

# Upper Owyhee Watershed Assessment

## Appendix H. Oregon integrated report

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Oregon’s integrated report lists waterbodies where not all standards are met. The criteria used for considering the inclusion of a pollutant in the Oregon integrated report that apply to the Owyhee River at the Idaho state line are:

Category 2: Attaining - Some of the pollutant standards are met.

Category 3: Insufficient data to determine whether a standard is met.

3B: Potential concern - Some data indicate non-attainment of a criterion, but data are insufficient to assign another category.

Category 5: The waterbody is water quality limited and a TMDL is needed, Section 303(d) list.

Oregon’s integrated report includes data which may support either a stream’s impaired condition or properly functioning condition. These data are not differentiated in the table below (e.g. none of the collected samples for alkalinity or ammonia are outside of the accepted standard).

Table H.1. Pollutants included in Oregon’s 2010 integrated report for the Owyhee River at mile 200.4, the Idaho state line.

Pollutant	Season	Criteria	Beneficial Uses	Status	Data Source, Supporting Data
Temperature	Year Around (Non-spawning)	Redband or Lahontan cutthroat trout: 20.0 degrees Celsius 7-day-average maximum	Redband or Lahontan cutthroat trout	Water quality limited, 303(d) list, TMDL needed	Previous Data: [DEQ] LASAR 12258 River Mile 109.8: From 6/30/2000 to 10/5/2001, 156 days with 7-day-average maximum > 20 degrees Celsius. [DEQ] LASAR 12260 River Mile 130.7: From 7/17/1999 to 9/29/2000, 134 days with 7-day-average maximum > 20 degrees Celsius. [DEQ] LASAR 12262 River Mile 167.7: From 7/17/1999 to 10/5/2001, 217 days with 7-day-average maximum > 20 degrees Celsius.
Arsenic	Year around	Table 20 Toxic	Aquatic life; Human health	Water quality limited, 303(d)	Previous Data: 2004 Data [USGS] Site 13177900 River Mile 165:

		Substances, see below		list, TMDL needed	From 4/17/2001 to 6/25/2001, 2 out of 2 samples > applicable Table 20 criterion
Phosphate Phosphorus	Summer	Total phosphates as phosphorus (P): Benchmark 50 ug/L	Aquatic life	Potential concern, category 3b	Previous Data: [DEQ] LASAR 12262 River Mile 167.7: From 9/11/1996 to 9/9/2003, 2 out of 10 samples > 50 ug/L benchmark criterion in streams to control excessive aquatic growths.
Alkalinity	Year Around	< 20 mg/L (Table 20 criterion).	Aquatic life	Attaining some criteria/uses, category 2	Previous Data: [DEQ/ODA - Salem] LASAR 10729 River Mile 2.8: From 10/15/1996 to 12/10/2003, 0 out of 50 samples < 20 mg/L (Table 20 criterion). [DEQ/ODA - Salem] LASAR 10730 River Mile 127.7: From 5/21/1996 to 7/13/1999, 0 out of 3 samples < 20 mg/L (Table 20 criterion). [DEQ/ODA - Salem] LASAR 12258 River Mile 109.8: From 5/24/1994 to 9/9/2003, 0 out of 11 samples < 20 mg/L (Table 20 criterion). [DEQ] LASAR 12260 River Mile 130.7: From 5/25/1994 to 9/9/2003, 0 out of 8 samples < 20 mg/L (Table 20 criterion). [DEQ/ODA - Salem] LASAR 12262 River Mile 167.7: From 5/25/1994 to 9/9/2003, 0 out of 11 samples < 20 mg/L (Table 20 criterion).
Ammonia	Year Around	Table 20 Toxic Substances, see below	Aquatic life	Attaining some criteria/uses, category 2	[DEQ/ODA - Salem] LASAR 12262 River Mile 167.7: From 5/25/1994 to 9/9/2003, 0 out of 22 samples > applicable Table 20 criterion. [DEQ/ODA - Salem] LASAR 10729 River Mile 2.8: From 10/15/1996 to 12/10/2003, 0 out of 54 samples > applicable Table 20 criterion. [DEQ/ODA - Salem] LASAR 10730 River Mile 127.7: From 5/21/1996 to 7/13/1999, 0 out of 8 samples > applicable Table 20 criterion. [DEQ/ODA - Salem] LASAR 12258 River Mile 109.8: From 5/24/1994 to 9/9/2003, 0 out of 21 samples > applicable Table 20 criterion. [DEQ/ODA - Salem] LASAR 12260 River Mile 130.7: From 5/25/1994 to 9/9/2003, 0 out of 14 samples > applicable Table 20 criterion.
Chloride	Year Around	Table 20 Toxic Substances, see below	Aquatic life	Insufficient data, category 3	Previous Data: [DEQ] LASAR 10730 River Mile 127.7: From 9/30/1998 to 7/13/1999, 0 out of 2 samples > applicable Table 20 criterion. [DEQ] LASAR 12258 River Mile 109.8: From 9/29/1998 to 9/10/2002, 0 out of 3 samples > applicable Table 20 criterion.

