Lake Erie Basin Aquatic Life and Human Health Tier I Criteria, Tier II Values and Screening Values (SV) contained in and developed pursuant to Chapters 3745-1 and 3745-2 of the Ohio Administrative Code (OAC).
Table numbers within this table refer to Chapter 3745-1 of the OAC.
Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| Acenaphthene | I | 38 | 19 | 15 | II | 570 | 890 |
| Acenaphthylene | SV | 240 | 120 | 13 | II | 850 | 1,800 |
| Acetonitrile (Methyl cyanide) | II | 210,000 | 100,000 | 12,000 | | ID | ID |
| Acetophenone | | ID | ID | ID | | | |
| Acrylonitrile | II | 1,300 | 650 | 78 | I | 0.53[c] | 3.0[c] |
| Aluminum | | | | | II | 970 | 4,500 |
| 2-Amino-4,6-dinitrotoluene | II | 320 | 160 | 18 | | | |
| 4-Amino-2,6-dinitrotoluene | II | 200 | 98 | 11 | | | |
| Ammonia | I | | Table 7-1 | | | | |
| Aniline | I,I,II | 59 | 30 | 4.1 | | | |
| Anthracene | II | 0.35 | 0.18 | 0.020 | II | 590 | 630 |
| Antimony | II | 1,800 | 900 | 190 | I | 9.7 | 780 |
| Arsenic - Diss | I | 680 | 340 | 150 | | NA | |
| Arsenic - TR | I | 680 | 340 | 150 | I | 10[a] | 580 |
| Barium | II | 4,000 | 2,000 | 220 | I | 2,000[a] | 160,000 |
| Benzene | II | 1,400 | 700 | 160 | I | 12[c] | 310[c] |
| Benzo(a)anthracene | SV | 85 | 42 | 4.7 | | | |
| Benzo(a)pyrene | SV | 1.1 | 0.54 | 0.060 | II | 0.00002[c] | 0.00002[c] |
| Benzo(b)fluoranthene | SV | 47 | 23 | 2.6 | | | |
| Benzo(g,h,i)perylene | | ID | ID | ID | | | |
| Benzo(k)fluoranthene | | ID | ID | ID | | | |
| Beryllium | II | [g] | [g] | [g] | I | 17[c] | 130[c] |
| Biphenyl | II | 51 | 26 | 6.5 | | | |
| Bis(2-ethylhexyl)phthalate | II | 2,100 | 1,100 | 8.4 | I | 25[c] | 32[c] |

Lake Erie Basin Aquatic Life and Human Health Tier I Criteria, Tier II Values and Screening Values (SV) contained in and developed pursuant to Chapters 3745-1 and 3745-2 of the Ohio Administrative Code (OAC).
Table numbers within this table refer to Chapter 3745-1 of the OAC.
Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| Bismuth | | ID | ID | ID | | ID | ID |
| Boron | II | 17,000 | 8,500 | 950 | I | 2,400 | 200,000 |
| Bromide | | | | | | ID | ID |
| Bromochloromethane | | ID | ID | ID | | | |
| Bromodichloromethane | SV | 6,200 | 3,100 | 340 | I | 6.8[c] | 180[c] |
| 3-Bromofluorobenzene | | ID | ID | ID | | | |
| 4-Bromofluorobenzene | | ID | ID | ID | | | |
| Bromoform (Tribromomethane) | II | 2,200 | 1,100 | 230 | I | 52[c] | 890[c] |
| Bromomethane | See Methyl bromide | | | | | | |
| 1,3-Butadiene | | ID | ID | ID | | | |
| 2-Butanone (Methyl ethyl ketone) | II | 400,000 | 200,000 | 22,000 | | | |
| n-Butylbenzene | | ID | ID | ID | | | |
| sec-Butylbenzene | | ID | ID | ID | | | |
| tert-Butylbenzene | | ID | ID | ID | | | |
| Butylbenzyl phthalate | II | 260 | 130 | 23 | | | |
| Cadmium - Diss | I | Table 7-9 | | | | NA | |
| Cadmium - TR | I | Table 7-9 | | | I | 14 | 730 |
| Carbon disulfide | II | 260 | 130 | 15 | | | |
| Carbon tetrachloride | II | 4,400 | 2,200 | 240 | I | 2.4[c] | 19[c] |
| Chlordane | | | | | I | 0.00025[c] | 0.00025[c] |
| Chlorides | | | | | I | 250,000[a] | ID |
| Chlorine (wwh,ewh, mwh,cwh) - TRes | I | 38 | 19 | 11 | | ID | ID |
| Chlorine (lrw) - TRes | I | 38 | 19 | NA | | ID | ID |

