Note to Readers on Proposed Table 30:

Proposed changes to the Toxic Substances rule reflect the movement of all the aquatic life criteria from Tables 20, 33A, and 33B into one new aquatic life criteria table, Table 30. As a result of this movement, Tables 20, 33A, and 33B are no longer needed and are proposed to be deleted from the Toxic Substances rule in OAR 340-041-0033. Table 30 contains criteria that (1) EPA approved in their Jan. 31, 2013 action; (2) remained unchanged; (3) are proposed to address an EPA disapproval; and (4) were previously effective (i.e. criteria contained in Table 20) for those cases where EPA disapproved pollutant criteria contained in Tables 33A or 33B and DEQ is not proposing remedies to address the disapprovals at this time. When a criterion submitted to EPA by the state is disapproved by EPA, the previously effective criterion remains in effect for federal Clean Water Act purposes.

The criteria in black type (i.e. not redline strikethrough) in Table 30 are currently effective and do not need further Environmental Quality Commission (EQC) adoption or EPA approval. Conversely, the redline/strikethrough proposed changes to Table 30 reflect corrections or clarifications to criteria, footnotes, and introductory language (originally associated with or contained in Tables 20, 33A, or 33B) to correct an EPA disapproval, or show changes to provide further clarifications on the toxics tables or rule language. These changes must be adopted by the EQC and approved by EPA before they become effective. The language portrayed in **grey** is explanatory in nature, intended to help the reader understand the changes and the tables from where the criteria originated from.

The aquatic life toxic criteria Tables 20, 33A, and 33B that are submitted to the EQC for adoption and to the Secretary of State for filing will show complete strikethrough of the tables because the tables will be deleted from the Toxics Substances rule. Because Table 30 will be a completely new table, the Secretary of State requires that the entire table be shown in red/underline text. Therefore, the table below provides a crosswalk from what the EQC previously adopted and the revisions DEQ proposes to make.

A recent change in the Secretary of State Bulletin now allows for criteria tables to be attached to the Oregon Administrative Rules; therefore, proposed changes found at the end of the Toxic Substances rule state that Tables 30, 33C (aquatic life guidance values), and 40 (human health toxics criteria) will be attached as PDF documents.

TABLE 30: Aquatic Life Water Quality Criteria for Toxic Pollutants

Effective [EPA Approval XXXXXX]

Aquatic Life ~~Water Quality~~ Criteria Summary

The concentration for each compound listed in Table 30~~3A~~ 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 information: ~~EPA number (from National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047), the~~ the Chemical Abstract Service (CAS) number, whether there is a human health criterion for the pollutant (i.e. "y"= yes, "n" = no), and the associated~~.~~ aquatic life freshwater and saltwater acute and chronic criteria~~, aquatic life saltwater acute and chronic criteria~~ . Italicized pollutants are not identified as priority pollutants by EPA.

Unless otherwise noted in the table below, ~~T~~the acute criterion~~a~~ is~~to~~ the Criterion Maximum Concentration (CMC) ~~average concentration~~ applied as a~~for~~ one ~~(1)~~ hour average concentration, and the chronic criterion~~a~~ is~~to~~ the Criterion Continuous Concentration (CCC) ~~average~~applied as a ~~concentration for~~ 96 hour~~s~~ (4 days) average concentration.~~, and that t~~These~~se~~ CMC and CCC criteria should not be exceeded more than once every three ~~(3)~~ years. Footnote A, associated with eleven pesticide pollutants in Table 30, describes the exception to the frequency and duration of the toxics criteria stated in this paragraph.

