

## Appendix E

### Channel Condition Assessment Criteria

HABITAT CATEGORY	HABITAT FACTOR	PROPERLY FUNCTIONING	AT RISK	NOT PROPERLY FUNCTIONING
Channel Conditions <sup>1</sup>	Streambank Condition	>90% stable; i.e., on average, less than 10% of banks are eroding	80 - 90% stable	<80% stable
	Floodplain Connectivity	off channel areas are frequently hydrologically linked to main channel; overbank flows occur and maintain wetland functions, riparian vegetation and succession	reduced linkage of wetland, floodplains and riparian areas to main channel; overbank flows are reduced relative to historic frequency, as evidenced by moderate degradation of wetland function, riparian vegetation/succession	sever reduction in hydrologic connectivity between off-channel wetland, floodplain and riparian areas; wetland extent drastically reduced and riparian vegetation/succession altered significantly
	Channel Modifications <sup>2</sup>	Channel impacts are not readily apparent; Impacts only affect a small area; Channel characteristics such as pattern, width, substrate type, bank erosion, pool features, and large wood distribution are largely unchanged	Impacts are localized but apparent; Changes to channel characteristics such as pattern, width, substrate type, bank erosion, pool features, and large wood distribution are detectable but not obvious	Impacts are obvious; gross changes in channel characteristics such as pattern, width, substrate, and bank erosion; A significant length of the channel is affected;
Riparian Conditions	Width of Riparian Area <sup>2</sup>	>100 feet	50 - 100 feet	< 50 feet
	Vegetation Characteristics <sup>3</sup>	More than 90% of the streambank surfaces and immediate riparian zones covered by native vegetation, including trees, understory shrubs, or non-woody macrophytes; vegetative disruption through grazing or mowing is minimal or not evident; almost all plants allowed to grow naturally	70-90% of the streambank surfaces covered by native vegetation, but one class is not well represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of potential plant stubble height remaining	Less than 70% of the streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height
	Stream Shading <sup>4</sup>	> 70% shade; stream surface not visible, or slightly visible in patches	40 - 70 % shade; stream surface visible, but banks not visible	< 40% shade; stream surface visible, banks visible or visible at times
	Riparian Recruitment Potential	meets properly functioning criteria for width of riparian area and vegetation characteristics	is properly functioning or at risk for width of riparian areas and is at risk for vegetation characteristics	is not properly functioning or at risk for width of riparian areas and is not properly functioning for vegetation characteristics
	Bank Stability <sup>3</sup>	Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected	Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion	Moderately unstable to unstable; >30% of bank in reach has areas of erosion; high erosion potential during flooding
Water Quality <sup>1</sup>	Temperature	50 - 57° F	50 - 57° F (spawning) 57 - 64° F (migration and rearing)	> 60° (spawning) > 64° (migration and spawning)
	Sediment	< 12% fines (<0.85mm) in gravel, turbidity low	12 - 17% fines in gravel, turbidity moderate	> 17% fines in gravel; fines at surface or depth in spawning habitat, turbidity high
	Chem Contam/Nut	low levels of chemical contamination from agricultural, industrial and other sources, no excess nutrients	moderate levels of chemical contamination from agricultural, industrial and other sources, some excess nutrients	high levels of chemical contamination from agricultural, industrial and other sources, high levels of excess nutrients

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Water Quantity <sup>1</sup>	Peak/Base Flows	watershed hydrograph indicates peak flow, base flow and flow timing characteristics comparable to an undisturbed watershed of similar size	some evidence of altered peak flow, baseflow and or flow timing relative to an undisturbed watershed of similar size and geography	pronounced changes in peak flow, baseflow and/or flow timing relative to an undisturbed watershed of similar size, geology and geography
	Diversions <sup>4</sup>	no diversions	total of diversions < 0.5 cfs and all diversions are screened	total of diversions > 0.5 cfs and not all diversions are screened
	Drainage Network	zero or minimum increases in drainage network density due to roads	moderate increases in drainage network density due to roads (e.g., 5%)	significant increases in drainage network density due to roads (e.g., 20 - 25%)
Habitat Access <sup>1</sup>	Physical Barriers	any man-made barriers present in watershed allow upstream and downstream fish passage at all flows	any man-made barriers present in watershed do not allow upstream and/or downstream fish passage at base/low flows	any man-made barriers present in watershed do not allow upstream and/or downstream fish passage at a range of flows
Habitat Elements <sup>1</sup>	Substrate	dominate substrate is gravel or cobble (interstitial spaces clear) or embeddedness < 20%	gravel and cobble is subdominant, or if dominant, embeddedness 20 - 30%	bedrock, sand, silt or small gravel dominant, or if gravel and cobble dominant, embeddedness > 30%
	Large Woody Debris	>80 pieces/mile; >24" diameter >50 ft. length	currently meets standards for properly functioning, but lacks potential sources from riparian areas of woody debris recruitment to maintain that standard	does not meet standards for properly functioning and lacks potential large woody debris recruitment
	Pool Frequency <small>channel width ~ 35 feet # pools/mile ~ 35</small>	meets pool frequency standards (left) and large woody debris recruitment standards for properly functioning habitat (above)	meets pool frequency standards but large woody debris recruitment inadequate to maintain pools over time	does not meet pool frequency standards
	Pool Quality	pools > 1 m deep (holding pools) with good cover and cool water, minor reduction of pool volume by fine sediment	few deeper pools (> 1m deep) present or inadequate cover/temperature, moderate reduction of pool volume by fine sediment	no deep pools (> 1m deep) and inadequate cover/temperature, major reduction of pool volume by fine sediment
	Off-Channel Habitat	backwater with cover, and low energy off channel areas (ponds, oxbows, etc.)	some backwaters and high energy side channels	few or no backwaters, no off-channel ponds
	Refugia	habitat refugia exist and are adequately buffered (e.g., by intact riparian reserves); existing refugia are sufficient in size, number and connectivity to maintain viable populations or sub-populations	habitat refugia exist but are not adequately buffered (e.g., by intact riparian reserves); existing refugia are insufficient in size, number and connectivity to maintain viable populations or sub-populations	adequate habitat refugia do not exist
<p><sup>1</sup> National Marine Fisheries Service (1996). Making Endangered Species Act Determinations of Effect for individual or Grouped Actions at the Watershed scale, NMFS, Environmental and Technical Services Division, Habitat Conservation Branch: 26pp</p> <p><sup>2</sup> Gales Creek Watershed Assessment (1998) - adapted from information presented on page 26 (Riparian/Wetland Assessment)</p> <p><sup>3</sup> Environmental Protection Agency (1999). Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers; Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. Epa 841-B-99-002</p> <p><sup>4</sup> Oregon Watershed Enhancement Board - Oregon Watershed Assessment Manual (July, 1999). Component V - Riparian/Wetland Assessment</p>				