Lake Erie Basin Aquatic Life and Human Health Tier I Criteria, Tier II Values and Screening Values (SV) contained in and developed pursuant to Chapters 3745-1 and 3745-2 of the Ohio Administrative Code (OAC). Table numbers within this table refer to Chapter 3745-1 of the OAC.
Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| Chlorine (ssh) - TRes | I | [b] | [b] | [b] | | ID | ID |
| Chlorobenzene | II | 850 | 420 | 47 | I | 470 | 3,200 |
| Chlorodibromomethane | See Dibromochloromethane | | | | | | |
| Chlorodibromopropane | See 1,2-Dibromo-3-chloropropane | | | | | | |
| Chloroform (Trichloromethane) | II | 2,600 | 1,300 | 140 | I | 56[c] | 1,700[c] |
| Chloromethane | See Methyl chloride | | | | | | |
| 2-Chlorophenol | II | 580 | 290 | 32 | I,II | 0.1[f] | 150 |
| Chromium - Diss | I | Table 7-9 | | | | NA | |
| Chromium - TR | I | Table 7-9 | | | I | 140 | 14,000 |
| Chromium VI - Diss | I | 31 | 16 | 11 | I | 140 | 14,000 |
| Chrysene | SV | 85 | 42 | 4.7 | | | |
| Cobalt | II | 440 | 220 | 24 | | ID | ID |
| Copper - Diss | I | Table 7-9 | | | | NA | |
| Copper - TR | I | Table 7-9 | | | I | 790 | 64,000 |
| Cyanide - amenable to chlorination | See Cyanide - free | | | | | | |
| Cyanide - free | I | 44 | 22 | 5.2 | I | 600 | 48,000 |
| Cyanides | | | | | I | 600 | 48,000 |
| 4,4'-DDT[1] | | | | | I | 0.00015[c] | 0.00015[c] |
| Dibenz(a,h)anthracene | | ID | ID | ID | | | |
| Dibenzofuran | II | 71 | 36 | 4.0 | | | |
| Dibromochloromethane | SV | 5,800 | 2,900 | 320 | I | 6.8[c] | 150[c] |
| 1,2-Dibromo-3-chloropropane | | ID | ID | ID | | | |
| 1,2-Dibromoethane | See Ethylene dibromide | | | | | | |

