

Presented below are water quality standards that are in effect for Clean Water Act purposes.

EPA is posting these standards as a convenience to users and has made a reasonable effort to assure their accuracy. Additionally, EPA has made a reasonable effort to identify parts of the standards that are not approved, disapproved, or are otherwise not in effect for Clean Water Act purposes.



NOTE: The following tables contain Oregon’s effective aquatic life criteria as of EPA’s Jan. 31, 2013 action approving and disapproving the aquatic life criteria.

TABLE 20

AQUATIC LIFE WATER QUALITY CRITERIA SUMMARY¹

The concentration for each compound listed in this chart is a criterion not to be exceeded in waters of the state for the protection of aquatic life and human health. Specific descriptions of each compound and an explanation of values are included in Quality Criteria for Water (1986). Selecting values for regulatory purposes will depend on the most sensitive beneficial use to be protected, and what level of protection is necessary for aquatic life and human health.

Compound Name (or Class)	Priority Pollutant	Concentration in Micrograms Per Liter (µg/L) for Protection of Aquatic Life			
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria
ACENAPTHENE	Y				
ACROLEIN	Y				
ACRYLONITRILE	Y				
ALDRIN	Y	3		1.3	
ALKALINITY	N				
AMMONIA	N	CRITERIA ARE pH AND TEMPERATURE DEPENDENT—SEE DOCUMENT USEPA JANUARY 1985 (Fresh Water)			
ANTIMONY	Y				
ARSENIC	Y				
ARSENIC (PENT)	Y				
ARSENIC (TRI)	Y	360	190	69	36
ASBESTOS	Y				
BARIUM	N				
BENZENE	Y				



Compound Name (or Class)	Priority Pollutant	Concentration in Micrograms Per Liter (µg/L) for Protection of Aquatic Life			
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria
BENZIDINE	Y				
BERYLLIUM	Y				
BHC	Y				
CADMIUM	Y	3.9+			
CARBON TETRACHLORIDE	Y				
CHLORDANE	Y	2.4	0.0043	0.09	0.004
CHLORIDE	N				
CHLORINATED BENZENES	Y				
CHLORINATED NAPHTHALENES	Y				
CHLORINE	N				
CHLOROALKYL ETHERS	Y				
CHLOROETHYL ETHER (BIS-2)	Y				
CHLOROFORM	Y				
CHLOROISOPROPYL ETHER (BIS-2)	Y				
CHLOROMETHYL ETHER (BIS)	N				
CHLOROPHENOL 2	Y				
CHLOROPHENOL 4	N				
CHLOROPHENOXY HERBICIDES (2,4,5,-TP)	N				
CHLOROPHENOXY HERBICIDES (2,4-D)	N				
CHLORPYRIFOS	N				
CHLORO-4 METHYL-3 PHENOL	N				
CHROMIUM (HEX)	Y			1,100	50
CHROMIUM (TRI)	N				
COPPER	Y	18.+	12.+		
CYANIDE	Y				
DDT	Y	1.1	0.001	0.13	0.001
(TDE) DDT METABOLITE	Y				
(DDE) DDT METABOLITE	Y				
DEMETON	Y				



Compound Name (or Class)	Priority Pollutant	Concentration in Micrograms Per Liter (µg/L) for Protection of Aquatic Life			
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria
DIBUTYLPHthalate	Y				
DICHLOROBENZENES	Y				
DICHLOROBENZIDINE	Y				
DICHLOROETHANE 1,2	Y				
DICHLOROETHYLENES	Y				
DICHLOROPHENOL 2,4	N				
DICHLOROPROPANE	Y				
DICHLOROPROPENE	Y				
DIELDRIN	Y			0.71	0.0019
DIETHYLPHthalate	Y				
DIMETHYL PHENOL 2,4	Y				
DIMETHYL PHTHALATE	Y				
DINITROTOLUENE 2,4	N				
DINITROTOLUENE	Y				
DINITROTOLUENE	N				
DINITRO-O-CRESOL 2,4	Y				
DIOXIN (2,3,7,8-TCDD)	Y				
DIPHENYLHYDRAZINE	Y				
DIPHENYLHYDRAZINE 1,2	Y				
DI-2-ETHYLHEXYL PHTHALATE	Y				
ENDOSULFAN	Y	0.22	0.056	0.034	0.0087
ENDRIN	Y			0.037	0.0023
ETHYLBENZENE	Y				
FLUORANTHENE	Y				
GUTHION	N				
HALOETHERS	Y				
HALOMETHANES	Y				
HEPTACHLOR	Y	0.52	0.0038	0.053	0.0036
HEXACHLOROETHANE	N				



