

Appendix D
Applicable Water Quality Standards
and Criteria

Aquatic Weeds or Algae

Beneficial Uses Affected: Water Contact Recreation, Aesthetics, Fishing.

Standards or Criteria: OAR 340-41-(725)(2)(h).

Standards applicable to all basins:

(h) The development of fungi or other growths having a deleterious effect on stream bottoms, fish or other aquatic life, or which are injurious to health, recreation, or industry shall not be allowed.

Water Quality Limited Criteria: Macrophytes: Documented reports of an abundance of invasive, non-native macrophytes (those listed on the "A" or "B" Noxious Weed List maintained by the Department of Agriculture) that dominate the lake assemblage of plants and significantly reduces the surface area available for lake usage; frequent herbicide treatments to control aquatic weeds; or other activities initiated to manage weed growth such as through a Coordinated Resources Management Plan in response to frequent complaints about weeds interfering with various uses.

Periphyton (attached algae) or Phytoplankton (floating algae): Documented evidence that algae is causing other standard exceedances (e.g. pH or dissolved oxygen) or impairing a beneficial use.

Time Period: Annual.

Bacteria

Beneficial Uses Affected: Water Contact Recreation.

Standards or Criteria: OAR 340-41-(725)(2)(e and f)

Standards applicable to all basins:

(e) Bacteria standards:

(A) Numeric criteria: Organisms of the coliform group commonly associated with fecal sources (MPN or equivalent membrane filtration using a representative number of samples) shall not exceed the criteria described in subparagraphs (i):

(i) Freshwaters and Estuarine Waters other than shellfish growing waters:

(I) A 30-day log mean of 126 *E. coli* organisms per 100 ml, based on a minimum of five (5) samples;

(II) No single sample shall exceed 406 *E. coli* organisms per 100 ml;

(f) Bacterial pollution or other conditions deleterious to waters used for domestic purposes, livestock watering, irrigation, bathing or shellfish propagation, or otherwise injurious to public health shall not be allowed.

[Note: this standard replaced the following fecal coliform standard as of 1/11/96. Fecal Coliform data was used to develop the 303(d) list as it was the most commonly measured indicator of organisms of the coliform group commonly associated with fecal sources. Future listings and modifications will be based on *E. coli* data as new data becomes available:

Freshwaters and Estuarine Waters other than shellfish growing waters: A log mean of 200 fecal coliform per 100 milliliters based on a minimum of five samples in a 30 day period with no more than ten percent of the samples in the 30 day period exceeding 400 per 100 ml].

Water Quality Limited Criteria: A 30-day log mean of 126 *E. coli* organisms per 100 ml or more than 10% of the and a minimum of at least two exceedances exceed samples exceed 406 *E. coli* organisms per 100 ml or, if *E. coli* data is not available, the geometric mean of fecal coliform bacteria exceeds 200 per 100 milliliters or more than 10 percent of the samples and a minimum of at least two exceedances exceed 400 per 100 milliliters for the season of interest;

Time Period: Summer: June 1 through September 30 (period of highest use for water contact recreation); Fall-Winter-Spring (FWS): October 1 to May 31.

Dissolved Oxygen (DO)

Beneficial Uses Affected: Resident Fish and Aquatic Life, Salmonid Spawning & Rearing.

Standards or Criteria: OAR 340-41-(725)(2)(a)

Dissolved Oxygen concentration shall not be less than the following:

Standards applicable to all basins (adopted 1/11/96, effective 7/1/96)

During times and in waters that support salmonid spawning until fry emergence from the gravels:

Dissolved Oxygen shall not be less than 11 mg/l; unless intergravel dissolved oxygen is greater than 8.0 mg/l (as a spatial median minimum), then DO criteria is 9.0; or where conditions of barometric pressure, altitude and naturally occurring temperatures preclude attainment of the 11 or 9 mg/l standard, then dissolved oxygen levels shall not be less than 95% saturation. Spatial median minimum intergravel dissolved oxygen concentration shall not fall below 6.0 mg/l.

For waters identified as providing **cold-water aquatic resources**, the dissolved oxygen shall not fall below 8.0 mg/l (unless it is diurnal monitoring data that can be used to estimate the 7-day minimum, then the minimum shall not fall below 6.5) or where conditions of barometric pressure, altitude and naturally occurring temperatures preclude attainment of the 8.0 mg/l standard, then dissolved oxygen levels shall not be less than 90% saturation.