Lake Erie Basin Aquatic Life and Human Health Tier I Criteria, Tier II Values and Screening Values (SV) contained in and developed pursuant to Chapters 3745-1 and 3745-2 of the Ohio Administrative Code (OAC). Table numbers within this table refer to Chapter 3745-1 of the OAC.
Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| Di-n-butyl phthalate | | | | | II | 31 | 31 |
| 1,2-Dichlorobenzene | II | 190 | 96 | 23 | I | 2,000 | 11,000 |
| 1,3-Dichlorobenzene | II | 160 | 79 | 22 | II | 5,200 | 9,300 |
| 1,4-Dichlorobenzene | II | 110 | 57 | 9.4 | I | 24[c] | 240[c] |
| Dichlorobromomethane | See Bromodichloromethane | | | | | | |
| Dichlorodifluoromethane | | ID | ID | ID | | ID | ID |
| 1,1-Dichloroethane | SV | 7,300 | 3,700 | 410 | I | 1,500 | 62,000 |
| 1,2-Dichloroethane | II | 19,000 | 9,600 | 2,000 | I | 3.8[c] | 230[c] |
| 1,1-Dichloroethylene | II | 3,800 | 1,900 | 210 | II | 0.56[c] | 15[c] |
| 1,2-Dichloroethylene[2] | II | 18,000 | 8,800 | 970 | | | |
| cis-1,2-Dichloroethylene | | See 1,2-Dichloroethylene | | | I | 880 | 36,000 |
| trans-1,2-Dichloroethylene | | See 1,2-Dichloroethylene | | | I | 470 | 25,000 |
| Dichloromethane | See Methylene chloride | | | | | | |
| 2,4-Dichlorophenol | II | 210 | 110 | 11 | I | 0.3[f] | 320 |
| 1,2-Dichloropropane | II | 6,500 | 3,300 | 520 | I | 9.1[c] | 290[c] |
| 1,3-Dichloropropene | II | 30 | 15 | 1.7 | | | |
| Dieldrin | I | 0.47 | 0.24 | 0.056 | I | 0.0000065[c] | 0.0000065[c] |
| Diethyl phthalate | II | 2,000 | 980 | 220 | | ID | ID |
| Difluorodichloromethane | See Dichlorodifluoromethane | | | | | | |
| 2,4-Dimethylphenol | II | 280 | 140 | 15 | I | 450 | 8,700 |
| Dimethyl phthalate | II | 6,400 | 3,200 | 1,100 | | | |
| 3,5-Dinitroaniline | II | 430 | 210 | 70 | | | |
| 1,3-Dinitrobenzene | II | 210 | 100 | 22 | | | |
| 2,4-Dinitrophenol | | | | | I | 55 | 2,800 |
| 2,3-Dinitrotoluene | II | 41 | 21 | 2.3 | | | |

Lake Erie Basin Aquatic Life and Human Health Tier I Criteria, Tier II Values and Screening Values (SV) contained in and developed pursuant to Chapters 3745-1 and 3745-2 of the Ohio Administrative Code (OAC). Table numbers within this table refer to Chapter 3745-1 of the OAC.
Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| 2,4-Dinitrotoluene | II | 790 | 390 | 44 | | | |
| 2,5-Dinitrotoluene | II | 100 | 50 | 5.6 | | | |
| 2,6-Dinitrotoluene | II | 1,500 | 730 | 81 | | | |
| 3,5-Dinitrotoluene | II | 1,700 | 860 | 95 | | | |
| 1,4-Dioxane | | ID | ID | ID | I | 32[c] | 2,500[c] |
| Dissolved oxygen | I | | Table 7-1 | | | | |
| Dissolved solids | I | ID | ID | 1,500,000[d] | I | 750,000[a,e] max. 500,000[a,e] ave. | ID |
| Endrin | I | 0.17 | 0.086 | 0.036 | | | |
| Ethylbenzene | II | 1,100 | 550 | 61 | I | 2,100 | 8,900 |
| Ethylene dibromide (EDB) (1,2-Dibromoethane) | | ID | ID | ID | | | |
| Ethylene glycol | II | 2,600,000 | 1,300,000 | 140,000 | II | 56,000 | 4,500,000 |
| Fluoranthene | II | 7.4 | 3.7 | 0.80 | II | 9.4 | 9.5 |
| Fluorene | I,I,II | 220 | 110 | 19 | II | 250 | 320 |
| Fluoride | | | | | | ID | ID |
| Fluorobenzene | | ID | ID | ID | | | |
| 2-Fluorobiphenyl | | ID | ID | ID | | | |
| 2-Fluorophenol | | ID | ID | ID | | | |
| Formaldehyde | | | | | | ID | ID |
| Halomethanes | See criteria for individual chemicals | | | | | | |
| Hexachlorobenzene | | | | | I | 0.00045[c] | 0.00045[c] |
| Hexachlorobutadiene | | | | | II | 0.22[c] | 0.24[c] |
| alpha-Hexachlorocyclohexane | | | | | I | 0.0048[c] | 0.0053[c] |