Note on edits above: The paragraph above originated from the introductory language in Tables 33A and 33B. Redline text generally reflects proposed clarifying language. The last sentence referencing Footnote A (previously Footnote O in Tables 33A and 33B) will address EPA's disapproval of 11 pesticides that have different frequencies and durations than the other toxic pollutants. EPA's disapproval of 11 pesticides related to the frequency and duration statements that DEQ added to the introductory language in Tables 33A and 33B in 2004. EPA's action letter indicated that when DEQ added the frequency and duration language to the introduction, it had the effect of changing the frequency and duration for the 11 pesticides. DEQ interpreted the introductory language in Table 33A with regards to the criteria frequency and duration as general in nature and that Footnote "O" for the pesticides superseded this general statement. It is DEQ's intention that by adding the last sentence to the introductory paragraph above that it will clarify for the 11 pesticide criteria that Footnote A (previously Footnote O) supersedes the default frequency and duration components associated with the other aquatic toxic pollutants. Although EPA did not disapprove Footnote O, DEQ proposes to provide further clarification. See those revisions in Table 30 as re-named Footnote A.

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
1	Aldrin	309002	y	3 [A] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval.	--	1.3 [A] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	--
[A] *See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.*							
2	*Alkalinity*		n	--	20,000 [B] [From Table 33A] no change in criterion	--	--
[B] *Criterion shown is the minimum (i.e. CCC in water ~~should~~ may not be below this value in order to protect aquatic life).*							
~~3~~	~~*Aluminum(pH 6.5 – 9.0)*~~	~~7429905~~		~~W~~ [From Table 33B] DEQ proposing to delete criterion from table. EPA disapproved criterion and there is no replacement criterion in Table 20. DEQ will propose remedies to address disapproval in a subsequent rulemaking	~~W~~ [From Table 33B] DEQ proposing to delete criterion from table. EPA disapproved criterion and there is no replacement criterion in Table 20. DEQ will propose remedies to address disapproval in a subsequent rulemaking	--	--

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
W ~~The acute and chronic criteria for aluminum are 750 ug/L and 87 ug/L, respectively. These values for aluminum are expressed in terms of "total recoverable" concentration of metal in the water column. The criterion applies at pH<6.6 and hardness<12 mg/L (as $CaCO_3$).~~							
3	*Ammonia*	7664417	n	*Criteria are pH, ~~and~~ temperature, and life stage dependent-- See document USEPA January 1985 (Fresh Water).* M [From Table 20] EPA disapproved Table 33B criteria—revert back to Table 20 criteria. Criteria do not need EQC adoption or EPA approval. DEQ will propose remedies to address disapproval in a subsequent rulemaking		*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; http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm ~~http://www.epa.gov/ost/pc/ambientwqc/ammoniasalt1989.pdf~~.* [From Table 33A] EPA approved non-substantive changes to footnote. No change to criterion. DEQ proposing to update footnote with corrected website.	
M See expanded footnote M equations at bottom of Table 30 to calculate freshwater ammonia criteria DEQ is proposing to add the equations from the 1985 and 1989 EPA criteria documents for easier reference							
4	Arsenic ~~(tri)~~		y	~~360~~340 C, D [From 2004 Table 33B] DEQ proposing to re-adopt this criterion which was previously adopted in 2004 from Table 33B, but was inadvertently removed during the 2007 rule adoptions. Strikethrough reflects currently effective criterion in Table 20.	~~190~~150 C, D [From 2004 Table 33B] DEQ proposing to re-adopt this criterion which was previously adopted in 2004 from Table 33B, but was inadvertently removed during the 2007 rule adoptions. Strikethrough reflects currently effective criterion in Table 20.	69 C, D [From 2004 Table 33B] DEQ proposing to re-adopt this criterion which was previously adopted in 2004 from Table 33B, but was inadvertently removed during the 2007 rule adoptions. EPA did not take action on this criterion.	36 C, D [From 2004 Table 33B] DEQ proposing to re-adopt this criterion which was previously adopted in 2004 from Table 33B, but was inadvertently removed during the 2007 rule adoptions. EPA did not take action on this criterion.