- ◆ For waters identified as providing **cool-water aquatic resources**, the dissolved oxygen shall not be less than 6.5 mg/l.
- ◆ For waters identified as providing **warm-water aquatic resources**, the dissolved oxygen shall not be less than 5.5 mg/l.
- ◆ For **estuarine waters**, the dissolved oxygen concentrations shall not be less than 6.5 mg/l.
- ◆ For **marine waters**, no measurable reduction in dissolved oxygen concentration shall be allowed.

Water Quality Limited Criteria: Greater than 10 percent of the samples exceed the appropriate standard and a minimum of at least two exceedances of the standard for a season of interest.

Time Period: Rearing: as identified by ODFW Staff; Spawning through fry emergence: as identified by ODFW Staff.

Flow Modification

Beneficial Uses Affected: Resident Fish & Aquatic Life, Salmonid Fish Spawning & Rearing.

Standards or Criteria:

OAR 340-41-(725)(2)(i)

Standards applicable to all basins:

The creation of tastes or odors or toxic or other **conditions that are deleterious to fish or other aquatic life** or affect the potability of drinking water or the palatability of fish or shellfish shall not be allowed.

-or-

OAR 340-41-027

Standards applicable to all basins:

Waters of the state shall be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.

Water Quality Limited Criteria: Documented flow conditions that are a significant limitation to fish or other aquatic life as indicated by the following information:

Beneficial uses are impaired. This documentation can consist of data on aquatic community status that shows aquatic communities (primarily macroinvertebrates) which are 60% or less of the expected reference community **for both** multimetric scores and multivariate model scores are considered impaired. Streams with either multimetric scores or multivariate scores between 61% and 75% of expected reference communities are considered as streams of concern. Streams greater than 75% of expected reference communities using either multimetric or multivariate models are considered unimpaired.

-or-

Where monitoring methods determined a Biotic Condition Index, Index of Biotic Integrity, or similar metric rating of poor or a significant departure from reference conditions utilizing a suggested EPA biomonitoring protocol or other technique acceptable to DEQ.

-or-

Fishery data on escapement, redd counts, population survey, etc. that show fish species have declined due to water quality conditions; and an established or applied for Instream Water Right, and documentation that flows are not frequently being met such as through statistical summaries of stream flow based on actual flow measurements, and identification of human contribution to the reduction of instream flows below acceptable level indicated (e.g. evidence of water rights and diversions above or in the segment).

Time Period: Annual.

Habitat Modification

Beneficial Uses Affected: Resident Fish & Aquatic Life, Salmonid Fish Spawning & Rearing.

Standards or Criteria:

OAR 340-41-(725)(2)(i)

Standards applicable to all basins:

The creation of tastes or odors or toxic or other conditions that are deleterious to fish or other aquatic life or affect the potability of drinking water or the palatability of fish or shellfish shall not be allowed.

-or-

OAR 340-41-027

Standards applicable to all basins:

Waters of the state shall be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.

Water Quality Limited Criteria: Documentation that habitat conditions are a significant limitation to fish or other aquatic life as indicated by the following information:

Beneficial uses are impaired. This documentation can consist of data on aquatic community status that shows aquatic communities (primarily macroinvertebrates) which are 60% or less of the expected reference community **for both** multimetric scores and multivariate model scores are considered impaired. Streams with either multimetric scores or multivariate scores between 61% and 75% of expected reference communities are considered as streams of concern. Streams greater than 75% of expected reference communities using either multimetric or multivariate models are considered unimpaired.

-or-

Where monitoring methods determined a Biotic Condition Index, Index of Biotic Integrity, or similar metric rating of poor or a significant departure from reference conditions utilizing a suggested EPA biomonitoring protocol or other technique acceptable to DEQ.

-or-

Fishery data on escapement, redd counts, population survey, etc. that show fish species have declined due to water quality conditions; and

Habitat conditions that are a significant limitation to fish or other aquatic life as documented through a watershed analysis or other published report which summarizes the data and utilizes standard protocols, criteria and benchmarks (e.g. those currently used and accepted by Oregon Fish and Wildlife or Federal agencies (PACFISH)). Habitat conditions considered here are represented by data that relate to channel morphology or in-stream habitat such as Large Woody Material, Pool Frequency, Channel Width:Depth Ratio (other habitat factors are considered elsewhere - cobble embeddedness or percent fines would be considered under sedimentation, stream shading would be factored in under temperature, etc).

Time Period: Annual.

Nutrients

Beneficial Uses Affected: Aesthetics or use identified under related parameters.

Standards or Criteria: *Quality Criteria for Water. 1986. United States Environmental Protection Agency, Office of Water Regulations and Standards. Publication: 440/5-86-001.*

Water Quality Limited Criteria: Greater than 10 percent of the samples exceed standard and a minimum of at least two exceedances of the standard or criteria used in draft TMDLs for a season of interest.