Lake Erie Basin Aquatic Life and Human Health Tier I Criteria, Tier II Values and Screening Values (SV) contained in and developed pursuant to Chapters 3745-1 and 3745-2 of the Ohio Administrative Code (OAC). Table numbers within this table refer to Chapter 3745-1 of the OAC.
Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| beta-Hexachlorocyclohexane | | | | | II | 0.013[c] | 0.014[c] |
| gamma-Hexachloro-cyclohexane (Lindane) | I,I,II | 1.9 | 0.95 | 0.057 | I | 0.47 | 0.50 |
| Hexachlorocyclohexane (technical grade) | | | | | I | 0.013[c] | 0.014[c] |
| Hexachloroethane | | | | | I | 5.3[c] | 6.7[c] |
| HMX (Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine) | II | 2,500 | 1,200 | 220 | | | |
| Indeno(1,2,3-c,d)pyrene | | ID | ID | ID | | | |
| Iron - Soluble | | | | | I | 300[a] | |
| Isophorone | II | 15,000 | 7,500 | 920 | | ID | ID |
| Isopropylbenzene | II | 86 | 43 | 4.8 | I | 1,700 | 3,800 |
| 4-Isopropyltoluene | II | 300 | 150 | 16 | | | |
| Lead - Diss | I | Table 7-9 | | | | NA | |
| Lead - TR | I | Table 7-9 | | | | ID | ID |
| Lindane | See gamma-Hexachlorocyclohexane | | | | | | |
| Magnesium | | | | | | ID | ID |
| Manganese - TR | II | | | | I | 50 | 61,000 |
| MBAS (foaming agents) | I | | 500[f] | | | | |
| Mercury - Diss | I | 2.9 | 1.4 | 0.77 | | NA | |
| Mercury[1] - TR | I | 3.4 | 1.7 | 0.91 | I | 0.0031 | 0.0031 |
| Methyl bromide (Bromomethane) | II | 75 | 38 | 16 | I | 39 | 2,600 |
| Methyl chloride (Chloromethane) | | | | | II | 110[c] | 7,300[c] |
| Methyl cyanide | See Acetonitrile | | | | | | |

Lake Erie Basin Aquatic Life and Human Health Tier I Criteria, Tier II Values and Screening Values (SV) contained in and developed pursuant to Chapters 3745-1 and 3745-2 of the Ohio Administrative Code (OAC). Table numbers within this table refer to Chapter 3745-1 of the OAC.
Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| Methyl ethyl ketone | See 2-Butanone | | | | | | |
| 4-Methyl-2-pentanone | | ID | ID | ID | | | |
| Methylene chloride (Dichloromethane) | II | 22,000 | 11,000 | 1,900 | I | 47[c] | 2,600[c] |
| 2-Methylphenol | II | 1,200 | 600 | 67 | | | |
| 3-Methylphenol | II | 1,100 | 560 | 62 | | | |
| 4-Methylphenol | II | 960 | 480 | 53 | | | |
| Methyl tert-butyl ether | II | 13,000 | 6,500 | 730 | | | |
| Mirex | | | | | I | 0.000074[c] | 0.000074[c] |
| Molybdenum | II | 370,000 | 190,000 | 20,000 | I | 120 | 10,000 |
| Naphthalene | II | 340 | 170 | 21 | I | 540 | 1,200 |
| Nickel - Diss | I | Table 7-9 | | | | NA | |
| Nickel - TR | I | Table 7-9 | | | I | 470 | 43,000 |
| Nitrate-N + Nitrite-N | | | | | I | 10,000[a] | ID |
| Nitrite-N | | | | | II | 1,000[a] | ID |
| Nitrobenzene | II | 4,000 | 2,000 | 380 | | | |
| Nitrocelluose | | ID | ID | ID | | | |
| Nitroglycerine | II | 320 | 160 | 18 | | | |
| Nitroguanidine | | ID | ID | ID | | | |
| 2-Nitrophenol | II | 1,300 | 650 | 73 | | | |
| 2-Nitrotoluene | II | 1,300 | 640 | 71 | | | |
| 3-Nitrotoluene | II | 760 | 380 | 42 | | | |
| 4-Nitrotoluene | II | 820 | 410 | 46 | | | |
| Oil & grease | I | | 10,000[f] | | | | |
| Parathion | I | 0.13 | 0.065 | 0.013 | | | |

