 31. This restriction would reduce the risk of any surface erosion due to ground disturbance. The proposed temporary roads are located on dry ground, would not cross any stream channels, and would have no hydrologic link to any water source. The closest any proposed temporary road is to a stream is over 325 feet from an intermittent channel and over 550 feet from a perennial channel. These roads would be constructed on relatively flat terrain along ridgetops, which would not cause an increase in the drainage network. Because of the distance of the proposed temporary roads to any

water source and the fact that these roads do not cross any perennial or intermittent streams, vegetative buffers would act as an effective barrier to any sediment being transported into stream channels by surface erosion or runoff. All temporary roads would be obliterated and revegetated directly following completion of harvest operations to help reduce compaction and increase infiltration rates. Impact to water quality or fisheries resources caused by sedimentation due to road construction or road obliteration, if any, would be short-term and undetectable at a watershed scale.

Thinning within riparian reserves is a ground disturbing activity that has the potential to cause a temporary reduction in water quality by allowing sediment to enter the stream channel from surface erosion or run-off. No-cut buffers, a minimum of 50 ft. wide, along perennial streams and a minimum buffer width of 30 ft. along intermittent channels, have been established for the No Whisky Project. Buffer width design would take into account the stream influence zone, steepness of slope, size and location of trees, orientation of the site to the sun (aspect), slope stability, and stream bank stability. No-cut areas would include any buffer of hardwood vegetation occurring along the stream bank. No-cut buffers would generally be at the top of slope breaks on steeper ground and would circumvent all wet areas to maintain canopy cover along riparian areas. These vegetative buffers would act as an effective barrier to any sediment being transported into stream channels by surface erosion or run-off and would minimize the risk of any channel or water quality impacts. The minimum 30-50 foot protection buffers on either side of the streams will likely retain any displaced and eroded soil before it is transported to the stream channel. These buffer widths would allow soil infiltration between the unit and any water source. The use of skyline or helicopter yarding systems on steeper ground within riparian reserves will minimize ground disturbance. Seasonal restrictions on ground-based operations would further reduce the risk of soil disturbance and run-off. Even if some soil movement occurred, the vegetated buffer strips along every perennial or intermittent channel would act as an effective barrier. The probability that measurable amounts of fine sediment would enter any stream within the project area as a direct result of logging activity is low.

Log hauling would not measurably increase the amount of fine sediment in streams. The roads along the haul route are rocked or paved at stream crossings, and road ditches are well vegetated. The potential for sediment input into streams along the haul routes will be minimized by permitting haul only when conditions would prevent sediment delivery to streams. Any sediment that would enter a stream during haul activities would be at crossings along aggregate surfaced roads. The majority of these crossings are at small streams that would not be flowing, or would have very little flow, during the normal season of operation (June 1 to October 31). Any sediment that leaves the road surface due to run-off is expected to disperse over land or be stored within these small channels. It is very unlikely that any measurable amount of sediment produced during log haul would be transported to stream channels where PETS fish species occur. There are no listed fish species that occur immediately downstream of any aggregate surfaced stream crossing along the haul route. If any sediment did enter stream courses from hauling activities, it would be in very small amounts and for a short-term duration. No adverse effect to fish or their habitat would occur from hauling logs.