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
				EPA did not take action on this criterion.	EPA did not take action on this criterion.		
C ~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of "dissolved" concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]							
D Criterion is applied as total arsenic (i.e. arsenic (III) + arsenic (V)). [Footnote originated in Table 33B and re-proposed here]							
5	BHC Gamma (Lindane)	58899	y	0.95 [From Table 33A] approved and effective	0.08 A [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval.	0.16 A [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval.	–
A See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.							
6	Cadmium	7440439	n	3.9 E [from Table 20] EPA disapproved Table 33B criterion—revert back to Table 20 criterion. Criterion does not need EQC adoption or EPA approval. DEQ will propose remedies to address disapproval in a subsequent rulemaking.	See C, F [from Table 33B] approved and effective	40 C [From Table 33B] approved and effective	8.8 C [From Table 33B] approved and effective
C ~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of "dissolved" concentrations in the water column.~~, except where otherwise noted (e.g. aluminum).~~ [Changed footnote from Table 33B footnote to account for a few							

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
	exceptions and because there will no longer be criteria for aluminum.]						
	E *The freshwater criterion for this metal is expressed as a function of hHardness (mg/L) in the water column. The value given here corresponds to a hardness of Dependent Criteria (100 mg/L used). To calculate the criterion based on other hardness values, use formula under expanded Footnote E at bottom of Table 30.*						
	F *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded Footnote F at bottom of Table 30.*						
7	Chlordane	57749	y	2.4 A [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval.	0.0043 A [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval.	0.09 A [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval.	0.004 A [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval.
	A *See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.*						
8	*Chloride*	16887006	n	860,000 [From Table 33A] no change in criterion	230,000 [From Table 33A] no change in criterion	--	--
9	*Chlorine*	7782505	n	19 [From Table 33A] no change in criterion	11 [From Table 33A] no change in criterion	13 [From Table 33A] no change in criterion	7.5 [From Table 33A] no change in criterion
10	*Chlorpyrifos*	2921882	n	0.083 [From Table 33A] no change in criterion	0.041 [From Table 33A] no change in criterion	0.011 [From Table 33A] no change in criterion	0.0056 [From Table 33A] no change in criterion
11	Chromium VI (Hex)	18540299	n	16 C [From Table 33B] approved and effective	11 C [From Table 33B] approved and effective	1100 1100 C [From 2004 Table 33B] DEQ proposing to re-adopt this criterion which	50 50 C [From 2004 Table 33B] DEQ proposing to re-adopt this criterion

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
						was previously adopted in 2004 from Table 33B, but was inadvertently removed during the 2007 rule adoptions. Strikethrough reflects currently effective criterion in Table 20 as total recoverable EPA did not take action on this criterion.	which was previously adopted in 2004 from Table 33B, but was inadvertently removed during the 2007 rule adoptions. Strikethrough reflects currently effective criterion in Table 20 as total recoverable EPA did not take action on this criterion.
[C] ~~Freshwater and saltwater criteria~~ Criterion ~~for metals are~~ is expressed in terms of "dissolved" concentrations in the water column.~~, except where otherwise noted (e.g. aluminum).~~ *[Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]*							
12	Chromium III ~~(Tri)~~	16065831	n	*See* **C, F** [From Table 33B] approved and effective	*See* **C, F** [From Table 33B] approved and effective	--	--
[C] ~~Freshwater and saltwater criteria~~ Criterion ~~for metals are~~ is expressed in terms of "dissolved" concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ *[Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]* [F] *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded Footnote F at bottom of Table 30.*							
13	Copper	7440508	y	18 [E] [from Table 20] EPA disapproved Table 33B criterion—revert back to Table 20 criterion. Criterion does not need EQC adoption or EPA approval.	12 [E] [from Table 20] EPA disapproved Table 33B criterion—revert back to Table 20 criterion. Criterion does not need EQC adoption or EPA	4.8 [C] [From Table 33B] approved and effective	3.1 [C] [From Table 33B] approved and effective

