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# A BILL FOR AN ACT

RELATING TO WATER QUALITY STANDARDS.

**BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:**

1           SECTION 1. The purpose of this Act is to revise certain  
2 state water quality standards for inland and marine waters on an  
3 interim basis to conform to levels recommended by the State of  
4 Hawaii and United States Environmental Protection Agency, until  
5 the state department of health proposes, and the United States  
6 Environmental Protection Agency approves, standards for the  
7 pollutants and indicator organism identified in this Act,  
8 pursuant to the review of state water quality standards mandated  
9 under Section 303(c) of the Federal Water Pollution Control Act  
10 of 1972, as amended. The legislature finds that these revisions  
11 are important to the economic and social development of the  
12 State and that these revised standards are adequate to fully  
13 protect the designated and existing uses of the State's inland  
14 and marine waters.

15           SECTION 2. (a) In accordance with Section 303(c) of the  
16 Federal Water Pollution Control Act of 1972, as amended, the  
17 water quality criteria in the 2006 United States Environmental  
18 Protection Agency National Recommended Water Quality Criteria,

1 including the applicable footnotes and appendices, for all  
2 Priority Toxic Pollutants and Non-Priority Pollutants for the  
3 protection of aquatic life in surface water (acute and chronic  
4 effects in fresh water and salt water), and for the protection  
5 of human health for consumption (organism only), are hereby  
6 adopted by the State as water quality standards and apply to all  
7 state inland and marine waters, except for:

8 (1) The 2006 National Recommended Water Quality Criteria  
9 for arsenic, cadmium, chromium, chromium III, chromium  
10 VI, copper, lead, mercury, nickel, selenium, silver,  
11 and zinc; and

12 (2) The 2006 National Recommended Water Quality Criteria  
13 for non-priority pollutants not currently listed in  
14 chapter 11-54, Hawaii administrative rules.

15 (b) When there is no nationally recommended criterion  
16 promulgated for a Priority or Non-Priority Pollutant, relevant  
17 provisions in chapter 11-54, Hawaii administrative rules,  
18 relating to that pollutant are not repealed by virtue of or  
19 deemed inconsistent with this Act and remain in effect.

20 (c) The following table of numeric standards for toxic  
21 pollutants applicable to all waters fully incorporates the water  
22 quality standards adopted by the State pursuant to subsections

1 (a) and (b) and the relevant provisions of chapter 11-54, Hawaii  
2 Administrative Rules. Any standards that are not repealed or  
3 deemed inconsistent with this Act shall remain in effect. The  
4 freshwater standards shall apply where the dissolved inorganic  
5 ion concentration is less than 0.5 parts per thousand and the  
6 saltwater standards shall apply above 0.5 parts per thousand.  
7 Values for metals refer to the dissolved fraction. All values  
8 are expressed in micrograms per liter.

Numerical Standards for Toxic Pollutants Applicable to All Waters (A)	carcinogen	CAS Number	Freshwater		Saltwater		Human Health for the consumption of Organism Only	FR Cite/ Source
			CMC 1 (acute)	CCC 1 (chronic)	CMC 1 (acute)	CCC 1 (chronic)		
EPA Priority Pollutant No. and Name <sup>1</sup>								
1	Antimony	7440360	3000	ns	ns	ns	640 B	65FR66443
2	Arsenic	7440382	360	190	69	36	ns	
3	Beryllium	X 7440417	43	ns	ns	ns	0.038	
4	Cadmium	7440439	3*	3*	43	9.3	ns	
5b	Chromium (VI)	18540299	16	11	1100	50	ns	
6	Copper		6*	6*	2.9	2.9	ns	
7	Lead	7439921	29*	29*	140	5.6	ns	
8a	Mercury	7439976	2.4	0.55	2.1	0.025	0.047	
8b	Methylmercury	22967926	1.4 D,K,hh	0.77 D,K,hh	1.8 D,ee,hh	0.94 D,ee,hh	0.3 mg/kg J	EPA823-R-01-001
9	Nickel		5*	5*	75	8.3	33	
10	Selenium	7782492	20	5	300	71	ns	
11	Silver	7440224	1*	1*	2.3	ns	ns	
12	Thallium	7440280	470	ns	710	ns	0.47	68FR75510
13	Zinc	7440666	22*	22*	95	86	ns	
14	Cyanide	57125	22 K,Q	5.2 K,Q	1 Q,bb	1 Q,bb	140 jj	68FR75510 57FR60848 EPA820/B-96-001
15	Asbestos	1332214	ns	ns	ns	ns	ns	57FR60848
16	2,3,7,8-TCDD (Dioxin)	X 1746016	0.003	ns	ns	ns	5.1E-9 C	65FR66443
17	Acrolein	107028	23	ns	18	ns	290	65FR66443
18	Acrylonitrile	X 107131	2500	ns	ns	ns	0.25 B,C	65FR66443
19	Benzene	X 71432	1800	ns	1700	ns	51 B,C	IRIS 01/19/00 &65FR66443
20	Bromoform	75252	ns	ns	ns	ns	140 B,C	65FR66443
21	Carbon Tetrachloride	X 56235	12000	ns	16000	ns	1.6 B,C	65FR66443
22	Chlorobenzene	108907	ns	ns	ns	ns	1,600 U	68FR75510
23	Chlorodibromomethane	124481	ns	ns	ns	ns	13 B,C	65FR66443
24	Chloroethane	75003	ns	ns	ns	ns	ns	
25	2-Chloroethylvinyl Ether	110758	ns	ns	ns	ns	ns	
26	Chloroform	X 67663	9600	ns	ns	ns	470 C,P	62FR42160