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Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| Pentachlorobenzene | | | | | I | 0.18 | 0.19 |
| Pentachlorophenol | I | Table 7-10 | | | II | 1.0[a,c] | 1.6[c] |
| pH | I | | | Table 7-1 | | | |
| Phenanthrene | II | 61 | 31 | 2.3 | | | |
| Phenol (wwh,ewh,mwh) | I,I,II | 9,400 | 4,700 | 400 | I,II | 1.0[f] | 2,400 |
| Phenol (lrw) | I,I,II | 9,400 | 4,700 | NA | I,II | 1.0[f] | 2,400 |
| Phenol (cwh,ssh) | I,I,II | 9,100 | 4,600 | 160 | I,II | 1.0[f] | 2,400 |
| Phenolics | See criteria for individual chemicals | | | | | | |
| Phosphate | See Phosphorus | | | | | | |
| Phosphorus | I | Table 7-11 | ID | ID | I | Table 7-11 | ID |
| Polychlorinated biphenyls (PCBs)[1] | | | | | I | 0.000026[c] | 0.000026[c] |
| Polynuclear aromatic hydrocarbons (PAHs) | See criteria for individual chemicals | | | | | | |
| n-Propyl benzene | | ID | ID | ID | | ID | ID |
| Propylene glycol | II | 1,300,000 | 640,000 | 71,000 | | ID | ID |
| Pyrene | II | 83 | 42 | 4.6 | I | 15 | 15 |
| RDX (Hexahydro-1,3,5-Trinitro-1,3,5-Triazine) | II | 1,000 | 520 | 79 | | | |
| SAS-310 | II | 10 | 5.0 | 0.61 | | | |
| Selenium - Diss | I | | | 4.6 | | NA | |
| Selenium - TR | I | | | 5.0 | I | 130 | 3,100 |
| Silver - Diss | I | [h] | | ID | | NA | |
| Silver (wwh,ewh,mwh)-TR | I | [h] | | 1.3 | I | 130 | 11,000 |
| Silver (lrw) - TR | I | [h] | | NA | I | 130 | 11,000 |
| Silver (ssh, cwh) - TR | I | [h] | | 0.06 | I | 130 | 11,000 |

