

## Supplemental Information for Water Quality Standards Regulatory Revisions Final Rule

### New or Updated CWA Section 304(a) Criteria Recommendations Published since May 30, 2000

**NOTE:** The EPA's final rule revision at § 131.20(a) requires that if states and authorized tribes choose not to adopt new or revised criteria during their triennial review for any parameters for which EPA has published new or updated criteria recommendations under CWA section 304(a), they must explain their decision when reporting the results of their triennial review to EPA under CWA section 303(c)(1) and 40 CFR 131.20(c).

When states and authorized tribes conduct their next triennial review, they must provide an explanation for why they did not adopt new or revised criteria for parameters for which EPA has published new or updated CWA section 304(a) criteria recommendations since May 30, 2000. During the triennial reviews that follow, states and authorized tribes must do the same for criteria for parameters for which EPA has published CWA section 304(a) criteria recommendations since the states' or authorized tribes' most recent triennial review.

This document provides a list of the new or updated CWA section 304(a) criteria recommendations that have been published since May 30, 2000. This document does not represent the entirety of CWA section 304(a) criteria recommendations. For a complete list, see: <http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm>.

## Aquatic Life Criteria Table

| Pollutant   | CAS Number | P/NP* | Freshwater                                                               |                               | Saltwater                   |                               | Publication Year |
|-------------|------------|-------|--------------------------------------------------------------------------|-------------------------------|-----------------------------|-------------------------------|------------------|
|             |            |       | CMC **<br>(acute)<br>(µg/L)                                              | CCC **<br>(chronic)<br>(µg/L) | CMC **<br>(acute)<br>(µg/L) | CCC **<br>(chronic)<br>(µg/L) |                  |
| Acrolein    | 107028     | P     | 3                                                                        | 3                             |                             |                               | 2009             |
| Ammonia     | 7664417    | NP    | Freshwater Ammonia Criteria are pH, Temperature and Life-stage Dependent |                               |                             |                               | 2013             |
| Carbaryl    | 63252      | NP    | 2.1                                                                      | 2.1                           | 1.6                         |                               | 2012             |
| Cadmium     | 7440439    | P     | 2.0 A, B                                                                 | 0.25 A, B                     | 40 A                        | 8.8 A                         | 2001             |
| Copper      | 7440508    | P     | Freshwater criteria calculated using the Biotic Ligand Model             |                               | 4.8 A, C                    | 3.1 A, C                      | 2007             |
| Diazinon    | 333415     | NP    | 0.17                                                                     | 0.17                          | 0.82                        | 0.82                          | 2005             |
| Nonylphenol | 84852153   | NP    | 28                                                                       | 6.6                           | 7                           | 1.7                           | 2005             |

|                   |   |    |                                                                                                                                                                                                                           |       |      |        |      |
|-------------------|---|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|------|--------|------|
| Nutrients         | — | NP | See EPA's <a href="#">Ecoregional criteria</a> for Total Phosphorus, Total Nitrogen, Chlorophyll <i>a</i> and Water Clarity (Secchi depth for lakes; turbidity for streams and rivers) (& Level III Ecoregional criteria) |       |      |        | 2003 |
| Tributyltin (TBT) | — | NP | 0.46                                                                                                                                                                                                                      | 0.072 | 0.42 | 0.0074 | 2004 |

**\*P/NP** – Indicates either a Priority Pollutant (P) or a Non Priority Pollutant (NP).

**\*\*Criteria Maximum Concentration and Criterion Continuous Concentration**

The Criteria Maximum Concentration (CMC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed briefly without resulting in an unacceptable effect. The Criterion Continuous Concentration (CCC) is an estimate of the highest concentration of a material in surface water to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect. The CMC and CCC are just two of the six parts of an aquatic life criterion; the other four parts are the acute averaging period, chronic averaging period, acute frequency of allowed exceedence, and chronic frequency of allowed exceedence. Because CWA section 304(a) aquatic life criteria are national guidance, they are intended to be protective of the vast majority of the aquatic communities in the United States.

**A** Freshwater and saltwater criteria for metals are expressed in terms of the dissolved metal in the water column. See "[Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria \(PDF\)](#)," (49 pp, 3MB) October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available on [NSCEP's web site](#) and 40 CFR 131.36(b)(1). Conversion Factors applied in the table can be found in Appendix A to the Preamble–Conversion Factors for Dissolved Metals.

**B** The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 100 mg/L. Criteria values for other hardness may be calculated per the equation presented in the criteria document.

**C** For the saltwater copper criteria, when the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water–Effect Ratios might be appropriate.