					[DEQ] LASAR 12260 River Mile 130.7: From 9/10/2002 to 9/10/2002, 0 out of 1 samples > applicable Table 20 criterion. [DEQ] LASAR 12262 River Mile 167.7: From 9/29/1998 to 9/10/2002, 0 out of 3 samples > applicable Table 20 criterion.
Dissolved Oxygen	Year Around (Non-spawning)	Cool water: Not less than 6.5 mg/l	Cool-water aquatic life	Attaining some criteria/uses, category 2	Previous Data: [DEQ/ODA - Salem] LASAR 12260 River Mile 130.7: From 5/25/1994 to 9/9/2003, 0 out of 11 samples (0%) < 6.5 mg/l and applicable % saturation. [DEQ/ODA - Salem] LASAR 10730 River Mile 127.7: From 5/21/1996 to 7/13/1999, 0 out of 5 samples (0%) < 6.5 mg/l and applicable % saturation. [DEQ/ODA - Salem] LASAR 12262 River Mile 167.7: From 5/25/1994 to 9/9/2003, 0 out of 16 samples (0%) < 6.5 mg/l and applicable % saturation. [DEQ/ODA - Salem] LASAR 10729 River Mile 2.8: From 6/11/1997 to 8/20/2003, 1 out of 14 samples (7%) < 6.5 mg/l and applicable % saturation. [DEQ/ODA - Salem] LASAR 10729 River Mile 2.8: From 10/15/1996 to 12/10/2003, 0 out of 30 samples (0%) < 6.5 mg/l and applicable % saturation. [DEQ/ODA - Salem] LASAR 12258 River Mile 109.8: From 5/24/1994 to 9/9/2003, 0 out of 16 samples (0%) < 6.5 mg/l and applicable % saturation.
pH	Fall, winter, spring	pH 7.0 to 9.0	Water contact recreation; Resident fish and aquatic life	Attaining some criteria/uses, category 2	Previous Data: [DEQ/ODA - Salem] LASAR 12262 River Mile 167.7: From 5/25/1994 to 10/9/2001, 1 out of 8 samples (12%) outside pH criteria range 7 to 9. [DEQ/ODA - Salem] LASAR 10730 River Mile 127.7: From 5/21/1996 to 5/21/1996, 0 out of 1 samples (0%) outside pH criteria range 7 to 9. [DEQ/ODA - Salem] LASAR 12258 River Mile 109.8: From 5/24/1994 to 10/9/2001, 0 out of 7 samples (0%) outside pH criteria range 7 to 9. [DEQ/ODA - Salem] LASAR 12260 River Mile 130.7: From 5/25/1994 to 10/9/2001, 0 out of 6 samples (0%) outside pH criteria range 7 to 9.
pH	Summer	pH 7.0 to 9.0	Water contact recreation; Resident fish and aquatic life	Attaining some criteria/uses, category 2	Previous Data: [DEQ/ODA - Salem] LASAR 12258 River Mile 109.8: From 9/10/1996 to 9/9/2003, 0 out of 11 samples (0%) outside pH criteria range 7 to 9.

					[DEQ/ODA - Salem] LASAR 12260 River Mile 130.7: From 9/15/1997 to 9/9/2003, 1 out of 6 samples (17%) outside pH criteria range 7 to 9. [DEQ/ODA - Salem] LASAR 12262 River Mile 167.7: From 9/11/1996 to 9/9/2003, 1 out of 11 samples (9%) outside pH criteria range 7 to 9. [DEQ/ODA - Salem] LASAR 10730 River Mile 127.7: From 9/10/1996 to 7/13/1999, 0 out of 5 samples (0%) outside pH criteria range 7 to 9.
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Table H.2. Criteria not to be exceeded in waters of the state of Oregon in order to protect aquatic life and human health. The acute criteria refer to the average concentration for one hour and the chronic criteria refer to the average concentration for 96 hours (4 days) and these criteria should not be exceeded more than once every three years.

