

MEMORANDUM

To: Jennifer Wigal, Water Quality Standards and Assessment; Annette Liebe, Surface Water Management; Gene Foster, Watershed Management; Neil Mullane, Water Quality Division Administrator; Water Quality Staff

FROM: Marilyn Fonseca, Community and Program Assistance

Cc: File

Subject: Application of DO criteria to “salmon and trout rearing and migration” beneficial use and “redband or lahontan cutthroat trout” beneficial use

Date: June 8, 2010

This memo updates DEQ’s application of the dissolved oxygen criteria to the “salmon and trout rearing and migration” beneficial use and the “redband or lahontan cutthroat trout” beneficial use for Clean Water Act purposes, including the NPDES permit program, the TMDL program and the assessment program. Salmon and trout rearing and migration and redband or lahontan cutthroat trout were described as beneficial fish uses in the water quality standards revision approved by EPA in March 2004. These are subcategories of the more general fish and aquatic life use. The water quality standards revision approved by EPA in March 2004 included several subcategories of fish and aquatic life uses, including bull trout spawning and juvenile migration and core cold water habitat. This memo doesn’t address those beneficial uses, it only addresses application of the DO criteria to salmon and trout rearing and migration and redband or lahontan cutthroat trout.

In previous 303(d) assessments DEQ used the ecoregion map from Omernik (1986) to determine where the cold water DO criteria apply and where the cool water DO criteria apply. The ecoregions were divided into “generally typical” and “most typical” areas. DEQ used these areas to apply the cold water DO criteria or the cool water DO criteria per pages 3 and 4 of the 1998 water quality standards clarification letter to EPA. The approach described in the 1998 letter provided many challenges, among them the limited availability of the 1986 ecoregion map. A newer version of the ecoregion map (A Woods, S Bryce, J Omernik, Level III and IV Ecoregions of Oregon, published in 2003, is available at: ftp://ftp.epa.gov/wed/ecoregions/or/or_eco.html).

This new map will be used by DEQ to apply the DO criteria since the new ecoregion map is available electronically. The designations under the 1986 map and the 2003 were compared and some adjustments were made to retain consistency between the two maps. The resulting map is attached. The cold water dissolved oxygen criterion and cool water dissolved oxygen criterion will be applied as described below, to the salmon and trout rearing and migration beneficial use and the redband and lahontan cutthroat trout beneficial use.

Application of the cold water dissolved oxygen criterion OAR 340-041-0016(2). The language in the rule reads: *“For water bodies identified by the Department as providing cold-water aquatic life, the dissolved oxygen may not be less than 8.0 mg/l as an absolute minimum.”*

This criterion will be applied on an ecoregion scale (see attached map) as follows: Coast Range ecoregion – all; Cascades ecoregion – all; Willamette Valley - Willamette Valley Foothills; Eastern Cascades Slopes and Foothills ecoregion - Ponderosa Pine/Bitterbrush Woodland, Pumice Plateau Basins, Fremont Pine/Fir Forest, Southern Cascade Slope, Grand Fir Mixed Forest, Pumice Plateau; Blue Mountains - John Day/ Clarno Highlands, Maritime-Influenced Zone, Melange, Wallowas/Seven Devils Mountains, Canyons and Dissected Highlands, Continental Zone Highlands, Mesic Forest Zone, Subalpine-Alpine Zone, Cold Basins; Klamath Mountains – all.

