APPENDIX F: STREAM GEOMORPHIC SEGMENTS

The processes that affect stream function are directly related to channel gradient and confinement of that channel by the surrounding hill slopes. As shown in Map X (Geomorpgic Segments) streams in the analysis area were separated into geomorphic segments (Appendix (?) that help to explain how water, wood and substrates move through the watershed (Montgomery and Buffington, 1993). In general, source reaches are where material comes from, transport reaches move material through and deposition reaches represent areas where material is deposited. Knowing where each of these geomorphic segments are located in the watershed can allow resource managers to know where highest potential for various fish habitats are located and, if needed, where restoration efforts can be focussed to be most successful.

Source reaches have gradients greater than 8% and are either confined or moderately confined. These reaches are generally 1st and 2nd order streams (class 4) that flow intermittently but respond quickly to storm events and are subject to periodic scour by debris torrents. Being confined and moderately confined, adjacent hill slopes are directly connected to the channel. Under natural conditions, these segments are important sources of cool water and pulses of substrates and wood to the rest of the stream system. Aquatic habitat is generally limited due to the steep, episodic nature of these areas, but cutthroat trout and steelhead do use lower portions for spawning, and cutthroat trout may remain as residents in some of these areas. Over 80% of streams in the analysis area are classified as source segments.

Transport reaches range from 4-8% and are confined or moderately confined. They are generally 2nd and 3rd order streams (classes 2 and 3) with perennial flow. Storage of substrates and wood in these reaches is only temporary until the next high intensity storm produces flow sufficient to move material to segments lower in the system. These reaches are relatively resistant to long term geomorphic change caused by wood and substrate inputs because of their transitory nature, but aquatic species tend to respond to these temporary accumulations. These areas are most frequently utilized by cutthroat and steelhead, although coho will spawn and rear here as long as jams exist to trap gravel and provide cover.

Deposition reaches have gradients less than 4% and are moderately confined or unconfined. Although most typical deposition reaches are less than 2%, deposition areas from 2-4% serve as transitional areas from transport reaches. Found lower in the watershed in both tributaries and mainstems, these deposition reaches are usually 3rd order or greater (classes 1 and 2) and experience significant changes in morphology as wood and substrates are deposited from upstream. If functioning properly, moderate deposition reaches have good interaction with their floodplain during high flow events and can shift laterally to create long term storage areas for substrates and wood. Gravels accumulated in these areas can provide excellent spawning and rearing habitat for coho, and steelhead.

APPENDIX G -- WETLAND CLASSIFICATIONS

This is a breakdown of systems, subsystems, classes and subclasses of wetlands and deepwater habitats by acres after classification done by Cowardin, et al, 1979 for the coastal lakes watershed analysis area, Mapleton District, Oregon.

Estuarine - Deepwater habitats and adjacent tidal wetlands that are usually semienclosed by land but have open, partly obstructed, or sporadic access to the open ocean , and in which ocean water is at least occasionally diluted by fresh water runoff from the land.

On Map 8, Estuarine includes:	Acres
Estuarine, subtidal, unconsolidated bottom	19
Estuarine, intertidal, emergent, regularly flooded	12
Estuarine, intertidal, unconsolidated shore, regularly flooded	22
Estuarine, intertidal, unconsolidated shore, irregularly flooded	13

Lacustrine - Wetlands and deepwater habitats with all of the following characteristics: (1) situated in a topographic depression or a dammed river channel; (2) lacking trees, shrubs, persistent emergents, emergent mosses or lichens with greater than 30% aerial coverage; and (3) total area exceeds 20 acres.

On Map 8, Lacustrine, limnetic includes:	Acres
Lacustrine, limnetic, unconsolidated bottom, permanently flooded	4,012
Lacustrine, limnetic, unconsolidated bottom, permanently flooded, diked/impounded	1,635

On Map 8, Lacustrine, littoral includes:	
Lacustrine, littoral, aquatic bed, permanently flooded	104
Lacustrine, littoral, aquatic bed, permanently flooded, diked/impounded	171
Lacustrine, littoral, unconsolidated bottom, permanently flooded	22
Lacustrine, littoral, unconsolidated shore, temporarily flooded	45
Lacustrine, littoral, unconsolidated shore, seasonally flooded	32
Lacustrine, littoral, unconsolidated shore, seasonally flooded, diked/impounded	7

Marine - Open ocean overlying the continental shelf and its associated high-energy coastline.

On Map 8, Marine, intertidal includes:	
Marine, intertidal unconsolidated shore, regularly flooded	24
Marine, intertidal unconsolidated shore, irregularly flooded	123

Palustrine - Nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses or lichens, and all such wetlands that occur in tidal areas where salinity due to ocean derived salts is below 5%.

On Map 8, Palustrine, aquatic bed includes:	Acres
Palustrine, aquatic bed, permanently flooded	21

On Map 8, Palustrine, emergent vegetation, permanently and semi-permanently flooded includes:

Palustrine, emergent, semipermanently flooded	123
Palustrine, emergent, semipermanently flooded, beaver	12
Palustrine, emergent, semipermanently flooded, diked/impounded	46
Palustrine, emergent, permanently flooded	94
Palustrine, emergent, permanently flooded, diked/impounded	230
Palustrine, emergent, regularly flooded	10
Palustrine, emergent, seasonal tidal	1

On Map 8, Palustrine, emergent vegetation, flooded part of the year includes:

Palustrine, emergent, temporarily flooded	512
Palustrine, emergent, seasonally flooded	414
Palustrine, emergent, seasonally flooded, beaver	14
Palustrine, emergent, seasonally flooded, diked/impounded	7

On Map 8, Palustrine, forest, scrub, shrub, flooded part of the year includes:

Palustrine, forested, temporarily flooded	80
Palustrine, forested, saturated	<1
Palustrine, forested, seasonally flooded	258
Palustrine, forested, seasonal tidal	2
Palustrine, scrub/shrub, temporarily flooded	55
Palustrine, scrub/shrub, saturated	<1
Palustrine, scrub/shrub, seasonally flooded	1546
Palustrine, scrub/shrub, seasonally flooded, beaver	11

On Map 8, Palustrine, unconsolidated bottom, permanently and semipermanently flooded includes:

Palustrine, unconsolidated bottom, semipermanently flooded	2
Palustrine, unconsolidated bottom, permanently flooded	49
Palustrine, unconsolidated bottom, permanently flooded, beaver	2
Palustrine, unconsolidated bottom, permanently flooded, diked/impounded	15
Palustrine, unconsolidated bottom, permanently flooded, excavated	<1

On Map 8, Palustrine, unconsolidated bottom, flooded part of the year includes:

Palustrine, unconsolidated shore, temporary flooding	74
Palustrine, unconsolidated shore, seasonal flooding	54

Riverine - Wetlands and deepwater habitats contained within a channel (open conduit, either natural or manmade), with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean derived salts in excess of 5%.

On Map 8, Riverine, tidal includes:	Acres
Riverine, tidal, unconsolidated bottom, permanently tidal	32
Riverine, tidal, unconsolidated shore, regularly flooded	6
Riverine, tidal, unconsolidated shore, seasonally tidal	12

On Map 8, Riverine, low gradient includes:

Riverine, lower perennial, aquatic bed, permanently flooded	5
Riverine, lower perennial, unconsolidated bottom	15

Riverine, lower perennial, unconsolidated shore, temporarily flooded	2
Riverine, intermittent, streambed, seasonally flooded	6