## **Temperature**

The no-cut buffers along perennial and intermittent streams will insure that the majority of shade producing vegetation will remain. These protection buffers will allow for the retention of the primary shade trees. The no-harvest buffer would be designed to meet stream temperature goals by avoiding harvest in the primary shade zone and by retaining 50% canopy closure in the secondary shade zone. Since the majority of the streams that flow within proposed units are relatively small, and have very little flow during the hottest time of the year, the designated no-cut buffers would provide adequate canopy cover to maintain existing shade components thus, maintaining stream temperatures. No proposed units have boundaries that border directly on the larger streams within the No Whisky Project Area such as North Fork Clackamas, Bedford Creek, Boyer Creek, and Winslow Creeks. These streams all have hardwood buffers along their channels that will provide adequate buffer width to maintain stream shading. Thinning will only take place within the upland portions of the Riparian Reserves and in most cases outside of the stream influence zone of one site potential tree height (180 ft.). Intermittent streams within the project area only carry water during wet times of the year (winter and spring) when temperatures are cooler, and no significant increase in stream temperature is expected downstream. No water quality effects are foreseen, and the low probability of effects would decrease, as the canopy and ground cover are re-established to pre-harvest conditions. All of the existing shade components will be maintained. There is a very low probability that implementation of the project will increase solar radiation. No measurable change in stream temperatures is expected as the result of implementing this project. Current stream temperatures in all streams within and downstream of the project area are expected to be maintained. Any effect to stream temperatures realized at the site scale would have to be transmitted downstream one mile or more before it could affect PETS fish species or their habitat.

## **Flow**

Any potential increase in flow in the Project Area is not expected to be measurable at the downstream end of the Action Area due to the distance and relatively low probability of any potential flow increase. Current conditions in the project area indicate a low risk for peak flow enhancement. Since the proposed action will maintain all treated stands at no less than 40% crown closure, this proposal results in no additional risk. The amount of the existing overstory vegetation that will be harvested within the units, will not likely cause a net reduction in the evapotranspiration rate within the affected drainages. Thus, there will be no increase in the volume of water available for transport by the stream network during early season precipitation events. There would be no increase in the drainage network due to roads as a result of the project since road segments proposed for construction have no hydrologic connection.

## **Indirect Effects**

Potential indirect effects may include increased amounts of fine sediment downstream in rivers or at the intake of municipal water providers, due to erosion from harvest units and roads. The use of project design criteria and adherence to General Best Management Practices (BMP's) will allow for very little, if any, erosion or sediment transport into any stream course, substantially reducing the impacts of soil disturbance and run-off on water

quality downstream of the project area. The probability of any indirect effects impacting PETS species or habitat downstream of the project area is low.

### **Cumulative Effects**

Cumulative effects associated with the No Whisky Thinning Project would focus around changes in the timing and/or magnitude of flow events resulting from past, present and future forest conditions. Past disturbances within the subwatersheds of the North Fork Clackamas and Middle Clackamas River include fire, timber harvest and road-building activities along with recreational use such as off-road vehicle usage. The harvest levels in recent years has been well below the level projected by the Northwest Forest Plan due to appeals, litigation and areas established for survey and manage species.

The Mount Hood Forest Plan employs an analysis tool referred to aggregate recovery percentage (ARP) to assess the effect of harvested openings and roads on hydrologic recovery. An ARP value greater than 75% typically indicates hydrologic recovery based on an average tree diameter of 8 inches dbh and canopy closure of at least 70% in the stand. ARP values of less than 65% suggest a very high likelihood of increased magnitude and frequency of peakflows and subsequent channel degradation.

Analysis on past thinning projects has shown that there are little if any measurable impacts to hydrologic function at the subwatershed scale. Cumulatively, watershed conditions in the short-term may be slightly decreased by harvest activities, but would be improved in the long-term by improving the number, type and health of the trees and stands over the long-term. Negligible changes in the ARP values (<2%) will result from the implementation of this proposed action at the site scale. Implementation of the No Whisky Thinning Project would maintain all riparian conditions at the 5<sup>th</sup> and 6<sup>th</sup> field watershed scales.

The Pacific Northwest has rapid hydrologic recovery in the first 10 years post-harvest, due to re-growth of vegetative cover. The ARP values in the subwatersheds associated with the No Whisky Thinning Project have been steadily increasing since 1996, indicating an on-going trend in hydrologic recovery and a reduction in cumulative effects over time. All of the subwatersheds on Forest Service lands have ARP values that fall below the threshold of concern of 35% indicated in the Mt. Hood National Forest LRMP.