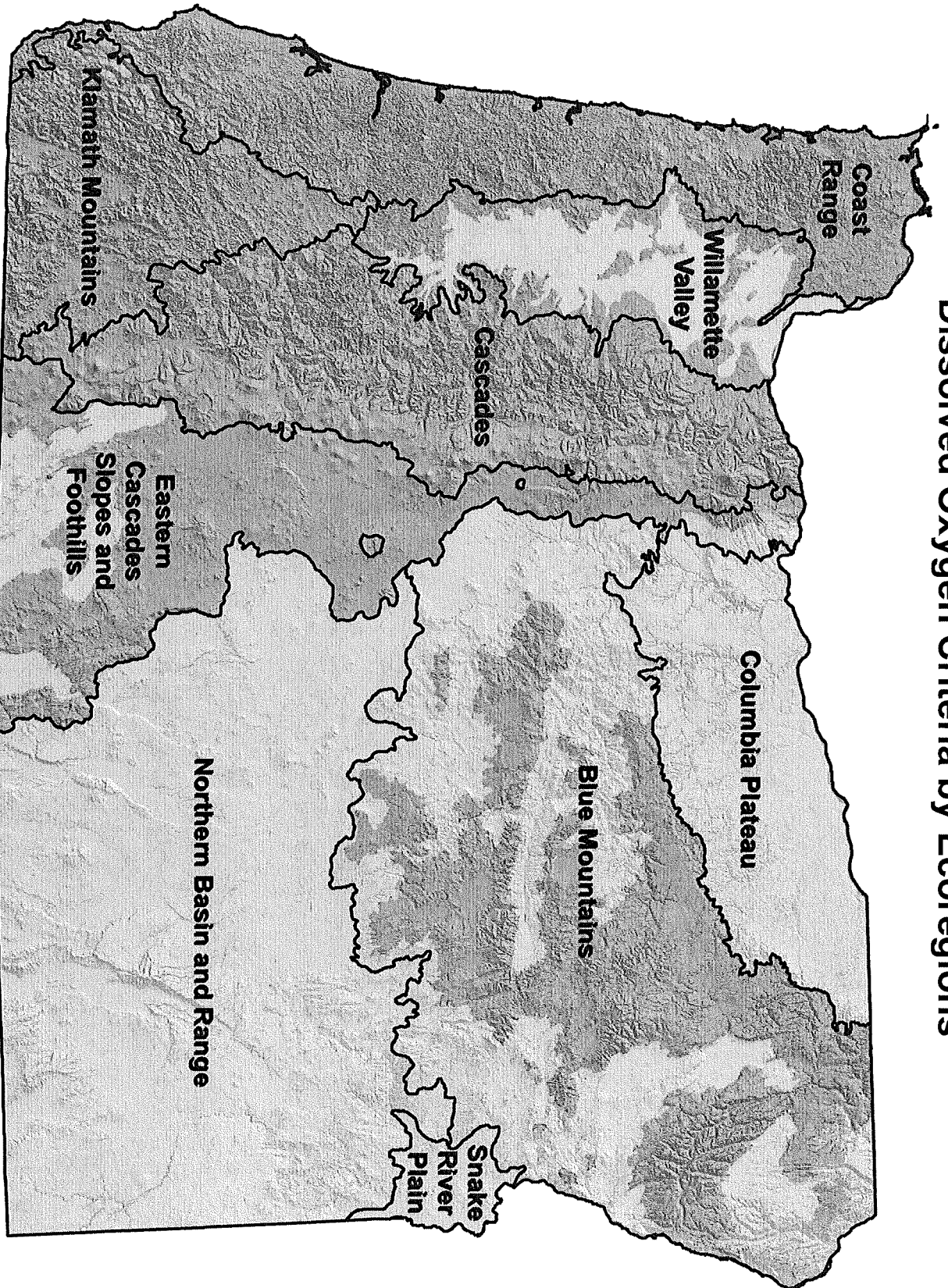
Application of the cool water dissolved oxygen criterion OAR 340-041-0016(3). The language in the rule reads: *“For water bodies identified by the Department as providing cool-water aquatic life, the dissolved oxygen may not be less than 6.5 mg/l as an absolute minimum.”*

This criterion will be applied on an ecoregion scale (see attached map) as follows: Willamette Valley - Portland/Vancouver Basin, Willamette River and Tributaries Gallery Forest, Prairie Terraces; Eastern Cascades Slopes and Foothills - Oak/Conifer Foothills, Klamath/Goose Lake Basins, Klamath Juniper Woodland; Columbia Plateau – all; Blue Mountains - John Day/Clarno Uplands, Canyons and Dissected Uplands, Continental Zone Foothills, Blue Mountain Basins, Deschutes River Valley; Snake River Plain – all; Northern Basin and Range – all.

Approved: Neil Mullane
Neil Mullane, Water Quality Division Administrator

Date: 6/11/10

Dissolved Oxygen Criteria by Ecoregions



Dissolved Oxygen Designation



Cold



Cool

Designation for Redband or Lahontan Cutthroat Trout and Salmon and Trout Rearing and Migration only.



Ecoregions Source: Thorson, T.D., Bryce, S.A., Lammers, D.A., Woods, A.J., Omernik, J.M., Kagan, J., Pater, D.E., and Cornstock, J.A. *Ecoregions of Oregon*; Reston, Virginia: U.S. Geological Survey, 2003. Map Produced: June 16, 2010