## Human Health Criteria Table

| Pollutant                         | CAS Number | P/NP* | Human Health for the consumption of |                      | Publication Year |
|-----------------------------------|------------|-------|-------------------------------------|----------------------|------------------|
|                                   |            |       | Water + Organism (µg/L)             | Organism Only (µg/L) |                  |
| Acenaphthene                      | 83329      | P     | 70 A                                | 90 A                 | 2015             |
| Acrolein                          | 107028     | P     | 3                                   | 400                  | 2015             |
| Acrylonitrile                     | 107131     | P     | 0.061 C                             | 7.0 C                | 2015             |
| Aldrin                            | 309002     | P     | 0.00000077 C                        | 0.00000077 C         | 2015             |
| alpha-Hexachlorocyclohexane (HCH) | 319846     | P     | 0.00036 C                           | 0.00039 C            | 2015             |
| alpha-Endosulfan                  | 959988     | P     | 20                                  | 30                   | 2015             |
| Anthracene                        | 120127     | P     | 300                                 | 400                  | 2015             |
| Antimony                          | 7440360    | P     | 5.6 B, D                            | 640 B, D             | 2002             |
| Benzene                           | 71432      | P     | 0.58–2.1 C, D                       | 16–58 C, D           | 2015             |
| Benzidine                         | 92875      | P     | 0.00014 C                           | 0.011 C              | 2015             |
| Benzo(a)anthracene                | 56553      | P     | 0.0012 C                            | 0.0013 C             | 2015             |
| Benzo(a)pyrene                    | 50328      | P     | 0.00012 C, D                        | 0.00013 C, D         | 2015             |
| Benzo(b)fluoranthene              | 205992     | P     | 0.0012 C                            | 0.0013 C             | 2015             |
| Benzo(k)fluoranthene              | 207089     | P     | 0.012 C                             | 0.013 C              | 2015             |

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|---------------------------------------------|----------|----|--------------|--------------|------|
| beta-Hexachlorocyclohexane (HCH)            | 319857   | P  | 0.0080 C     | 0.014 C      | 2015 |
| beta-Endosulfan                             | 33213659 | P  | 20           | 40           | 2015 |
| Bis(2-Chloro-1-methylethyl) Ether           | 108601   | P  | 200          | 4,000        | 2015 |
| Bis(2-Chloroethyl) Ether                    | 111444   | P  | 0.030 C      | 2.2 C        | 2015 |
| Bis(2-Ethylhexyl) Phthalate                 | 117817   | P  | 0.32 C, D    | 0.37 C, D    | 2015 |
| Bis(Chloromethyl) Ether                     | 542881   | NP | 0.00015 C    | 0.017 C      | 2015 |
| Bromoform                                   | 75252    | P  | 7.0 C, D     | 120 C, D     | 2015 |
| Butylbenzyl Phthalate                       | 85687    | P  | 0.10 C       | 0.10 C       | 2015 |
| Carbon Tetrachloride                        | 56235    | P  | 0.4 C, D     | 5 C, D       | 2015 |
| Chlordane                                   | 57749    | P  | 0.00031 C, D | 0.00032 C, D | 2015 |
| Chlorobenzene                               | 108907   | P  | 100 A, D     | 800 A, D     | 2015 |
| Chlorodibromomethane                        | 124481   | P  | 0.80 C, D    | 21 C, D      | 2015 |
| Chloroform                                  | 67663    | P  | 60 D         | 2,000 D      | 2015 |
| Chlorophenoxy Herbicide (2,4-D)             | 94757    | NP | 1,300 D      | 12,000 D     | 2015 |
| Chlorophenoxy Herbicide (2,4,5-TP) [Silvex] | 93721    | NP | 100 D        | 400 D        | 2015 |
| Chrysene                                    | 218019   | P  | 0.12 C, D    | 0.13 C, D    | 2015 |
| Cyanide                                     | 57125    | P  | 4 D          | 400 D        | 2015 |
| Dibenzo(a,h)anthracene                      | 53703    | P  | 0.00012 C    | 0.00013 C    | 2015 |
| Dichlorobromomethane                        | 75274    | P  | 0.95 C, D    | 27 C, D      | 2015 |