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Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| Strontium | II | 95,000 | 48,000 | 5,300 | I | 18,000 | 1,400,000 |
| Styrene | II | 570 | 290 | 32 | | | |
| Sulfates | | | | | I | 250,000[a] | ID |
| Sulfide | | | | | | ID | ID |
| Temperature | I | | Table 7-1 | | | | |
| 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD)[1,3] | | | | | I | 0.000000 0086[c] | 0.000000 0086[c] |
| 1,1,1,2-Tetrachloroethane | II | 1,500 | 770 | 85 | | | |
| 1,1,2,2-Tetrachloroethane | II | 1,800 | 910 | 260 | II | 1.7[c] | 41[c] |
| Tetrachloroethylene | II | 850 | 430 | 53 | I | 320 | 1,800 |
| Tetrahydrofuran | II | 150,000 | 74,000 | 11,000 | | | |
| Tetryl | | ID | ID | ID | | | |
| Thallium | II | 160 | 79 | 17 | I | 1.2 | 3.7 |
| Tin | II | 3,200 | 1,600 | 180 | | ID | ID |
| Titanium | | ID | ID | ID | | ID | ID |
| Toluene | II | 1,100 | 560 | 62 | I | 5,600 | 51,000 |
| Toxaphene | | | | | I | 0.000068[c] | 0.000068[c] |
| Tribromomethane | See Bromoform | | | | | | |
| 2,4,6-Tribromophenol | II | 100 | 50 | 5.6 | | | |
| 1,1,1-Trichloroethane | II | 1,400 | 690 | 76 | I | 73,000 | 1,600,000 |
| 1,1,2-Trichloroethane | II | 6,600 | 3,300 | 740 | II | 6.0[c] | 170[c] |
| Trichloroethylene | II | 4,000 | 2,000 | 220 | I | 29[c] | 370[c] |
| Trichloromethane | See Chloroform | | | | | | |
| 2,4,6-Trichlorophenol | II | 79 | 39 | 4.9 | I | 27[c] | 190[c] |
| 1,2,4-Trimethylbenzene | II | 280 | 140 | 15 | SV | 49 | 86 |

Lake Erie Basin Aquatic Life and Human Health Tier I Criteria, Tier II Values and Screening Values (SV) contained in and developed pursuant to Chapters 3745-1 and 3745-2 of the Ohio Administrative Code (OAC). Table numbers within this table refer to Chapter 3745-1 of the OAC.
Ohio EPA, Division of Surface Water. 7/27/05

| | Aquatic Life (µg/l) | | | | Human Health (µg/l) | | |
|---|---|---|---|---|---|---|---|
| Chemical | Tier | IMZM | OMZM | OMZA | Tier | Drink | Nondrink |
| 1,3,5-Trimethylbenzene | II | 460 | 230 | 26 | I | 710 | 1,500 |
| 1,3,5-Trinitrobenzene | II | 54 | 27 | 11 | | | |
| 2,4,6-Trinitrotoluene | II | 230 | 120 | 13 | | | |
| Urea | II | 300,000 | 150,000 | 17,000 | | ID | ID |
| Vanadium | II | 300 | 150 | 44 | | ID | ID |
| Vinyl chloride | II | 17,000 | 8,400 | 930 | I | 0.48[c] | 28[c] |
| Xylenes[4] | II | 480 | 240 | 27 | I | 31,000 | 83,000 |
| Zinc - Diss | I | Table 7-9 | | | | NA | |
| Zinc - TR | I | Table 7-9 | | | I | 5,000 | 35,000 |
| Zirconium | | ID | ID | ID | | | |

Other water quality criteria:
Lake Erie temperature criteria are in OAC 3745-1-31. Those criteria supersede the criteria in this table, where applicable.
Wildlife criteria - Table 33-2.
Agricultural Water Supply criteria - Table 7-12
Recreational (fecal coliform, E. coli) criteria - Table 7-13
Biological (IBI, Miwb, ICI) criteria - Table 7-15

Legend:
All criteria and values are expressed as total unless specified otherwise.
Diss = dissolved; TR = total recoverable; TRes = total residual.
Blank space = Criterion not calculated; contact the Standards & Technical Support section.
ID = Insufficient data available to calculate criterion.
NA = Not applicable.
IMZM = Inside Mixing Zone Maximum.
OMZM = Outside Mixing Zone Maximum.
OMZA = Outside Mixing Zone Average.
Drink = Human health criterion applicable to Public Water Supply streams (2-route exposure).
Nondrink = Human health criterion - non Public Water Supply (1-route exposure).

Footnotes:
[1] See Table 33-2 for the applicable wildlife criterion.

[2] The Aquatic Life criteria for 1,2-dichloroethylene apply to the sum of cis-1,2-dichloroethylene and trans-1,2-dichloroethylene.