**ARP Value in 2006**

<b>Subwatershed</b>	<b>Alternative A (Pre-Project)</b>	<b>Alternatives B, C&amp;D (Post Project)</b>	<b>Hydrologic Recovery to Pre-Project ARP</b>
Bedford Creek	89.0	87.4	2 years
Boyer Creek	91.4	91.1	1 year
Winslow Creek	95.9	95.1	1 year
Upper North Fork	89.9	89.7	1 year
Lower North Fork	92.6	90.5	2.5 years
Lower Clackamas Tribs	93.0	92.6	1 year

The ARP values calculated for the No Whisky Thinning project indicate that hydrologic recovery to pre-project ARP will occur within one to two years. Any affect to a change

in the timing or magnitude of flow events will be immeasurable at the site or the 5<sup>th</sup> field watershed scale.

### **ESA Cumulative Effects**

ESA cumulative effects are those effects of future State or private activities, not involving Federal activities that are reasonably certain to occur within the action area of the Federal action subject to consultation [50 CFR section 402.02]. The project area is located completely within federal lands however; there are private land holdings downstream of the project area within the Bedford Creek and Lower North Fork Clackamas River subwatersheds. It is certain that there will be non-federal projects planned and implemented on these lands in the future. Based on past activities on private land holdings within these subwatersheds, it is projected that there could be up to 200 acres of regeneration harvest occurring in the next five years. An analysis of the estimated current ARP values and projected harvest activity within the next five years indicate that ARP values will remain below the threshold of concern.

### **CONCLUSION**

The implementation of the No Whisky Thinning Project warrants a **“No Effect” (NE)** determination for Lower Columbia River steelhead, Lower Columbia River chinook, Upper Willamette River chinook, Columbia River bull trout, and Lower Columbia River coho salmon. The proposed project will have **“No Effect” (NE)** to designated critical habitat for Lower Columbia River steelhead, Lower Columbia River chinook, Columbia River bull trout, and Upper Willamette River Chinook, or to proposed critical habitat for Lower Columbia River coho salmon. A **“No Impact” (NI)** determination is warranted for Interior Redband trout, the Columbian Dusky Snail, and the basalt Juga. These effects determinations are appropriate for all of the action alternatives because of the proximity of the proposed project area to ESA species or suitable habitat, the relatively minor magnitude of effects in the Project Area, and of the low potential for impacts generated at the project area to be transported to downstream reaches where these species are known or suspected to occur. There is a low probability of any direct or indirect effects to any listed or proposed fish or aquatic species or their habitat within or outside of the designated action area. This effects determination is based on the following reasons:

- No PETS species occurs within or immediately downstream from the project area. The nearest occurrence of PETS fish species to the project area is over 1.6 miles from any Riparian Reserve entry.
- No entry into Riparian Reserves along any stream that flows directly into PETS habitat.
- Project design features such as no-cut buffers along streams, springs, and seeps and seasonal restrictions for ground-based operations.

- The use of cable yarding and/or helicopters on steeper ground, within Riparian Reserves.
- The nearest aggregate surface stream crossing along the haul route is over 2.5 miles upstream of any occurrence of PETS fish species or their habitat.
- Potential sediment delivery to streams during log transport will be minimized by restricting log haul to times when road related run-off is not present.
- Construction of new temporary roads will be on relatively flat ground or along ridge tops with no hydrological link to any water source.

This project was designed from its inception to avoid potential water quality related impacts by adhering to the following project design criteria:

1. Road construction, if needed, would be outside of riparian reserves.
2. Temporary road construction, if any, would be on gentle terrain and any temporary road would be closed and revegetated upon completion of the project.
3. Logging systems appropriate to the specific terrain of each unit were designed to avoid water quality impacts.
4. During unit and road placement, certain areas were avoided such as sensitive soil types and landforms. Harvest areas were dispersed across the landscape.
5. Road reconstruction along haul routes is designed to reduce erosion and repair damaged sections.

The use of project design criteria and adherence to General Best Management Practices (BMP's) will allow for very little, if any, erosion or sediment transport into the stream course, substantially reducing the impacts of soil disturbance and run-off on water quality.