Compound Name (or Class)	Priority Pollutant	Concentration in Micrograms Per Liter (µg/L) for Protection of Aquatic Life			
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria
HEXACHLOROBENZENE	Y				
HEXACHLOROBUTADIENE	Y				
HEXACHLOROCYCLOHEXANE (LINDANE)	Y		0.08	0.16	
HEXACHLOROCYCLOHEXANE-ALPHA	Y				
HEXACHLOROCYCLOHEXANE-BETA	Y				
HEXACHLOROCYCLOHEXANE-GAMA	Y				
HEXACHLOROCYCLOHEXANE-TECHNICAL	Y				
HEXACHLOROCYCLOPENTADIENE	Y				
IRON	N				
ISOPHORONE	Y				
LEAD	Y				
MALATHION	N				
MANGANESE	N				
MERCURY	Y				
METHOXYCHLOR	N				
MIREX	N				
MONOCHLOROBENZENE	Y				
NAPHTHALENE	Y				
NICKEL	Y				
NITRATES	N				
NITROBENZENE	Y				
NITROPHENOLS	Y				
NITROSAMINES	Y				
NITROSODIBUTYLAMINE N	Y				
NITROSODIETHYLAMINE N	Y				
NITROSODIMETHYLAMINE N	Y				
NITROSODIPHENYLAMINE N	Y				
NITROSOPYRROLIDINE N	Y				



Compound Name (or Class)	Priority Pollutant	Concentration in Micrograms Per Liter (µg/L) for Protection of Aquatic Life			
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria
PARATHION	N				
PCB's	Y				
PENTACHLORINATED ETHANES	N				
PENTACHLOROBENZENE	N				
PENTACHLOROPHENOL	Y				
PHENOL	Y				
PHOSPHORUS ELEMENTAL	N				
PHTHALATE ESTERS	Y				
POLYNUCLEAR AROMATIC HYDROCARBONS	Y				
SELENIUM	Y	260	35		
SILVER	Y				
SULFIDE HYDROGEN SULFIDE	N				
TETRACHLORINATED ETHANES	Y				
TETRACHLOROBENZENE 1,2,4,5	Y				
TETRACHLOROETHANE 1,1,2,2	Y				
TETRACHLOROETHANES	Y				
TETRACHLOROETHYLENE	Y				
TETRACHLOROPHENOL 2,3,5,6	Y				
THALLIUM	Y				
TOLUENE	Y				
TOXAPHENE	Y				
TRICHLORINATED ETHANES	Y				
TRICHLOROETHANE 1,1,1	Y				
TRICHLOROETHANE 1,1,2	Y				
TRICHLOROETHYLENE	Y				
TRICHLOROPHENOL 2,4,5	N				
TRICHLOROPHENOL 2,4,6	Y				



Compound Name (or Class)	Priority Pollutant	Concentration in Micrograms Per Liter (µg/L) for Protection of Aquatic Life			
		Fresh Acute Criteria	Fresh Chronic Criteria	Marine Acute Criteria	Marine Chronic Criteria
VINYL CHLORIDE	Y				
ZINC	Y				

MEANING OF SYMBOLS:

+ = Hardness Dependent Criteria (100 mg/L used).

Y = Yes

N = No

1 = Values in Table 20 are applicable to all basins.



Table 33A

AQUATIC LIFE WATER QUALITY CRITERIA SUMMARY

The concentration for each compound listed in Table 33A is a criterion not to be exceeded in waters of the state in order to protect aquatic life. All values are expressed as micrograms per liter (µg/L) except where noted. Compounds are listed in alphabetical order with the corresponding EPA number (from National Recommended Water Quality Criteria: 2002, EPA 8220R-02-047), the Chemical Abstract Service (CAS) number, aquatic life freshwater acute and chronic criteria, aquatic life saltwater acute and chronic criteria. The acute criteria refer to the average concentration for one (1) hour and the chronic criteria refer to the average concentration for 96 hours (4-days), and that these criteria should not be exceeded more than once every three (3) years.