<sup>1</sup> Office of Science and Technology. 2006. National Recommended Water Quality Criteria. U.S. Environmental Protection Agency, Office of Water (4304T).

Numerical Standards for Toxic Pollutants Applicable to All Waters (A)	carcinogen	CAS Number	Freshwater		Saltwater		Human Health for the consumption of Organism Only	FR Cite/ Source
			CMC 1 (acute)	CCC 1 (chronic)	CMC 1 (acute)	CCC 1 (chronic)		
EPA Priority Pollutant No. and Name <sup>1</sup>								
27	Dichlorobromomethane	75274	ns	ns	ns	ns	17 B,C	65FR66443
28	1,1-Dichloroethane	75343	ns	ns	ns	ns	ns	
29	1,2-Dichloroethane	X 107062	39000	ns	38000	ns	37 B,C	65FR66443
30	1,1-Dichloroethylene	75354	ns	ns	ns	ns	7,100	68FR75510
31	1,2-Dichloropropane	78875	ns	ns	ns	ns	15 B,C	65FR66443
32	1,3-Dichloropropene	542756	2000	ns	260	ns	21 C	68FR75510
33	Ethylbenzene	100414	11000	ns	140	ns	2,100	68FR75510
34	Methyl Bromide	74839	ns	ns	ns	ns	1,500 B	65FR66443
35	Methyl Chloride	74873	ns	ns	ns	ns	ns	65FR31682
36	Methylene Chloride	75092	ns	ns	ns	ns	590 B,C	65FR66443
37	1,1,2,2-Tetrachloroethane	X 79345	ns	ns	3000	ns	4.0 B,C	65FR66443
38	Tetrachloroethylene	X 127184	1800	ns	3400	145	3.3 C	65FR66443
39	Toluene	108883	5800	ns	2100	ns	15,000	68FR75510
40	1,2-Trans-Dichloroethylene	156605	ns	ns	ns	ns	10,000	68FR75510
41	1,1,1-Trichloroethane	71556	6000	ns	10400	ns	340,000	65FR31682
42	1,1,2-Trichloroethane	X 79005	6000	ns	ns	ns	16 B,C	65FR66443
43	Trichloroethylene	X 79016	15000	ns	700	ns	30 C	65FR66443
44	Vinyl Chloride	X 75014	ns	ns	ns	ns	2.4 C,kk	68FR75510
45	2-Chlorophenol	95578	1400	ns	ns	ns	150 B,U	65FR66443
46	2,4-Dichlorophenol	120832	670	ns	ns	ns	290 B,U	65FR66443
47	2,4-Dimethylphenol	105679	700	ns	ns	ns	850 B,U	65FR66443
48	2-Methyl-4,6-Dinitrophenol	534521	ns	ns	ns	ns	280	65FR66443
49	2,4-Dinitrophenol	51285	ns	ns	ns	ns	5,300 B	65FR66443
50	2-Nitrophenol	88755	ns	ns	ns	ns	ns	
51	4-Nitrophenol	100027	ns	ns	ns	ns	ns	
52	3-Methyl-4-Chlorophenol	59507	ns	ns	ns	ns	U	
53	Pentachlorophenol	87865	19 F,K	15 F,K	13 bb	7.9 bb	3.0 B,C,H	65FR66443 65FR31682
54	Phenol	108952	3400	ns	170	ns	1,700,000 B,U	65FR66443
55	2,4,6-Trichlorophenol	X 88062	ns	ns	ns	ns	2.4 B,C,U	65FR66443
56	Acenaphthene	83329	570	ns	320	ns	990 B,U	65FR66443
57	Acenaphthylene	208968	ns	ns	ns	ns	ns	