## **DETERMINATION OF EFFECTS – DESIGNATED CRITICAL HABITAT**

Critical habitat for twelve Evolutionary Significant Units (ESUs) of West Coast salmon and steelhead listed under the Endangered Species Act of 1973 (ESA) was designated on September 2, 2005. Critical habitat includes the stream channels within the designated stream reaches, and includes a lateral extent as defined by the ordinary high-water line or bankfull elevation. Within these areas, the primary constituent elements essential for the conservation of these ESUs are those sites and habitat components that support one or more life stages, including: freshwater spawning sites, freshwater rearing sites, freshwater migration corridors, estuarine areas, near-shore marine areas, and off-shore marine areas that support growth and maturation.

Designated critical habitat for Upper Willamette River chinook, Lower Columbia River steelhead, and Lower Columbia River chinook occur downstream of the No Whisky Project in the mainstem Clackamas River and the North Fork Clackamas River. There is no critical habitat that occurs within the project area. Because of the distance of the No Whisky Project to designated critical habitat the effects determination is “No Effect” (NE) for all of the project alternatives.

## **DETERMINATION OF EFFECTS – ESSENTIAL FISH HABITAT**

Essential Fish Habitat (EFH) established under the Magnuson-Stevens Fishery Conservation and Management Act (MSA) includes those waters and substrate necessary to ensure the production needed to support a long-term sustainable fishery (i.e., properly functioning habitat conditions necessary for the long-term survival of the species through the full range of environmental variation). EFH includes all streams, lakes, ponds, wetlands, and other water bodies currently, or historically, accessible to salmon in Washington, Oregon, Idaho, and California. Three salmonid species are identified under the MSA, chinook salmon, coho salmon and Puget Sound pink salmon. Chinook and coho salmon occur on the Mt. Hood National Forest in the Clackamas River, Hood River, and Sandy River basins. Chinook and coho salmon utilize the mainstem Clackamas River and North Fork of the Clackamas River up to RM 2.4 for rearing and spawning habitat. The proposed project is located above any habitat that could be utilized by chinook or coho. Implementation of the project covered in this BE will have **No Effect** on essential fish habitat for chinook or coho salmon. The proposed project will not have any effect on water or substrate essential to the life history of coho, chinook, or chum salmon that occur within any basin on the Mt. Hood National Forest.

This activity will not jeopardize the existence of any of the species of concern or adversely modify critical habitat and will not adversely affect Essential Fish Habitat as designated under the 1996 Amendment to the Magnuson-Stevens Act.

Based on the **No Effect** determination of this project proposal, consultation with USFW and NOAA Fisheries is not required.

## **DESIGN CRITERIA AND BEST MANAGEMENT PRACTICES (BMPS)**

An interdisciplinary team from the Clackamas River Ranger District has developed project design criteria for commercial thinning projects. These criteria were used to develop the proposed actions.

**Soils:** No operation of off-road ground-based equipment would be permitted between November 1 and May 31. This restriction applies to the ground-based portions of harvest units. It also applies to ground-based equipment such as harvesters or equipment used for fuels treatment, road construction, road reconstruction or landing construction. This restriction may be waived if soils are dry or frozen or if operators switch to skyline or other non-ground based systems

**Erosion:** To reduce erosion from timber sale activities, bare soils would be revegetated. Grass seed and fertilizer would be evenly distributed at appropriate rates to ensure successful establishment. Mulch may be used on slopes greater than 20%. Effective ground cover would be installed prior to October 1 of each year.

**Thinning in Riparian Reserves:** Thinning in riparian reserves will emphasize the development of vegetative and structural diversity associated with mature old growth stand conditions. While thinning in the riparian reserve may have short-term effects, the thinning would contribute to maintaining or restoring the fifth-field watershed over the long term. Thinning in riparian reserves would increase tree size, adequately protect the zone of shade influence along streams, and minimize the potential for sediment delivery to streams. This prescription would maintain water temperature, large woody debris, disturbance regime, and riparian reserve indicators.