	Concentration for protection of aquatic life		
	Fresh acute criteria	Fresh chronic criteria	
Alkalinity		20,000 micrograms/liter	
Ammonia	Criteria are pH and temperature dependent. They are established by the EPA . See example below (Table H.3)		
Arsenic	360 micrograms/liter	190 micrograms/liter	
Chloride	860 mg/L	230 mg/L	

CMC: Mussels Absent, mg N/L										
pH	Temperature, C									
	0	14	16	18	20	22	24	26	28	30
6.5	58.0	58.0	58.0	58.0	43.7	37.0	31.4	26.6	22.5	19.1
6.6	55.7	55.7	55.7	55.7	41.9	35.5	30.1	25.5	21.6	18.3
6.7	53.0	53.0	53.0	53.0	39.9	33.8	28.6	24.3	20.6	17.4
6.8	49.9	49.9	49.9	49.9	37.6	31.9	27.0	22.9	19.4	16.4
6.9	46.5	46.5	46.5	46.5	35.1	29.7	25.2	21.3	18.1	15.3
7.0	42.9	42.9	42.9	42.9	32.3	27.4	23.2	19.7	16.7	14.1
7.1	39.1	39.1	39.1	39.1	29.4	24.9	21.1	17.9	15.2	12.8
7.2	35.1	35.1	35.1	35.1	26.4	22.4	19.0	16.1	13.6	11.5
7.3	31.2	31.2	31.2	31.2	23.5	19.9	16.8	14.3	12.1	10.2
7.4	27.3	27.3	27.3	27.3	20.6	17.4	14.8	12.5	10.6	8.98
7.5	23.6	23.6	23.6	23.6	17.8	15.1	12.8	10.8	9.18	7.77
7.6	20.2	20.2	20.2	20.2	15.3	12.9	10.9	9.27	7.86	6.66
7.7	17.2	17.2	17.2	17.2	12.9	11.0	9.28	7.86	6.66	5.64
7.8	14.4	14.4	14.4	14.4	10.9	9.21	7.80	6.61	5.60	4.74
7.9	12.0	12.0	12.0	12.0	9.07	7.69	6.51	5.52	4.67	3.96
8.0	9.99	9.99	9.99	9.99	7.53	6.38	5.40	4.58	3.88	3.29
8.1	8.26	8.26	8.26	8.26	6.22	5.27	4.47	3.78	3.21	2.72
8.2	6.81	6.81	6.81	6.81	5.13	4.34	3.68	3.12	2.64	2.24
8.3	5.60	5.60	5.60	5.60	4.22	3.58	3.03	2.57	2.18	1.84
8.4	4.61	4.61	4.61	4.61	3.48	2.95	2.50	2.11	1.79	1.52
8.5	3.81	3.81	3.81	3.81	2.87	2.43	2.06	1.74	1.48	1.25
8.6	3.15	3.15	3.15	3.15	2.37	2.01	1.70	1.44	1.22	1.04
8.7	2.62	2.62	2.62	2.62	1.97	1.67	1.42	1.20	1.02	0.862
8.8	2.19	2.19	2.19	2.19	1.65	1.40	1.19	1.00	0.851	0.721
8.9	1.85	1.85	1.85	1.85	1.39	1.18	1.00	0.847	0.718	0.608
9.0	1.57	1.57	1.57	1.57	1.19	1.00	0.851	0.721	0.611	0.517

Table H.3. An example of the interaction of pH with temperature in the determination of ammonia criteria. Values of the acute criterion with mussels absent.

## **Bibliography**

- Environmental Protection Agency. 2009. Draft 2009 update: Aquatic life ambient water quality criteria for ammonia - freshwater. Retrieved 11/13/2010. <http://www.epa.gov/waterscience/criteria/ammonia/2009update.pdf>
- Oregon Department of Environmental Quality. 2010. Water quality assessment database: Oregon's 2010 integrated report. Last accessed 11/13/2010. <http://www.deq.state.or.us/wq/assessment/rpt2010/search.asp#db>