Numerical Standards for Toxic Pollutants Applicable to All Waters (A)	carcinogen	CAS Number	Freshwater		Saltwater		Human Health for the consumption of Organism Only	FR Cite/ Source
			CMC 1 (acute)	CCC 1 (chronic)	CMC 1 (acute)	CCC 1 (chronic)		
EPA Priority Pollutant No. and Name <sup>1</sup>								
58 Anthracene		120127	ns	ns	ns	ns	40,000 B	65FR66443
59 Benzidine	X	92875	800	ns	ns	ns	0.00020 B,C	65FR66443
60 Benzo (a) Anthracene		56553	ns	ns	ns	ns	0.018 B,C	65FR66443
61 Benzo (a) Pyrene		50328	ns	ns	ns	ns	0.018 B,C	65FR66443
62 Benzo (b) Fluoranthene		205992	ns	ns	ns	ns	0.018 B,C	65FR66443
63 Benzo (ghi) Perylene		191242	ns	ns	ns	ns	ns	
64 Benzo (k) Fluoranthene		207089	ns	ns	ns	ns	0.018 B,C	65FR66443
65 Bis (2-Chloroethoxy) Methane		111911	ns	ns	ns	ns	ns	
66 Bis (2-Chloroethyl) Ether	X	111444	ns	ns	ns	ns	0.53 B,C	65FR66443
67 Bis (2-Chloroisopropyl) Ether		108601	ns	ns	ns	ns	65,000 B	65FR66443
68 Bis (2-Ethylhexyl) PhthalateX		117817	ns	ns	ns	ns	2.2 B,C	65FR66443
69 4-Bromophenyl Phenyl Ether		101553	ns	ns	ns	ns	ns	
70 Butylbenzyl PhthalateW		85687	ns	ns	ns	ns	1,900 B	65FR66443
71 2-Chloronaphthalene		91587	ns	ns	ns	ns	1,600 B	65FR66443
72 4-Chlorophenyl Phenyl Ether		7005723	ns	ns	ns	ns	ns	
73 Chrysene		218019	ns	ns	ns	ns	0.018 B,C	65FR66443
74 Dibenzo (a,h) Anthracene		53703	ns	ns	ns	ns	0.018 B,C	65FR66443
75 1,2-Dichlorobenzene		95501	ns	ns	ns	ns	1,300	68FR75510
76 1,3-Dichlorobenzene		541731	ns	ns	ns	ns	960	65FR66443
77 1,4-Dichlorobenzene		106467	ns	ns	ns	ns	190	68FR75510
78 3,3'-Dichlorobenzidine	X	91941	ns	ns	ns	ns	0.028 B,C	65FR66443
79 Diethyl PhthalateW		84662	ns	ns	ns	ns	44,000 B	65FR66443
80 Dimethyl PhthalateW		131113	ns	ns	ns	ns	1,100,000	65FR66443
81 Di-n-Butyl PhthalateW		84742	ns	ns	ns	ns	4,500 B	65FR66443
82 2,4-Dinitrotoluene		121142	ns	ns	ns	ns	3.4 C	65FR66443
83 2,6-Dinitrotoluene		606202	ns	ns	ns	ns	ns	
84 Di-n-Octyl Phthalate		117840	ns	ns	ns	ns	ns	
85 1,2-Diphenylhydrazine		122667	ns	ns	ns	ns	0.20 B,C	65FR66443
86 Fluoranthene		206440	1300	ns	13	ns	140 B	65FR66443
87 Fluorene		86737	ns	ns	ns	ns	5,300 B	65FR66443
88 Hexachlorobenzene	X	118741	ns	ns	ns	ns	0.00029 B,C	65FR66443