EPA No.	Pollutant	CAS No.	Freshwater		Saltwater	
			Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)
56	Acenaphthene	83329				
57	Acenaphthylene	208968				
17	Acrolein	107028				
18	Acrylonitrile	107131				
102	Aldrin	309002				
1 N	Alkalinity			20,000 P		
2 N	Aluminum (pH 6.5 - 9.0)	7429905				
3 N	Ammonia	7664417			D	D
58	Anthracene	120127				
1	Antimony	7440360				
2	Arsenic	7440382				
15	Asbestos	1332214				
6 N	Barium	7440393				
19	Benzene	71432				
59	Benzidine	92875				
60	Benzo(a)Anthracene	56553				



EPA No.	Pollutant	CAS No.	Freshwater		Saltwater	
			Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)
61	Benzo(a)Pyrene	50328				
62	Benzo(b)Fluoranthene	205992				
63	Benzo(g,h,i)Perylene	191242				
64	Benzo(k)Fluoranthene	207089				
3	Beryllium	7440417				
103	BHC alpha-	319846				
104	BHC beta-	319857				
106		319868				
105	BHC gamma- (Lindane)	58899	0.95			
7 N	Boron	7440428				
20	Bromoform	75252				
	Bromophenyl Phenyl Ether 4-					
70	Butylbenzyl Phthalate	85687				
4	Cadmium	7440439				
21	Carbon Tetrachloride	56235				
107	Chlordane	57749				
8 N	Chloride	16887006	860000	230000		
9 N	Chlorine	7782505	19	11	13	7.5
22	Chlorobenzene	108907				
23	Chlorodibromomethane	124481				
24	Chloroethane	75003				
65	ChloroethoxyMethane Bis2-	111911				
66	ChloroethylEther Bis2-	111444				
25	Chloroethylvinyl Ether 2-	110758				
26	Chloroform	67663				
67	ChloroisopropylEther Bis2-	108601				
15 N	ChloromethylEther, Bis	542881				
71	Chloronaphthalene 2-	91587				
45	Chlorophenol 2-	95578				
10 N	Chlorophenoxy Herbicide (2,4,5,-TP)	93721				



EPA No.	Pollutant	CAS No.	Freshwater		Saltwater	
			Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)
11 N	Chlorophenoxy Herbicide (2,4-D)	94757				
72	Chlorophenyl Phenyl Ether 4-	7005723				
12 N	Chloropyrifos	2921882	0.083	0.041	0.011	0.0056
5a	Chromium (III)					
5b	Chromium (VI)	18540299				
73	Chrysene	218019				
6	Copper	7440508				
14	Cyanide	57125	22 S	5.2 S	1 S	1 S
108	DDT 4,4'-	50293				
109	DDE 4,4'-	72559				
110	DDD 4,4'-	72548				
14 N	Demeton	8065483		0.1		0.1
74	Dibenzo(a,h)Anthracene	53703				
75	Dichlorobenzene 1,2-	95501				
76	Dichlorobenzene 1,3-	541731				
77	Dichlorobenzene 1,4-	106467				
78	Dichlorobenzidine 3,3'-	91941				
27	Dichlorobromomethane	75274				
28	Dichloroethane 1,1-	75343				
29	Dichloroethane 1,2-	107062				
30	Dichloroethylene 1,1-	75354				
46	Dichlorophenol 2,4-	120832				
31	Dichloropropane 1,2-	78875				
32	Dichloropropene 1,3-	542756				
111	Dieldrin	60571	0.24			
79	DiethylPhthalate	84662				
47	Dimethylphenol 2,4-	105679				
80	DimethylPhthalate	131113				
81	Di-n-Butyl Phthalate	84742				
49	Dinitrophenol 2,4-	51285				



EPA No.	Pollutant	CAS No.	Freshwater		Saltwater	
			Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)
27 N	Dinitrophenols	25550587				
82	Dinitrotoluene 2,4-	121142				
83	Dinitrotoluene 2,6-	606202				
84	Di-n-Octyl Phthalate	117840				
16	Dioxin (2,3,7,8-TCDD)	1746016				
85	Diphenylhydrazine 1,2-	122667				
68	EthylhexylPhthalate Bis2-	117817				
	Endosulfan					
112	Endosulfan alpha-	959988				
113	Endosulfan beta-	33213659				
114	Endosulfan Sulfate	1031078				
115	Endrin	72208	0.086			
116	Endrin Aldehyde	7421934				
33	Ethylbenzene	100414				
86	Fluoranthene	206440				
87	Fluorene	86737				
17 N	Guthion	86500		0.01		0.01
117	Heptachlor	76448				
118	Heptachlor Epoxide	1024573				
88	Hexachlorobenzene	118741				
89	Hexachlorobutadiene	87683				
91	Hexachloroethane	67721				
19 N	Hexachlorocyclo-hexane-Technical	319868				
90	Hexachlorocyclopentadiene	77474				
92	Ideno1,2,3-(cd)Pyrene	193395				
20 N	Iron	7439896		1,000		
93	Isophorone	78591				
7	Lead	7439921				
21 N	Malathion	121755		0.1		0.1
22 N	Manganese	7439965				