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
				DEQ will propose remedies to address disapproval in a subsequent rulemaking.	approval. DEQ will propose remedies to address disapproval in a subsequent rulemaking.		
C	~~Freshwater and saltwater criteria~~ Criterion ~~for metals are~~ is expressed in terms of "dissolved" concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ *[Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]*						
E	The freshwater criterion for this metal is expressed as a function of h~~H~~ardness (mg/L) in the water column. The value given here corresponds to a hardness of ~~Dependent Criteria (~~100 mg/L ~~used)~~. To calculate the criterion based on other hardness values, use formula under expanded Footnote E at bottom of Table 30.						
14	Cyanide	57125	y	22 [J] [From Table 33A] no change in criterion	5.2 [J] [From Table 33A] no change in criterion	1 [J] [From Table 33A] no change in criterion	1 [J] [From Table 33A] no change in criterion
J	This criterion is expressed as µg free cyanide (CN)/L.						
15	DDT 4,4'	50293	y	1.1 [A, G] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.001 [A, G] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.13 [A, G] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.001 [A, G] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval
A	See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
G	*This criterion applies to DDT and its metabolites (i.e. the total concentration of DDT and its metabolites should not exceed this value).*						
16	*Demeton*	8065483	n	--	0.1 [From Table 33A] no change in criterion	--	0.1 [From Table 33A] no change in criterion
17	Dieldrin	60571	y	0.24 [From Table	0.056 [From Table	0.71 [A] [From Table	0.0019 [A] [From Table

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
				33A] approved and effective	33B] approved and effective	20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval
	A See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
18	Endosulfan	115297	n	0.22 A, H ~~P~~ [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.056 A, H ~~P~~ [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.034 A, H ~~P~~ [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.0087 A, H ~~P~~ [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval
	A See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion. H *This value is based on the criterion published in Ambient Water Quality Criteria for Endosulfan (EPA 440/5-80-046) and should be applied as the sum of alpha- and beta-endosulfan.* ~~P Criterion shown is the minimum (i.e. CCC in water should not be below this value in order to protect aquatic life).~~ *[Incorrect footnote per EPA--*associated w/alkalinity criterion. Replace with Footnote A above*]*						
19	Endosulfan Alpha	959988	y	0.22 A [From Table 33A] DEQ proposing to retain magnitude	0.056 A [From Table 33A] DEQ proposing to retain magnitude	0.034 A [From Table 33A] DEQ proposing to retain magnitude	0.0087 A [From Table 33A] DEQ proposing to retain magnitude

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
				originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses EPA disapproval	originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses EPA disapproval	originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses EPA disapproval	originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses EPA disapproval
	[A] See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
20	Endosulfan Beta	33213659	y	0.22[A] [From Table 33A] DEQ proposing to retain magnitude originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses EPA disapproval	0.056[A] [From Table 33A] DEQ proposing to retain magnitude originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses EPA disapproval	0.034[A] [From Table 33A] DEQ proposing to retain magnitude originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses EPA disapproval	0.0087[A] [From Table 33A] DEQ proposing to retain magnitude originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses EPA disapproval
	[A] See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
21	Endrin	72208	y	0.086 [From Table 33A] approved and effective	0.036 [From Table 33B] approved and effective	0.037[A] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote.	0.0023[A] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
						Addresses EPA disapproval	footnote. Addresses EPA disapproval
	A See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
22	*Guthion*	86500	n	--	0.01 [From Table 33A] no change in criterion	--	0.01 [From Table 33A] no change in criterion
23	Heptachlor	76448	y	0.52[A] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.0038[A] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.053[A] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval	0.0036[A] [From Table 20] DEQ proposing to retain currently effective magnitude and clarify frequency, duration and footnote. Addresses EPA disapproval
	A See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.						
24	Heptachlor Epoxide	1024573	y	0.52[A] [From Table 33A] DEQ proposing to retain magnitude originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses	0.0038[A] [From Table 33A] DEQ proposing to retain magnitude originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses	0.053[A] [From Table 33A] DEQ proposing to retain magnitude originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses	0.0036[A] [From Table 33A] DEQ proposing to retain magnitude originally submitted in 2004 and clarify frequency, duration and footnote. No replacement criterion in Table 20. Addresses