Numerical Standards for Toxic Pollutants Applicable to All Waters (A)	carcinogen	CAS Number	Freshwater		Saltwater		Human Health for the consumption of Organism Only	FR Cite/ Source
			CMC 1 (acute)	CCC 1 (chronic)	CMC 1 (acute)	CCC 1 (chronic)		
EPA Priority Pollutant No. and Name <sup>1</sup>								
89 Hexachlorobutadiene	X	87683	30	ns	11	ns	18 B,C	65FR66443
90 Hexachlorocyclopentadiene		77474	2	ns	2	ns	1,100 U	68FR75510
91 Hexachloroethane	X	67721	330	ns	310	ns	3.3 B,C	65FR66443
92 Ideno (1,2,3-cd) Pyrene		193395	ns	ns	ns	ns	0.018 B,C	65FR66443
93 Isophorone		78591	39000	ns	4300	ns	960 B,C	65FR66443
94 Naphthalene		91203	770	ns	780	ns	ns	
95 Nitrobenzene		98953	9000	ns	2200	ns	690 B,H,U	65FR66443
96 N-Nitrosodimethylamine	X	62759	ns	ns	ns	ns	3.0 B,C	65FR66443
97 N-Nitrosodi-n-Propylamine		621647	ns	ns	ns	ns	0.51 B,C	65FR66443
98 N-Nitrosodiphenylamine	X	86306	ns	ns	ns	ns	6.0 B,C	65FR66443
99 Phenanthrene		85018	ns	ns	ns	ns	ns	
100 Pyrene		129000	ns	ns	ns	ns	4,000 B	65FR66443
101 1,2,4-Trichlorobenzene		120821	ns	ns	ns	ns	70	68FR75510
102 Aldrin	X	309002	3.0 G	ns	1.3 G	ns	0.000050 B,C	65FR66443 65FR31682
103 alpha-BHC	X	319846	ns	ns	ns	ns	0.0049 B,C	65FR66443
104 beta-BHC	X	319857	ns	ns	ns	ns	0.017 B,C	65FR66443
105 gamma-BHC (Lindane)	X	58899	0.95 K	0.08	0.16 G	ns	1.8	65FR31682 68FR75510
106 delta-BHC		319868	ns	ns	ns	ns	ns	
107 Chlordane	X	57749	2.4 G	0.0043 G,aa	0.09 G	0.004 G,aa	0.00081 B,C	65FR66443 65FR31682
108 4,4'-DDT	X	50293	1.1 G,ii	0.001 G,aa,ii	0.13 G,ii	0.001 G,aa,ii	0.00022 B,C	65FR66443 65FR31682
109 4,4'-DDE		72559	ns	ns	ns	ns	0.00022 B,C	65FR66443
110 4,4'-DDD		72548	ns	ns	ns	ns	0.00031 B,C	65FR66443
111 Dieldrin	X	60571	0.24 K	0.056 K,O	0.71 G	0.0019 G,aa	0.000054 B,C	65FR66443 65FR31682
112 alpha-Endosulfan		959988	0.22 G,Y	0.056 G,Y	0.034 G,Y	0.0087 G,Y	89 B	65FR66443 65FR31682
113 beta-Endosulfan		33213659	0.22 G,Y	0.056 G,Y	0.034 G,Y	0.0087 G,Y	89 B	65FR66443 65FR31682
114 Endosulfan Sulfate		1031078	ns	ns	ns	ns	89 B	65FR66443
115 Endrin		72208	0.086 K	0.036 K,O	0.037 G	0.0023 G,aa	0.06	65FR31682 68FR75510
116 Endrin Aldehyde		7421934	ns	ns	ns	ns	0.30 B,H	65FR66443
117 Heptachlor	X	76448	0.52 G	0.0038 G,aa	0.053 G	0.0036 G,aa	0.000079 B,C	65FR66443 65FR31682