[3] Regulation of the additive effects of chlorinated dibenzo dioxins and chlorinated dibenzo furans is explained in OAC 3745-2-07.

[4] The Aquatic Life and Human Health criteria for xylenes apply to the sum of m-xylene, o-xylene and p-xylene.

[a] This criterion is the maximum contaminant level (MCL) developed under the "Safe Drinking Water Act".

[b] No chlorine is to be discharged.

[c] This criterion is based on a carcinogenic endpoint.

[d] Equivalent 25°C specific conductance value is 2400 micromhos/cm.

[e] Equivalent 25°C specific conductance values are 1200 micromhos/cm as a maximum and 800 micromhos/cm as a thirty-day average.

[f] This criterion is based on protection against adverse aesthetic effects.

[g]

| | | | | Criteria | | | |
|---|---|---|---|---|---|---|---|
| Beryllium | Form | Units | Equation | 100 | 200 | 300 | 400 |
| IMZM | TR | µg/l | $e^{(1.609\ [\ln H] - 2.181)}$ | 190 | 570 | 1100 | 1700 |
| OMZM | TR | µg/l | $e^{(1.609\ [\ln H] - 2.874)}$ | 93 | 280 | 540 | 870 |
| OMZA | TR | µg/l | $e^{(1.609\ [\ln H] - 5.017)}$ | 11 | 33 | 64 | 100 |

[h]

| | | | | Criteria | | | |
|---|---|---|---|---|---|---|---|
| Silver | Form | Units | Equation | 100 | 200 | 300 | 400 |
| IMZM | Diss | µg/l | $e^{(1.720\ [\ln H] - 6.922)}$ | 2.7 | 8.9 | 18 | 29 |
| OMZM | Diss | µg/l | $e^{(1.720\ [\ln H] - 7.615)}$ | 1.4 | 4.5 | 9.0 | 15 |
| IMZM | TR | µg/l | $e^{(1.720\ [\ln H] - 6.759)}$ | 3.2 | 11 | 21 | 35 |
| OMZM | TR | µg/l | $e^{(1.720\ [\ln H] - 7.452)}$ | 1.6 | 5.3 | 11 | 17 |

M:\STS\WQ_Criteria\CRTABLES\Erieval11.wpd

**3745-1-07 Water use designations and statewide criteria.**

(A) Water quality standards contain two distinct elements: designated uses; and numerical or narrative criteria designed to protect and measure attainment of the uses.

(1) Each water body in the state is assigned one or more aquatic life habitat use designations. Each water body may be assigned one or more water supply use designations and/or one recreational use designation. These use designations are defined in paragraph (B) of this rule. Water bodies are assigned use designations in rules 3745-1-08 to 3745-1-32 of the Administrative Code. In addition, water bodies are assigned designations as described in paragraphs (B)(1)(a), (B)(1)(c), (B)(3)(a), (B)(4)(a) and (B)(4)(b) of this rule and in the antidegradation rule (rule 3745-1-05 of the Administrative Code).

(2) Statewide chemical-specific criteria for the support of use designations are presented in this rule. Additional chemical-specific criteria applicable within the lake Erie drainage basin are contained in rules 3745-1-31 and 3745-1-33 of the Administrative Code. Additional chemical-specific criteria applicable within the Ohio river drainage basin are contained in rules 3745-1-32 and 3745-1-34 of the Administrative Code. Additional chemical-specific criteria may be derived as described in rules 3745-1-36, 3745-1-37, 3745-1-38 and 3745-1-39 of the Administrative Code. The most stringent chemical-specific criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(3) The chemical-specific criteria listed in this rule apply as "Outside Mixing Zone" or "Inside Mixing Zone Maximum." For the purpose of setting water quality based effluent limits, the criteria which apply "Outside Mixing Zone" shall be met after the effluent and the receiving water are reasonably well mixed as provided in rules 3745-2-05 and 3745-2-08 of the Administrative Code. The criteria listed as "Inside Mixing Zone Maximum" shall be applicable as end-of-pipe maximum effluent limits or as criteria to be met within a short distance of the effluent pipe except as provided in rule 3745-2-08 of the Administrative Code. Possible exceptions regarding the application of these criteria may apply as described in paragraph (A)(6) of this rule.