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
				EPA disapproval	EPA disapproval	EPA disapproval	EPA disapproval
	[A] *See expanded footnote A at bottom of Table 30 for alternate frequency and duration of this criterion.*						
25	*Iron (total)*	7439896	n	--	1000 [From Table 33A] no change in criterion	--	--
26	Lead	7439921	n	*See* **C , F** [From Table 33B] approved and effective	*See* **C , F** [From Table 33B] approved and effective	210 [C] [From Table 33B] approved and effective	8.1 [C] [From Table 33B] approved and effective
	[C] ~~*Freshwater and saltwater criteria*~~ *Criterion* ~~*for metals are*~~ *is expressed in terms of "dissolved" concentrations in the water column.*~~*, except where otherwise noted (e.g. aluminum)*~~ *[Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]* [F] *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded Footnote F at bottom of Table 30.*							
27	*Malathion*	121755	n	--	0.1 [From Table 33A] no change in criterion	--	0.1 [From Table 33A] no change in criterion
28	Mercury (total)	7439976	n	2.4 [From Table 33A] no change in criterion	0.012 [From Table 33A] no change in criterion	2.1 [From Table 33A] no change in criterion	0.025 [From Table 33A] no change in criterion
29	*Methoxychlor*	72435	y	--	0.03 [From Table 33A] no change in criterion	--	0.03 [From Table 33A] no change in criterion
30	*Mirex*	2385855	n	--	0.001 [From Table 33A] no change in criterion	--	0.001 [From Table 33A] no change in criterion
31	Nickel	7440020	y	*See* **C , F** [From Table 33B] approved and effective	*See* **C , F** [From Table 33B] approved and effective	74 [C] [From Table 33B] approved and effective	8.2 [C] [From Table 33B] approved and effective

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
[C] ~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is expressed in terms of "dissolved" concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.] [F] The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded Footnote F at bottom of Table 30.							
32	*Parathion*	56382	n	0.065 [From Table 33A] no change in criterion	0.013 [From Table 33A] no change in criterion	--	--
33	Pentachlorophenol	87865	y	*See* **H** [From Table 33A] approved and effective	*See* **H** [From Table 33B] approved and effective	13 [From Table 33A] no change in criterion	7.9 [From Table 33A] approved and effective
[H] *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).*							
34	*Phosphorus Elemental*	7723140	n	--	--	--	0.1 [From Table 33A] no change in criterion
35	Polychlorinated Biphenyls (PCBs)	NA	y	2 [K] [From Table 33A] no change in criterion	0.014 [K] [From Table 33A] no change in criterion	10 [K] [From Table 33A] no change in criterion	0.03 [K] [From Table 33A] no change in criterion
[K] *This criterion applies to total PCBs (e.g.* determined as Aroclors or congeners)~~the sum of all congener or all isomer or homolog or Arochlor analyses~~ [Note: Propose to revise footnote parenthetical to align with PCB footnote for human health criteria]							
36	Selenium	7782492	y	~~260~~**C , L** [From Table 33B] DEQ proposing to correct magnitude originally submitted in 2004 by expressing the criterion as dissolved (i.e. by adding conversion factor to	~~35~~ 4.6 [C] [From Table 33B-corrected] DEQ proposing to correct magnitude originally submitted in 2004 by expressing the criterion as dissolved (i.e. by multiplying	290 [C] [From Table 33B] approved and effective	71 [C] [From Table 33B] approved and effective