Numerical Standards for Toxic Pollutants Applicable to All Waters (A)	carcinogen	CAS Number	Freshwater		Saltwater		Human Health for the consumption of Organism Only	FR Cite/ Source
			CMC 1 (acute)	CCC 1 (chronic)	CMC 1 (acute)	CCC 1 (chronic)		
EPA Priority Pollutant No. and Name <sup>2</sup>								

Numerical Standards for Toxic Pollutants Applicable to All Waters (A)	carcinogen	CAS Number	Freshwater		Saltwater		Human Health for the consumption of Organism Only	FR Cite/ Source
			CMC 1 (acute)	CCC 1 (chronic)	CMC 1 (acute)	CCC 1 (chronic)		
EPA Priority Pollutant No. and Name <sup>2</sup>								
118	Heptachlor Epoxide	1024573	0.52 G,V	0.0038 G,V,aa	0.053 G,V	0.0036 G,V,aa	0.000039 B,C	65FR66443 65FR31682
119	Polychlorinated Biphenyls (PCBs)	X -	2.0	0.014	10	0.03 N,aa	0.000064 B,C,N	65FR66443 65FR31682
120	Toxaphene	X 8001352	0.73	0.0002 aa	0.21	0.0002 aa	0.00028 B,C	65FR66443 65FR31682

## FOOTNOTES

## Numerical Standards for Toxic Pollutants Applicable to All Waters (A)

\* The Value listed is the minimum standard. Depending upon the receiving water CaCO<sub>3</sub> hardness, higher standards may be calculated using the respective formula in the USEPA publication Quality Criteria for Water (EPA 44/5-86-001, Revised May 1, 1987)

B This criterion has been revised to reflect The Environmental Protection Agency's q1\* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.

C This criterion is based on carcinogenicity of 10<sup>-6</sup> risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10<sup>-5</sup>, move the decimal point in the recommended criterion one place to the right).

D Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. The recommended water quality criteria value was calculated by using the previous 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the recommended conversion factor 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. (Conversion Factors for saltwater CCCs are not currently available. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria" October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource Center and 40CFR§131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble- Conversion Factors for Dissolved Metals.

F Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = exp(1.005(pH)-4.869); CCC = exp(1.005(pH)-5.134). Values displayed in table correspond to a pH of 7.8.

G This Criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

H No criterion for protection of human health from consumption of aquatic organisms excluding water was presented in the 1980 criteria document or in the 1986 Quality Criteria for Water. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.

J This fish tissue residue criterion for methylmercury is based on a total fish consumption rate of 0.0175 kg/day.

K This recommended criterion is based on a 304(a) aquatic life criterion that was issued in the 1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water, (EPA-820-B-96-001, September 1996). This value was derived

<sup>2</sup> Office of Science and Technology. 2006. National Recommended Water Quality Criteria. U.S. Environmental Protection Agency, Office of Water (4304T).

using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. None of the decisions concerning the derivation of this criterion were affected by any considerations that are specific to the Great Lakes.

**N** This criterion applies to total pcbs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

**O** The derivation of the CCC for this pollutant (Endrin) did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.

**P** Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.

**Q** This recommended water quality criterion is expressed as g free cyanide (as CN)/L.

**U** The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.

**Y** This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

**aa** This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated biphenyls (EPA 440/5-80-068), Toxaphene (EPA 440/5-86-006). This CCC is currently based on the Final Residue Value (FRV) procedure. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria. Therefore, the Agency anticipates that future revisions of this CCC will not be based on the FRV procedure.

**bb** This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (EPA-822-R-01-001), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5- 84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87- 003).

**ee** This recommended water quality criterion was derived on page 43 of the mercury criteria document (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025 ug/L given on page 23 of the criteria document is based on the Final Residue Value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the Agency no longer uses the Final Residue Value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.

**hh** This recommended water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.

**jj** This recommended water quality criterion is expressed as total cyanide, even though the IRIS RfD we used to derive the criterion is based on free cyanide. The multiple forms of cyanide that are present in ambient water have significant differences in toxicity due to their differing abilities to liberate the CN-moiety. Some complex cyanides require even more extreme conditions than refluxing with sulfuric acid to liberate the CN-moiety. Thus, these complex cyanides are expected to have little or no 'bioavailability' to humans. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g.,  $Fe_4[Fe(CN)_6]_3$ ), this criterion may be over conservative.

