



# Lower Owyhee Watershed Assessment

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## Appendix D. Oregon's water quality standards

For the 2004/2006 Integrated Report, the Oregon Department of Environmental Quality (ODEQ) evaluated water quality data. The assessment criteria for parameters listed for the lower Owyhee subbasin in Oregon's 2004/2006 integrated report are summarized briefly below. A complete discussion can be found in the ODEQ's "Assessment Methodology for Oregon's 2004/2006 Integrated Report on Water Quality Status" which can be accessed on the internet at <http://www.deq.state.or.us/WQ/assessment/docs/methodology0406.pdf>.

**Bacteria - *E. coli* (*Escherichia coli*)** A 30-day log mean of 126 *E. coli* organisms per 100 ml or more than 10% of the samples exceed 406 *E. coli* organisms per 100 ml, with a minimum of at least two exceedances.

**Chlorophyll a** (A) Natural lakes that thermally stratify: 0.01 mg/l; (B) Natural lakes that do not thermally stratify, reservoirs, rivers and estuaries: 0.015 mg/l;

**Dissolved Oxygen** criteria apply during the applicable spawning through fry emergence periods set forth in the tables and figures: (a) The dissolved oxygen may not be less than 11.0 mg/l. However, if the minimum intergravel dissolved oxygen, measured as a spatial median, is 8.0 mg/l or greater, then the DO criterion is 9.0 mg/l; (b) Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 11.0 mg/l or 9.0 mg/l criteria, dissolved oxygen levels must not be less than 95 percent of saturation;

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. Where conditions of barometric pressure, altitude, and temperature preclude attainment of the 8.0 mg/l, dissolved oxygen may not be less than 90 percent of saturation.

**pH** (1) Unless otherwise specified in OAR 340-041-0101 through 340-041-0350, pH values (Hydrogen ion concentrations) may not fall outside the following ranges: (b) Estuarine and fresh waters: 6.5-8.5. For Owyhee Basin 7.0 to 9.0. (2) Waters impounded by dams existing on January 1, 1996, which have pHs that exceed the criteria are not in

violation of the standard, if the Department determines that the exceedance would not occur without the impoundment and that all practicable measures have been taken to bring the pH in the impounded waters into compliance with the criteria. Owyhee Basin 7.0 to 9.0.

**Sedimentation** 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 may not be allowed.

**Temperature** Unless superseded by the natural conditions criteria described in section (8) of this rule: (b) The seven-day-average maximum temperature of a stream identified as having core cold water habitat use may not exceed 16.0 degrees Celsius (60.8 degrees Fahrenheit). The seven-day-average maximum temperature of a stream identified as having salmon and trout rearing and migration use may not exceed 18.0 degrees Celsius (64.4 degrees Fahrenheit). The seven-day-average maximum temperature of a stream identified as having Lahontan cutthroat trout or redband trout use may not exceed 20.0 degrees Celsius (68.0 degrees Fahrenheit).

**Ammonia Criteria - Freshwater** Ammonia criteria for freshwater depend on pH, temperature, and the presence of salmonids or other fish with ammonia-sensitive early life stages. Freshwater Acute Criterion:  $CMC = 0.52 / FT / FPH / 2$ . With salmonids present,  $FT = 1$  when  $20 < \text{Temperature (T)} < 30$  or  $FT = 10^{0.03(20-T)}$  when  $0 < T \leq 20$  and  $FPH = 1$  when  $8 < \text{pH} < 9$  or  $FPH = (1 + 10^{7.4pH})/1.25$  when  $6.5 < \text{pH} < 8$ . With salmonids absent,  $FT = 0.71$  when  $25 < T < 30$  or  $FT = 10^{0.03(20-T)}$  when  $0 < T \leq 25$  and  $FPH = 1$  when  $8 < \text{pH} < 9$  or  $FPH = (1 + 10^{7.4pH})/1.25$  when  $6.5 < \text{pH} < 8$ . There is a similarly complex formula as a chronic criterion.

**Alkalinity Criterion** The freshwater criterion for alkalinity is "20 mg/L or more as CaCO<sub>3</sub> freshwater aquatic life [sic] except where natural concentrations are less." Alkalinity should not be below this value.

**Phosphate Phosphorus Benchmark** EPA recommends that total phosphates as phosphorus (P) should not exceed 50 ug/L in streams to control excessive aquatic growths. Water bodies with total phosphates as phosphorus (P) greater than 50 ug/L are a Category 3B Potential Concern for conditions that may result in not meeting water quality standards.

**Turbidity** No more than a ten percent cumulative increase in natural stream turbidities may be allowed, as measured relative to a control point immediately upstream of the turbidity causing activity.

**Toxic Substances** Levels of toxic substances in waters of the state may not exceed the applicable criteria listed in Tables 20. Oregon standards for toxic substances were revised in 2004 but have not yet been approved by EPA for Clean Water Act purposes.

For the 2004/2006 Integrated Report, Oregon applied pre-revision numeric criteria from Table 20.

**Table 20 Toxic Substances.**

Compound	Fresh water acute criteria μg/L	Fresh water chronic criteria μg/L	Fish consumption units/L
Aldrin	3		0.079 ng
Arsenic		2.2 ng/L	17.5 ng
Arsenic (pent)	850	48	
Arsenic (tri)	360	190	
Chloride	860 mg/L	230 mg/L	
DDT	1.1	0.001	0.024 ng
Dieldrin	2.5	0.0019	0.076 ng
Endrin	0.18	0.0023	
Mercury	2.4	0.012	0.076 ng