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
				equation). Strikethrough reflects currently effective criterion in Table 20. Addresses EPA disapproval	the criterion by the conversion factor of 0.922). Strikethrough reflects currently effective criterion in Table 20. Addresses EPA disapproval		
C ~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is *expressed in terms of "dissolved" concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]* **L** *The CMC=(1/[(f1/CMC1)+(f2/CMC2)]µg/L) * CF where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively,and CMC1 and CMC2 are 185.9 µg/L and 12.82 µg/L, respectively. See expanded footnote F for the Conversion Factor (CF) for selenium.* *[Note: Added CF (conversion factor) to freshwater acute equation to express the criterion as dissolved]*							
37	Silver	7440224	n	**C** , **F** ~~P~~ [From Table 33B] approved and effective	0.10 **C** [From Table 33B] approved and effective	1.9 **C** ~~P~~ [From Table 33B] approved and effective	--
C ~~Freshwater and saltwater~~ ~~criteria~~ Criterion ~~for metals are~~ is *expressed in terms of "dissolved" concentrations in the water column.~~, except where otherwise noted (e.g. aluminum)~~ [Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]* **F** *The freshwater acute criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded Footnote F at bottom of Table 30.* ~~P Criterion shown is the minimum (i.e. CCC in water should not be below this value in order to protect aquatic life).~~ [Propose to remove Footnote P per EPA disapproval action. Footnote is associated w/alkalinity criterion]							
38	*Sulfide Hydrogen Sulfide*	7783064	n	--	2 [From Table 33A] no change in criterion	--	2 [From Table 33A] no change in criterion
39	Toxaphene	8001352	y	0.73 [From Table 33A] no change in criterion	0.0002 [From Table 33A] no change in criterion	0.21 [From Table 33A] no change in criterion	0.0002 [From Table 33A] no change in criterion
40	*Tributyltin (TBT)*	688733	n	0.46 [From Table	0.063 [From Table	0.37 [From Table	0.01 [From Table

	Pollutant	CAS No.	Human Health Criterion	Freshwater (µg/L)		Saltwater (µg/L)	
				Acute Criterion (CMC)	Chronic Criterion (CCC)	Acute Criterion (CMC)	Chronic Criterion (CCC)
				33B] approved and effective	33B] approved and effective	33B] approved and effective	33B] approved and effective
41	Zinc	7440666	y	*See* **C , F** [From Table 33B] approved and effective	*See* **C , F** [From Table 33B] approved and effective	90 **C** [From Table 33B] approved and effective	81 **C** [From Table 33B] approved and effective

C ~~*Freshwater and saltwater criteria*~~ *Criterion* ~~*for metals are*~~ *is expressed in terms of "dissolved" concentrations in the water column.*~~*, except where otherwise noted (e.g. aluminum)*~~ *[Changed footnote from Table 33B footnote to account for a few exceptions and because there will no longer be criteria for aluminum.]*

F *The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. To calculate the criterion, use formula under expanded Footnote F at bottom of Table 30.*

Expanded Footnotes A, E, F, M

Footnote A: Alternate Frequency and Duration for Certain Pesticides

This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. ~~For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum.~~ The CMC should not be exceeded at any time and the CCC should not be exceeded based on a 24-hour average. The CMC may be applied ~~If assessment is to be done~~ using a~~n~~one hour averaging period ~~for a CMC (i.e., a one hour average~~ not to be exceeded more than once every three years, if the CMC values given in Table 30 are~~should be~~ divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

Footnote E: Equations for Hardness-Dependent Freshwater Metals Criteria for Cadmium Acute and Copper Acute and Chronic Criteria

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

The freshwater criteria for these metals are expressed as total recoverable and are a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulas (CMC refers to the acute criterion; CCC refers to the chronic criterion):

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

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

Chemical	m_A	b_A	m_C	b_C
Cadmium	1.128	-3.828	N/A	N/A
Copper	0.9422	-1.464	0.8545	-1.465

[Proposed strikethrough to original footnote in Table 20: EPA disapproved the freshwater acute criterion for cadmium and the freshwater acute and chronic criteria for copper. The criteria were expressed as dissolved. Therefore, the criteria revert back to Table 20 criteria based on total recoverable (i.e. conversion factors should not be used) and utilize the hardness factors applicable at that time.]