Numerical Standards for Toxic Pollutants Applicable to All Waters (B)		carcinogen	Freshwater		Saltwater		Human Health for the consumption of Organism Only	FR Cite/Source	
EPA Non-Priority Pollutant No. and Name <sup>3</sup>	CAS Number		CMC 1 (acute)	CCC 1 (chronic)	CMC 1 (acute)	CCC 1 (chronic)			
2	Aluminum pH 6.5 - 9.0		7429905	750 G,I	87 G,I,L	ns	ns	ns	53FR33178
9	Chlorine		7782505	19	11	13	7.5	ns	Gold Book
12	Chloropyrifos		2921882	0.083 G	0.041 G	0.011 G	0.0056 G	ns	Gold Book
14	Demeton		8065483	ns	0.1 F	ns	0.1 F	ns	Gold Book
15	Ether, Bis (Chloromethyl)	X	542881	ns	ns	ns	ns	0.00029 E,H	65FR66443
17	Guthion		86500	ns	0.01 F	ns	0.01 F	ns	Gold Book
19	Hexachlorocyclo-hexane-Technical	X	608731	ns	ns	ns	ns	0.0414	Gold Book
21	Malathion		121755	ns	0.1 F	ns	0.1 F	ns	Gold Book
23	Methoxychlor		72435	ns	0.03 F	ns	0.03 F	ns	Gold Book
24	Mirex		2385855	ns	0.001 F	ns	0.001 F	ns	Gold Book
26	Nitrosamines	X	-	1950	ns	ns	ns	1.24	Gold Book
29	Nitrosodibutylamine, N	X	924163	ns	ns	ns	ns	0.22 A,H	65FR66443
30	Nitrosodiethylamine, N	X	55185	ns	ns	ns	ns	1.24 A,H	Gold Book
31	Nitrosopyrrolidine, N	X	930552	ns	ns	ns	ns	34 H	65FR66443
35	Parathion		56382	0.065 J	0.013 J	ns	ns	ns	Gold Book
36	Pentachlorobenzene		608935	ns	ns	ns	ns	1.5 E	65FR66443
45	Tetrachlorobenzene, 1,2,4,5		95943	ns	ns	ns	ns	1.1 E	65FR66443
46	Tributyltin (TBT)		-	0.46 Q	0.072 Q	0.42 Q	0.0074 Q	ns	69FR342

## FOOTNOTES

## Numerical Standards for Toxic Pollutants Applicable to All Waters (B)

**A** This human health criterion is the same as originally published in the Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value is now published in the Gold Book.

**E** This criterion has been revised to reflect EPA's q1\* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) used to derive the original criterion was retained in each case.

**F** The derivation of this value is presented in the Red Book (EPA 440/9-76-023, July, 1976).

**G** This value is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Aluminum (EPA 440/5-86-008); Chloride (EPA 440/5-88-001); Chloropyrifos (EPA 440/5-86-005).

**H** This criterion is based on carcinogenicity of 10<sup>-6</sup> risk. Alternate risk levels may be obtained by moving the decimal point (e.g., for a risk level of 10<sup>-5</sup>, move the decimal point in the recommended criterion one place to the right).

**I** This value for aluminum is expressed in terms of total recoverable metal in the water column.

**J** This value is based on a 304(a) aquatic life criterion that was issued in the 1995 Updates: *Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water* (EPA-820-B-96-001). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the differences between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. No decision concerning this criterion was affected by any considerations that are specific to the Great Lakes.

**L** There are three major reasons why the use of Water-Effect Ratios might be appropriate.

1. The value of 87 µg/l is based on a toxicity test with the striped bass in water with pH = 6.5-6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness are not well quantified at this time.

<sup>3</sup> Office of Science and Technology. 2006. National Recommended Water Quality Criteria. U.S. Environmental Protection Agency, Office of Water (4304T).

2. In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is a more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide.

3. EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 g aluminum/L, when either total recoverable or dissolved is measured.

Q EPA announced the availability of a draft updated tributyltin (TBT) document on August 7, 1997 (62FR42554). The Agency has reevaluated this document and anticipates releasing an updated document for public comment in the near future.