- **Perennial streams** - Establish a minimum 50 ft. no-harvest buffer along the active channel of all perennial streams. Larger buffer widths may be needed on a site-specific basis to prevent any increase in sediment delivery rates or a decrease in stream shading. Buffer width design would take into account the stream influence zone, steepness of slope, size and location of trees, orientation of the site to the sun (aspect), slope stability, and stream bank stability. Falling trees for skyline corridors would be avoided, but where necessary the material would be left as woody debris. Falling any trees within the no-harvest buffer would only be allowed if it would cause no increase to sediment or decrease in stream shading.
- **Intermittent streams** (as defined in NWP) – Establish a minimum 30 ft. no-harvest buffer along the active channel of all intermittent streams. Smaller buffer widths would be allowed if it is determined on a site specific basis that there would be no increase in sediment delivery rates or a decrease in stream shading which would alter stream temperatures. Buffer width design would take into account the stream influence zone, steepness of slope, size and location of trees, orientation of the site to the sun (aspect), slope stability, and stream bank stability. Falling trees or any equipment use within the no-harvest buffer would only be allowed if it would cause no increase to sediment or decrease in stream shading.
- Within 50 feet of perennial or intermittent stream no-harvest buffers, only low impact harvesting equipment such as, but not limited to, mechanical harvesters or skyline systems, which have minimal ground disturbance would be allowed. Mechanical harvesting equipment would be required to operate on slash-covered paths. Trees in this zone would be directionally felled away from the no-harvest buffer to minimize the disturbance to the forest floor. These requirements would maintain the indicators for sediment, stream temperature, stream bank condition, and large woody material indicators.

## **Logging Systems**

1. Avoid the use of ground based tractors or skidders on slopes generally greater than 30% and mechanical harvesters on slopes greater than 40% because of the risk of damage to soil and water resources.
2. Mechanical harvesters and forwarders would be required to work on a layer of residual slash and the operator would place slash in the harvester path prior to advancing the equipment.
3. In some units, ground-based logging is proposed for areas that have been previously harvested with ground-based systems. Existing temporary roads, landings and skid trails would generally be reused where feasible. There may be instances where it is not desirable to use an existing skid trail and in such cases, if a skid trail is needed in the area, a new skid trail would be located that minimizes the alteration of surface hydrology.
4. In some units, ground-based logging at the time of the original harvest has resulted in detrimental soil conditions that exceed Forest Plan standards. In these areas there is a greater urgency to reuse existing temporary roads, landings and skid trails. Some new skid trails might be needed as described above, but where detrimental soil conditions exceed 20%, only existing skid trails would be used and only those existing skid trails that do not alter surface hydrology.
5. Where existing detrimental soil conditions exceed Forest Plan standards, existing temporary roads and landings that are reused, would be obliterated and revegetated.