EPA No.	Pollutant	CAS No.	Freshwater		Saltwater	
			Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)
8a	Mercury	7439976	2.4	0.012	2.1	0.025
23 N	Methoxychlor	72435		0.03		0.03
34	Methyl Bromide	74839				
35	Methyl Chloride	74873				
48	Methyl-4,6-Dinitrophenol 2-	534521				
52	Methyl-4-Chlorophenol 3-	59507				
36	Methylene Chloride	75092				
8b	Methylmercury	22967926				
24 N	Mirex	2385855		0.001		0.001
94	Naphthalene	91203				
9	Nickel	7440020				
25 N	Nitrates	14797558				
95	Nitrobenzene	98953				
50	Nitrophenol 2-	88755				
51	Nitrophenol 4-	100027				
26 N	Nitrosamines	35576911				
28 N	Nitrosodibutylamine,N	924163				
29 N	Nitrosodiethylamine,N	55185				
96	N-Nitrosodimethylamine	62759				
98	N-Nitrosodiphenylamine	86306				
30 N	Nitrosopyrrolidine,N	930552				
97	N-Nitrosodi-n-Propylamine	621647				
32 N	Oxygen, Dissolved	7782447				
33 N	Parathion	56382	0.065	0.013		
119	Polychlorinated Biphenyls PCBs:	1336363	2 U	0.014 U	10 U	0.03 U
34 N	Pentachlorobenzene	608935				
53	Pentachlorophenol	87865	M		13	7.9
99	Phenanthrene	85018				
54	Phenol	108952				
36 N	Phosphorus Elemental	7723140				0.1



EPA No.	Pollutant	CAS No.	Freshwater		Saltwater	
			Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)
100	Pyrene	129000				
10	Selenium	7782492				
11	Silver	7440224				
40 N	Sulfide-Hydrogen Sulfide	7783064		2		2
43 N	Tetrachlorobenzene,1,2,4,5	95943				
37	Tetrachloroethane 1,1,2,2-	79345				
38	Tetrachloroethylene	127184				
12	Thallium	7440280				
39	Toluene	108883				
120	Toxaphene	8001352	0.73	0.0002	0.21	0.0002
40	Trans-Dichloroethylene 1,2-	156605				
44 N	Tributyltin (TBT)	688733				
101	Trichlorobenzene 1,2,4-	120821				
41	Trichloroethane 1,1,1-	71556				
42	Trichloroethane 1,1,2-	79005				
43	Trichloroethylene	79016				
45 N	Trichlorophenol 2,4,5	95954				
55	Trichlorophenol 2,4,6-	88062				
44	Vinyl Chloride	75014				
13	Zinc	7440666				

Footnotes for Table 33A

- D Ammonia criteria for saltwater may depend on pH and temperature. Values for saltwater criteria (total ammonia) can be calculated from the tables specified in *Ambient Water Quality Criteria for Ammonia (Saltwater)--1989* (EPA 440/5-88-004);
- M Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC= $\exp(1.005(\text{pH})-4.869)$; CCC= $\exp(1.005(\text{pH})-5.134)$.
- N This number was assigned to the list of non-priority pollutants in National Recommended Water Quality Criteria: 2002 (EPA-822-R-02-047).



- P Criterion shown is the minimum (i.e. CCC in water should not be below this value in order to protect aquatic life).
- S This criterion is expressed as μg free cyanide (CN)/L.
- U This criterion applies to total PCBs (e.g. the sum of all congener or all isomer or homolog or Arochlor analyses).



Table 33B

AQUATIC LIFE WATER QUALITY CRITERIA SUMMARY

The concentration for each compound listed in Table 33B is a criterion not to be exceeded in waters of the state in order to protect aquatic life. All values are expressed as micrograms per liter (µg/L) except where noted. Compounds are listed in alphabetical order with the corresponding EPA number (from National Recommended Water Quality Criteria: 2002, EPA 8220R-02-047), the Chemical Abstract Service (CAS) number, aquatic life freshwater acute and chronic criteria, aquatic life saltwater acute and chronic criteria. The acute criteria refer to the average concentration for one (1) hour and the chronic criteria refer to the average concentration for 96 hours (4-days), and that these criteria should not be exceeded more than once every three (3) years.