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|---------------------------------------------|----------|----|----------------|----------------|------|
| Dieldrin                                    | 60571    | P  | 0.0000012 C    | 0.0000012 C    | 2015 |
| Diethyl Phthalate                           | 84662    | P  | 600            | 600            | 2015 |
| Dimethyl Phthalate                          | 131113   | P  | 2,000          | 2,000          | 2015 |
| Di-n-Butyl Phthalate                        | 84742    | P  | 20             | 30             | 2015 |
| Dinitrophenols                              | 25550587 | NP | 10             | 1,000          | 2015 |
| Endosulfan Sulfate                          | 1031078  | P  | 20             | 40             | 2015 |
| Endrin                                      | 72208    | P  | 0.03 D         | 0.03 D         | 2015 |
| Endrin Aldehyde                             | 7421934  | P  | 1              | 1              | 2015 |
| Ethylbenzene                                | 100414   | P  | 68 D           | 130 D          | 2015 |
| Fluoranthene                                | 206440   | P  | 20             | 20             | 2015 |
| Fluorene                                    | 86737    | P  | 50             | 70             | 2015 |
| gamma-Hexachlorocyclohexane (HCH) [Lindane] | 58899    | P  | 4.2 D          | 4.4 D          | 2015 |
| Heptachlor                                  | 76448    | P  | 0.0000059 C, D | 0.0000059 C, D | 2015 |
| Heptachlor Epoxide                          | 1024573  | P  | 0.000032 C, D  | 0.000032 C, D  | 2015 |
| Hexachlorobenzene                           | 118741   | P  | 0.000079 C, D  | 0.000079 C, D  | 2015 |
| Hexachlorobutadiene                         | 87683    | P  | 0.01 C, D      | 0.01 C, D      | 2015 |
| Hexachlorocyclohexane (HCH) – Technical     | 608731   | NP | 0.0066 C       | 0.010 C        | 2015 |
| Hexachlorocyclopentadiene                   | 77474    | P  | 4 A, D         | 4 A, D         | 2015 |
| Hexachloroethane                            | 67721    | P  | 0.1 C          | 0.1 C          | 2015 |
| Indeno(1,2,3-cd)pyrene                      | 193395   | P  | 0.0012 C       | 0.0013 C       | 2015 |
| Isophorone                                  | 78591    | P  | 34 C           | 1,800 C        | 2015 |

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|                                  |          |    |                                                    |                  |      |
|----------------------------------|----------|----|----------------------------------------------------|------------------|------|
| Methylmercury                    | 22967926 | P  |                                                    | 0.3 mg/kg E      | 2001 |
| Methoxychlor                     | 72435    | NP | 0.02 D                                             | 0.02 D           | 2015 |
| Methyl Bromide                   | 74839    | P  | 100                                                | 10,000           | 2015 |
| Methylene Chloride               | 75092    | P  | 20 C, D                                            | 1,000 C, D       | 2015 |
| Nitrobenzene                     | 98953    | P  | 10 A                                               | 600 A            | 2015 |
| Nitrosodibutylamine, N           | 924163   | NP | 0.0063 C                                           | 0.22 C           | 2002 |
| Nitrosodiethylamine, N           | 55185    | NP | 0.0008 C                                           | 1.24 C           | 2002 |
| Nitrosopyrrolidine, N            | 930552   | NP | 0.016 C                                            | 34 C             | 2002 |
| N-Nitrosodimethylamine           | 62759    | P  | 0.00069 C                                          | 3.0 C            | 2002 |
| N-Nitrosodi-n-Propylamine        | 621647   | P  | 0.0050 C                                           | 0.51 C           | 2002 |
| N-Nitrosodiphenylamine           | 86306    | P  | 3.3 C                                              | 6.0 C            | 2002 |
| Pathogen and Pathogen Indicators | —        |    | See EPA's 2012 Recreational Water Quality Criteria |                  | 2012 |
| Pentachlorobenzene               | 608935   | NP | 0.1                                                | 0.1              | 2015 |
| Pentachlorophenol                | 87865    | P  | 0.03 A, C, D                                       | 0.04 A, C, D     | 2015 |
| Phenol                           | 108952   | P  | 4,000 A                                            | 300,000 A        | 2015 |
| Polychlorinated Biphenyls (PCBs) |          | P  | 0.000064 C, D, F                                   | 0.000064 C, D, F | 2002 |
| Pyrene                           | 129000   | P  | 20                                                 | 30               | 2015 |
| Selenium                         | 7782492  | P  | 170 D                                              | 4200 D           | 2002 |
| Tetrachloroethylene              | 127184   | P  | 10 C, D                                            | 29 C, D          | 2015 |
| Thallium                         | 7440280  | P  | 0.24 D                                             | 0.47 D           | 2003 |
| Toluene                          | 108883   | P  | 57 D                                               | 520 D            | 2015 |