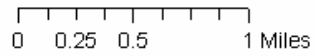
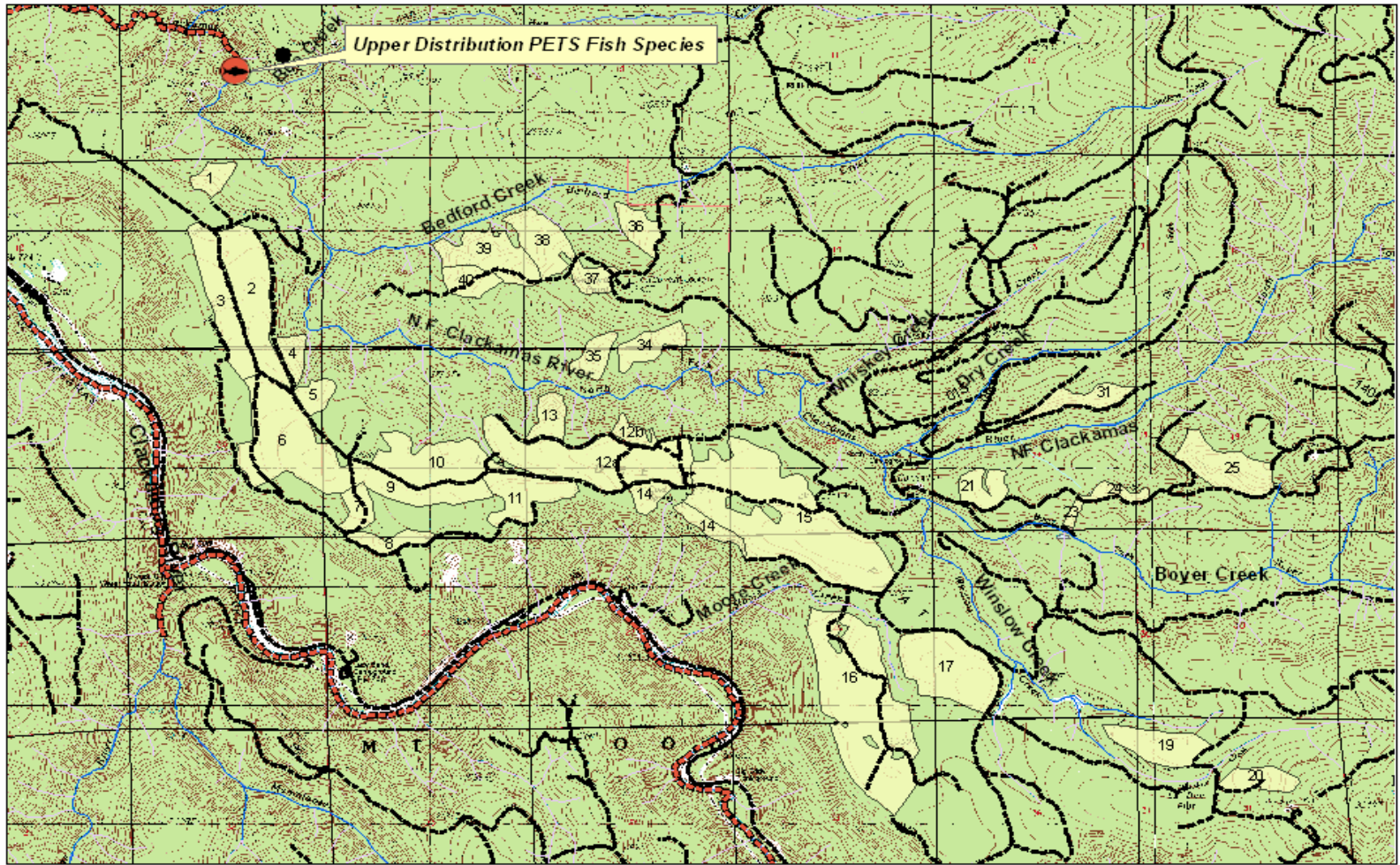
## **Roads**


1. During the wet season, log haul would only be permitted on asphalt and rockered roads when conditions would prevent sediment delivery to streams.
2. If landings are needed in riparian reserves, they would be located on existing roadways that do not require expansion of the road prism or on existing landings that may require only minimum reconstruction (clearing vegetation, sloping for drainage, or surfacing for erosion control purposes) to be made suitable for use.
3. The re-opening of old temporary roads is encouraged over the construction of new roads if they are located in areas that would prevent sediment delivery to streams.
4. Newly constructed roads would not cross or be constructed parallel to stream channels. They would be built on ridge tops, benches, or gentle slopes and only where conditions would prevent sediment delivery to streams.
5. No road construction is proposed within riparian reserves.

Temporary roads would normally be constructed, used and obliterated in the same operating season. If this is not possible, due to fire season restrictions or other unforeseen delays, the road would be winterized prior to the end of the normal operating season by out-sloping, water-barring, effectively blocking the entrance, seeding, mulching and fertilizing.