Footnote F: Equations for Hardness-Dependent Freshwater Metals Criteria and Conversion Factor Table

The freshwater criterion for this metal is expressed as dissolved and is a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulase (CMC refers to the aAcute cCriterionа; CCC refers to the cChronic cCriterionа):

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

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

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	~~1.0166~~ N/A	~~-3.924~~ N/A	0.7409	-4.719
Chromium III	0.8190	3.7256	0.8190	0.6848
~~Copper~~	~~0.9422~~	~~-1.700~~	~~0.8545~~	~~-1.702~~
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.):~~ The conversion factors (CF) below must be used in the equations above for the hardness-dependent metals in order to convert total recoverable metals criteria to dissolved metals criteria. For metals that are not hardness-dependent (i.e. arsenic, chromium VI, selenium, and silver (chronic)), or are saltwater criteria, the criterion value associated with the metal in Table 30 reflects a dissolved criterion based on its conversion factor below. No further conversion is needed.

Conversion Factor (CF) Table for Dissolved Metals

Chemical	Freshwater		Saltwater	
	Acute	Chronic	Acute	Chronic
Arsenic	1.000	1.000	1.000	1.000
Cadmium	~~1.136672-[(ln hardness)(0.041838)]~~ N/A	1.101672-[(ln hardness)(0.041838)]	0.994	0.994
Chromium III	0.316	0.860	--	--
Chromium VI	0.982	0.962	0.993	0.993
Copper	~~0.960~~ N/A	~~0.960~~ N/A	0.83	0.83
Lead	1.46203-[(ln hardness)(0.145712)]	1.46203-[(ln hardness)(0.145712)]	0.951	0.951
Nickel	0.998	0.997	0.990	0.990
Selenium	0.996	0.922	0.998	0.998
Silver	0.85	0.85	0.85	--
Zinc	0.978	0.986	0.946	0.946

[Proposed strikethrough to original footnote in Table 33B: Propose to remove hardness factors for acute cadmium and acute and chronic copper values in the table, since criteria reverted back to Table 20 and to the factors applied to the equations that were effective at that time (some of these factors have since been updated). Also propose to remove CFs for cadmium acute and copper acute and chronic criteria because they reverted back to total, rather than dissolved.]

Footnote M: Equations for Freshwater Ammonia Calculations

Acute Criterion

The 1-hour average concentration of un-ionized ammonia (mg/L NH3) does not exceed more often than once every three years on average, the numerical value given by:

CMC_{NH3} = 0.52/FT/FPH/2 where:

FT = $10^{0.03(20-TCAP)}$; TCAP ≤ T ≤ 30 C
FT = $10^{0.03(20-T)}$; 0 ≤ T ≤ TCAP

FPH = 1 8≤ pH ≤ 9
FPH = $\frac{1 + 10^{7.4-pH}}{1.25}$ 6.5 ≤ 8

TCAP = 20 C; Salmonids and other sensitive coldwater species present
TCAP = 25 C; Salmonids and other sensitive coldwater species absent

Chronic Criterion

The 4-day average concentration of un-ionized ammonia (mg/L NH3) does not exceed more often than once every three years on average, the average numerical value given by:

CCC_{NH3} = 0.80/FT/FPH/RATIO

where FT and FPH are as above for acute criterion and:

RATIO = 16 7.7 ≤ pH ≤ 9
RATIO = 24 6.5≤ pH ≤ 7.7

TCAP = 15 C; Salmonids and other sensitive coldwater species present
TCAP = 20 C; Salmonids and other sensitive coldwater species absent