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|----------------------------|---------|----|--------------|--------------|------|
| Toxaphene                  | 8001352 | P  | 0.00070 C, D | 0.00071 C, D | 2015 |
| Trichloroethylene          | 79016   | P  | 0.6 C, D     | 7 C, D       | 2015 |
| Vinyl Chloride             | 75014   | P  | 0.022 C, D   | 1.6 C, D     | 2015 |
| Zinc                       | 7440666 | P  | 7,400 A      | 26,000 A     | 2002 |
| 1,1,1-Trichloroethane      | 71556   | P  | 10,000 D     | 200,000 D    | 2015 |
| 1,1,2,2-Tetrachloroethane  | 79345   | P  | 0.2 C        | 3 C          | 2015 |
| 1,1,2-Trichloroethane      | 79005   | P  | 0.55 C, D    | 8.9 C, D     | 2015 |
| 1,1-Dichloroethylene       | 75354   | P  | 300 D        | 20,000 D     | 2015 |
| 1,2,4,5-Tetrachlorobenzene | 95943   | NP | 0.03         | 0.03         | 2015 |
| 1,2,4-Trichlorobenzene     | 120821  | P  | 0.071 D      | 0.076 D      | 2015 |
| 1,2-Dichlorobenzene        | 95501   | P  | 1,000 D      | 3,000 D      | 2015 |
| 1,2-Dichloroethane         | 107062  | P  | 9.9 C, D     | 650 C, D     | 2015 |
| 1,2-Dichloropropane        | 78875   | P  | 0.90 C, D    | 31 C, D      | 2015 |
| 1,2-Diphenylhydrazine      | 122667  | P  | 0.03 C       | 0.2 C        | 2015 |
| Trans-1,2-Dichloroethylene | 156605  | P  | 100 D        | 4,000 D      | 2015 |
| 1,3-Dichlorobenzene        | 541731  | P  | 7            | 10           | 2015 |
| 1,3-Dichloropropene        | 542756  | P  | 0.27 C       | 12 C         | 2015 |
| 1,4-Dichlorobenzene        | 106467  | P  | 300 D        | 900 D        | 2015 |
| 2,3,7,8-TCDD (Dioxin)      | 1746016 | P  | 5.0E-9 C, D  | 5.1E-9 C, D  | 2002 |
| 2,4,5-Trichlorophenol      | 95954   | NP | 300 A        | 600 A        | 2015 |
| 2,4,6-Trichlorophenol      | 88062   | P  | 1.5 A, C     | 2.8 A, C     | 2015 |
| 2,4-Dichlorophenol         | 120832  | P  | 10 A         | 60 A         | 2015 |

|                                             |        |   |                   |                   |      |
|---------------------------------------------|--------|---|-------------------|-------------------|------|
| 2,4-Dimethylphenol                          | 105679 | P | 100 <b>A</b>      | 3,000 <b>A</b>    | 2015 |
| 2,4-Dinitrophenol                           | 51285  | P | 10                | 300               | 2015 |
| 2,4-Dinitrotoluene                          | 121142 | P | 0.049 <b>C</b>    | 1.7 <b>C</b>      | 2015 |
| 2-Chloronaphthalene                         | 91587  | P | 800               | 1,000             | 2015 |
| 2-Chlorophenol                              | 95578  | P | 30 <b>A</b>       | 800 <b>A</b>      | 2015 |
| 2-Methyl-4,6-Dinitrophenol                  | 534521 | P | 2                 | 30                | 2015 |
| 3,3'-Dichlorobenzidine                      | 91941  | P | 0.049 <b>C</b>    | 0.15 <b>C</b>     | 2015 |
| 3-Methyl-4-Chlorophenol                     | 59507  | P | 500 <b>A</b>      | 2,000 <b>A</b>    | 2015 |
| p,p'-Dichlorodiphenyldichloroethane (DDD)   | 72548  | P | 0.00012 <b>C</b>  | 0.00012 <b>C</b>  | 2015 |
| p,p'-Dichlorodiphenyldichloroethylene (DDE) | 72559  | P | 0.000018 <b>C</b> | 0.000018 <b>C</b> | 2015 |
| p,p'-Dichlorodiphenyltrichloroethane (DDT)  | 50293  | P | 0.000030 <b>C</b> | 0.000030 <b>C</b> | 2015 |

**\*P/NP** – Indicates either a Priority Pollutant (P) or a Non Priority Pollutant (NP).

**A** This chemical has a criterion for organoleptic (taste and odor) effects. In some cases, the organoleptic criterion may be more stringent.

**B** This criterion was 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) is from the 1980 Ambient Water Quality Criteria document.

**C** This criterion is based on carcinogenicity of 10<sup>-6</sup> risk.

**D** EPA has issued a Maximum Contaminant Level (MCL) for this chemical under the Safe Drinking Water Act. In some cases, the MCL may be more stringent. For more information see [EPA's National Primary Drinking Water Regulations](#).



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

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

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