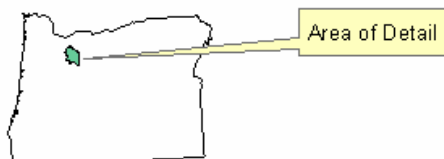
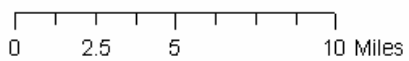
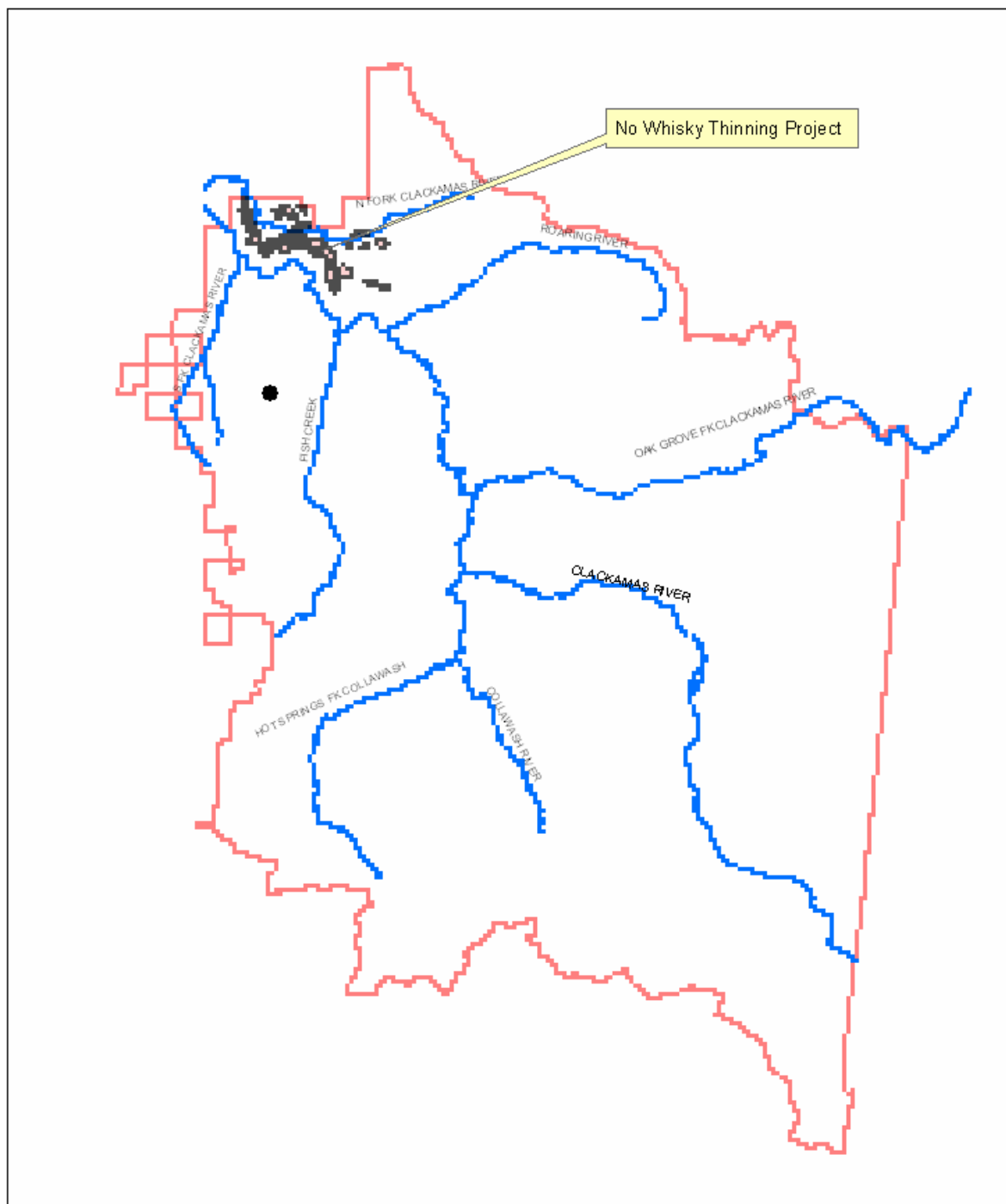
# No Whisky Thinning Project PETS Fish Species Distribution and Designated Critical Habitat



 PETS Fish Species Distribution/Designated Critical Habitat



# No Whisky Thinning Project



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