EPA No.	Pollutant	CAS No.	Freshwater		Saltwater	
			Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)
2 N	Aluminum (pH 6.5 - 9.0)	7429905				
3 N	Ammonia	7664417				
2	Arsenic	7440382				
15	Asbestos	1332214				
19	Benzene	71432				
3	Beryllium	7440417				
105	BHC gamma- (Lindane)	58899				
4	Cadmium	7440439		E, F	40 E	8.8 E
107	Chlordane	57749				
	CHLORINATED BENZENES					
26	Chloroform	67663				
67	ChloroisopropylEther Bis2-	108601				
15 N	ChloromethylEther, Bis	542881				
5a	Chromium (III)		E,F	E,F		
5b	Chromium (VI)	18540299	16 E	11 E		



EPA No.	Pollutant	CAS No.	Freshwater		Saltwater	
			Acute (CMC)	Chronic (CCC)	Acute (CMC)	Chronic (CCC)
6	Copper	7440508			4.8 E	3.1 E
108	DDT 4,4'-	50293				
	DIBUTYLPHTHALATE					
	DICHLOROBENZENES					
	DICHLOROBENZIDINE					
	DICHLOROETHYLENES					
	DICHLOROPROPENE					
111	Dieldrin	60571		0.056		
	DINITROTOLUENE					
	DIPHENYLHYDRAZINE					
115	Endrin	72208		0.036		
86	Fluoranthene	206440				
	HALOMETHANES					
20 N	Iron	7439896				
7	Lead	7439921	E,F	E,F	210 E	8.1 E
22 N	Manganese	7439965				
8a	Mercury	7439976				
	MONOCHLOROBENZENE					
9	Nickel	7440020	E,F	E,F	74 E	8.2 E
53	Pentachlorophenol	87865		M		
54	Phenol	108952				
	POLYNUCLEAR AROMATIC HYRDOCARBONS					
10	Selenium	7782492			290 E	71 E
11	Silver	7440224	E,F	0.10 E	1.9 E	
44 N	Tributyltin (TBT)	688733	0.46	0.063	0.37	0.01
41	Trichloroethane 1,1,1-	71556				
55	Trichlorophenol 2,4,6-	88062				
13	Zinc	7440666	E,F	E,F	90 E	81 E



Footnotes for Table 33B

- E Freshwater and saltwater criteria for metals are expressed in terms of “dissolved” concentrations in the water column, except where otherwise noted (e.g. aluminum).
- F The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulae (CMC refers to Acute Criteria; CCC refers to Chronic Criteria):

$$\text{CMC} = (\exp(m_A * [\ln(\text{hardness})] + b_A)) * \text{CF}$$

$$\text{CCC} = (\exp(m_C * [\ln(\text{hardness})] + b_C)) * \text{CF}$$

where CF is the conversion factor used for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column.

Chemical	m _A	b _A	m _C	b _C
Cadmium	---	---	0.7409	-4.719
Chromium III	0.8190	3.7256	0.8190	0.6848
Copper	---	---	---	---
Lead	1.273	-1.460	1.273	-4.705
Nickel	0.8460	2.255	0.8460	0.0584
Silver	1.72	-6.59		
Zinc	0.8473	0.884	0.8473	0.884



Conversion factors (CF) for dissolved metals (the values for total recoverable metals criteria were multiplied by the appropriate conversion factors shown below to calculate the dissolved metals criteria):

Chemical	Freshwater		Saltwater	
	Acute	Chronic	Acute	Chronic
Arsenic	---	---	---	---
Cadmium	---	$1.101672 - [(\ln \text{hardness})(0.041838)]$	0.994	0.994
Chromium III	0.316	0.860	--	--
Chromium VI	0.982	0.962	---	---
Copper	---	---	0.83	0.83
Lead	$1.46203 - [(\ln \text{hardness})(0.145712)]$	$1.46203 - [(\ln \text{hardness})(0.145712)]$	0.951	0.951
Nickel	0.998	0.997	0.990	0.990
Selenium	---	---	0.998	0.998
Silver	0.85	0.85	0.85	---
Zinc	0.978	0.986	0.946	0.946

M Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: $CMC = (\exp(1.005(\text{pH}) - 4.869))$; $CCC = \exp(1.005(\text{pH}) - 5.134)$.

N This number was assigned to the list of non-priority pollutants in National Recommended Water Quality Criteria: 2002 (EPA-822-R-02-047).