Numerical Standards for Toxic Pollutants Applicable to All Waters (C)		carcinogen	Freshwater		Saltwater		Human Health for the consumption of Organism Only	FR Cite/Source
Pollutant Name			CAS Number	CMC 1 (acute)	CCC 1 (chronic)	CMC 1 (acute)		
	DDT - metabolite TDE	X	0.03	ns	1.2	ns	ns	
	Dichlorobenzenes	X	370	ns	660	ns	850	
	Dichloropropanes		7700	ns	3400	ns	ns	
	Dinitrotoluenes	X	110	ns	200	ns	3	
	Endosulfan		0.22	0.056	0.034	0.0087	52	
	Nitrophenols	X	77	ns	1600	ns	ns	
	Pentachloroethanes		2400	ns	130	ns	ns	
	Polynuclear aromatic hydrocarbons	X	ns	ns	ns	ns	0.01	
	Tetrachloroethanes		3100	ns	ns	ns	ns	
	Tetrachlorophenol (2,3,5,6)		58902	ns	ns	440	ns	

Note - Compounds listed in the plural in the Pollutant column represent complex mixtures of isomers. Numbers listed to the right of these compounds refer to the total allowable concentration of any combination of isomers of the compound, not only to concentrations of individual isomers.

9

- 10 SECTION 3. (a) In accordance with 40 Code of Federal  
 11 Regulations, Section 131.41, the State designates as coastal  
 12 recreation waters all waters up to three miles from shore to a  
 13 depth of thirty-three meters, excluding areas where water  
 14 contact recreational activities are prohibited by state or  
 15 federal law or regulation.
- 16 (b) In coastal recreation waters within five hundred  
 17 meters from the shoreline, Enterococcus content shall not exceed

1 a geometric mean of thirty-five colony forming units per one  
2 hundred milliliters in not less than five samples, which shall  
3 be spaced to cover a period between twenty-five and thirty days.  
4 No single sample shall exceed the single sample maximum of one  
5 hundred and four colony forming units per one hundred  
6 milliliters or the site-specific one-sided seventy-five per cent  
7 confidence limit.

8 (c) Coastal recreation waters between five hundred meters  
9 and three miles from shore shall be designated as infrequent use  
10 coastal recreation waters, and Enterococcus content in these  
11 waters shall not exceed a geometric mean of thirty-five colony  
12 forming units per one hundred milliliters in not less than five  
13 samples, which shall be spaced to cover a period between twenty-  
14 five and thirty days. No single sample shall exceed the single  
15 sample maximum of five hundred and one colony forming units per  
16 one hundred milliliters or the site-specific one-sided ninety-  
17 five per cent confidence limit.

18 (d) At locations where samples are taken less frequently  
19 than five samples for each twenty-five to thirty days, no single  
20 sample shall exceed the single sample maximum nor shall the  
21 geometric mean of these samples taken during the twenty-five to

1 thirty-day period exceed thirty-five colony forming units per  
2 one hundred milliliters.

3 SECTION 4. Except as provided in section 2(b) of this Act,  
4 to the extent any provision in chapter 11-54, Hawaii  
5 Administrative Rules, is inconsistent with this Act, that  
6 provision shall be superseded upon approval by the United States  
7 Environmental Protection Agency of a corresponding provision or  
8 standard. Water quality standards not inconsistent with this  
9 Act shall remain in effect.

10 SECTION 5. If any provisions of this Act, or the  
11 application thereof to any person or circumstances, is held  
12 invalid, the invalidity does not affect other provisions or  
13 applications of this Act which can be given effect without the  
14 invalid provision or application, and to this end the provisions  
15 of this Act are severable.

16 SECTION 6. This Act takes effect upon approval; provided  
17 that the specific water quality standards prescribed in this Act  
18 shall take effect upon their approval by the United States  
19 Environmental Protection Agency. Provisions in this Act  
20 relating to any particular pollutant or indicator organism shall  
21 be repealed upon the approval by the United States Environmental  
22 Protection Agency of water quality standards for the pollutant

1 or indicator organism identified in this Act, following the  
2 State's review and adoption of water quality standards pursuant  
3 to Section 303(c) of the Federal Water Pollution Control Act of  
4 1972, as amended.

**Report Title:**

Water Quality Standards

**Description:**

Amends state water quality standards for marine waters to conform to federal standards. (SD1)