APPENDIX 4A

KLAMATH RIVER SUB-MESOHABITAT COMPONENTS

Appendix 4A. KLAMATH RIVER SUB-MESOHABITAT COMPONENTS

River margins within mesohabitat units are partitioned into Stream Margin Edge Types (SMET):

1. Trees
2. Trees and emergent vegetation
3. Dense aggregates of willow and woody debris and blackberry
4. Emergent shrubs
5. Open areas
6. Sparse herbaceous vegetation
7. Dense herbaceous vegetation
8. Large substrate and rip-rap
9. Large substrate and rip-rap with vegetation
10. Eddy

SMETs are divided into vegetative and substrate components:

VEGETATIVE COMPONENTS

1. Filamentous algae
2. Non_emergent rooted aquatic vegetation
3. Emergent rooted aquatic vegetation
4. Grass
5. Sedges
6. Cockle burrs
7. Grape vines
8. Willows
9. Berry vines
10. Trees (<4 inches dbh)
11. Trees (>4 inches dbh)
12. Root_wad
13. Aggregates of small vegetation (<4 inches)
14. Aggregates of large vegetation (>4 inches)
15. Duff, leaf litter, organic debris
16. Small woody debris (<0.3 x 12 ft)
17. Large woody debris (>0.3 x 12 ft)

SUBSTRATE COMPONENTS

18. Organic debris
19. Clay
20. Sand or silt/sand <0.1 inches
21. Coarse sand 0.1_0.2 inches
22. Small gravel 0.2_1 inches
23. Medium gravel 1_2 inches
24. Large gravel 2_3 inches

25. Large gravel/Small cobble 3-4 inches
26. Small cobble 4_6 inches
27. Medium cobble 6_9 inches
28. Large cobble 9_12 inches
29. Small boulder 12_24 inches
30. Medium boulder 24_48 inches
31. Large boulder 48 inches
32. Bedrock

Cover types:

Type	Description
No cover:	No object or overhead cover.

Object cover: Any substrate component, in-water structure, or vegetative feature that creates a break in water velocity, to which a fish of the size being sampled could orient and/or find shelter from water velocity. Object cover includes boulders and large cobbles, tree trunks, debris jams, and patches of rooted aquatic vegetation. Channel features such as point bars or bedrock outcrops are not included as object cover. These features are considered channel morphometry features rather than discrete objects.

In-water overhead: A substrate component, in-water structure, or vegetative feature that a fish of the size being sampled could swim into or under to escape avian, piscine, or other predation, or sunlight. This cover type is also termed "escape cover." In-water cover included crevices among cobbles and boulders, submerged aquatic vegetation, submerged overhanging branches of riparian vegetation, and submerged organic debris. Elements more than 10 ft away from a fish's position generally is not viewed as useful for escape cover.

Out-of-water overhead: Any substrate component, structural, or vegetative feature located out of the water, but within 18 inches of the water surface, that affords fish of the size being sampled concealment or camouflage from predation or sunlight. Components include bent-over emergent sedges, low-hanging branches of riparian vegetation, high-flow debris clinging to overhanging riparian vegetation, and riverbank features. Components more than 18 inches from the water surface were considered canopy due to the distance from the water surface, and potential use by avian predators.

Object and in-water-overhead: Combinations of object and in-water overhead.

Object and out-of-water overhead: Combinations of object and out-of-water overhead.