Time Period: June through September or as specified under the specific standard above.

pH

Beneficial Uses Affected: Resident Fish & Aquatic Life, Water Contact Recreation.

Standards or Criteria: OAR 340-41-(725)(2)(d)

Summary: pH shall not fall outside the following ranges:

General Basin Standards (adopted as of 1/11/96):

Grande Ronde Basin: 6.5 to 9.0*;

* when 25% of the measurements taken between June and September are greater than pH 8.7, the Department shall determine whether the value higher than 8.7 are anthropogenic or natural in origin.

Water Quality Limited Criteria: Greater than 10 percent of the samples exceed standard and a minimum of at least two exceedances of the standard for a season of interest.

Time Period: Summer: June 1 through September 30; Fall-Winter-Spring (FWS): October 1 to May 31.

Sedimentation

Beneficial Uses Affected: Resident Fish & Aquatic Life, Salmonid Fish Spawning & Rearing.

Standards or Criteria: OAR 340-41-(725)(2)(j)

Standards applicable to all basins:

The formation of appreciable bottom or sludge deposits or the formation of any organic or inorganic deposits deleterious to fish or other aquatic life or injurious to public health, recreation, or industry shall not be allowed.

Water Quality Limited Criteria: Documented that sedimentation is a significant limitation to fish or other aquatic life as indicated by the following information:

Beneficial uses are impaired. This documentation can consist of data on aquatic community status that shows aquatic communities (primarily macroinvertebrates) which are 60% or less of the expected reference community **for both** multimetric scores and multivariate model scores are considered impaired. Streams with either multimetric scores or multivariate scores between 61% and 75% of expected reference communities are considered as streams of concern. Streams greater than 75% of expected reference communities using either multimetric or multivariate models are considered unimpaired.

-or-

Where monitoring methods determined a Biotic Condition Index, Index of Biotic Integrity, or similar metric rating of poor or a significant departure from reference conditions utilizing a suggested EPA biomonitoring protocol or other technique acceptable to DEQ.

-or-

Fishery data on escapement, redd counts, population survey, etc. that show fish species have declined due to water quality conditions; and documentation through a watershed analysis or other published report which summarizes the data and utilizes standard protocols, criteria and benchmarks (e.g. those currently used and accepted by Oregon Fish and Wildlife or Federal agencies (PACFISH)).

Measurements of cobble embeddedness or percent fines are considered under sedimentation. Documentation should indicate that there are conditions that are deleterious to fish or other aquatic life.

Time Period: Annual.

Stream Temperature

Beneficial Uses Affected: Resident Fish & Aquatic Life, Salmonid Fish Spawning & Rearing.

Standards or Criteria: OAR 340-41-(725)(2)(b)

Standards applicable to all basins (adopted 1/11/96, effective 7/1/96):

*(A) To accomplish the goals identified in OAR 340-041-0120(11), unless specifically allowed under a Department-approved surface water temperature management plan as required under OAR 340-041-0026(3)(a)(D), **no measurable surface water temperature increase resulting from anthropogenic activities is allowed:***

- (i) In a basin for which salmonid fish rearing is a designated beneficial use, and in which surface water temperatures exceed 64.0°F (17.8°C);
- (ii) In waters and periods of the year determined by the Department to support native salmonid spawning, egg incubation, and fry emergence from the egg and from the gravels in a basin which exceeds 55.0°F (12.8°C);
- (iii) In waters determined by the Department to support or to be necessary to maintain the viability of native Oregon bull trout, when surface water temperatures exceed 50.0°F (10.0°C);
- (iv) *In waters determined by the Department to be ecologically significant cold-water refugia;*
- (v) In stream segments containing federally listed Threatened and Endangered species if the increase would impair the biological integrity of the Threatened and Endangered population;
- (vi) In Oregon waters when the dissolved oxygen (DO) levels are within 0.5 mg/l or 10 percent saturation of the water column or intergravel DO criterion for a given stream reach or subbasin;
- (vii) In natural lakes.

Water Quality Limited Criteria: Rolling seven (7) day average of the daily maximum exceeds the appropriate standard listed above. In the cases where data was not collected in a manner to calculate the rolling seven (7) day average of the daily maximum, greater than 25 percent (and a minimum of at least two exceedances) of the samples exceed the appropriate standard based on multi-year monitoring programs that collect representative samples on separate days for the season of concern (typically summer) and time of day of concern (typically mid to late afternoon).

Time Period: Rearing: June 1 through September 30; Spawning through fry emergence: October 1 to May 31 or water body specific as identified by ODFW Biologists.