(4) The water quality criteria adopted in, or developed pursuant to, this rule shall apply as follows:

(a) The "Inside Mixing Zone Maximum" and "Outside Mixing Zone Maximum" water quality criteria for the protection of aquatic life, or site-specific modifications thereof, shall apply to all water bodies. Water quality criteria applicable to specific aquatic life use designations are listed where appropriate. The "Inside Mixing Zone Maximum" and "Outside Mixing Zone Maximum" water quality criteria identified for the warmwater habitat use designation apply to water bodies not assigned an aquatic life use designation.

(b) The "Outside Mixing Zone Average" water quality criteria for the protection of aquatic life, or site-specific modifications thereof, shall apply to all water bodies

except those water bodies assigned the limited resource water use designation. However, the limited resource water "Outside Mixing Zone Average" water quality criteria for dissolved oxygen, pH and temperature apply to water bodies assigned the limited resource water use designation.

Water quality criteria applicable to specific aquatic life use designations are listed where appropriate. The "Outside Mixing Zone Average" water quality criteria identified for the warmwater habitat use designation apply to water bodies not assigned an aquatic life use designation.

(c) The water quality criteria for the protection against adverse aesthetic conditions, or site-specific modifications thereof, shall apply as follows:

(i) The "Inside Mixing Zone Maximum" and "Outside Mixing Zone Maximum" water quality criteria, or site-specific modifications thereof, shall apply to all water bodies.

(ii) The "Drinking" water quality criteria shall apply to all water bodies within five hundred yards of drinking water intakes.

(d) The "Outside Mixing Zone Average" water quality criteria for the protection of agricultural uses, or site-specific modifications thereof, shall apply outside the mixing zone to all water bodies assigned the agricultural water supply use designation.

(e) The water quality criteria for the protection of recreational uses shall apply outside the mixing zone to all water bodies assigned a recreational use designation.

(5) For any pollutant for which it is demonstrated that a methodology or procedure cited in this chapter is not scientifically defensible, the director may apply an alternative methodology or procedure acceptable under 40 C.F.R. 131 when developing water quality criteria.

(6) Biological criteria presented in table 7-15 of this rule provide a direct measure of attainment of the warmwater habitat, exceptional warmwater habitat and modified warmwater habitat aquatic life uses. Biological criteria and the exceptions to chemical-specific or whole-effluent criteria allowed by this paragraph do not apply to any other use designations.

(a) Demonstrated attainment of the applicable biological criteria in a water body will take precedence over the application of selected chemical-specific aquatic life or whole-effluent criteria associated with these uses when the director, upon considering appropriately detailed chemical, physical and biological data, finds that one or more chemical-specific or whole-effluent criteria are inappropriate. In

such cases the options which exist include:

(i) The director may develop, or a discharger may provide for the director's approval, a justification for a site-specific water quality criterion according to methods described in "Water Quality Standards Handbook, 1983, U.S. EPA Office of Water";

(ii) The director may proceed with establishing water quality based effluent limits consistent with attainment of the designated use.

(b) Demonstrated nonattainment of the applicable biological criteria in a water body with concomitant evidence that the associated chemical-specific aquatic life criteria and whole-effluent criteria are met will cause the director to seek and establish, if possible, the cause of the nonattainment of the designated use. The director shall evaluate the existing designated use and, where not attainable, propose to change the designated use. Where the designated use is attainable and the cause of the nonattainment has been established, the director shall, wherever necessary and appropriate, implement regulatory controls or make other recommendations regarding water resource management to restore the designated use. Additional regulatory controls shall not be imposed on point sources that are meeting all applicable chemical-specific and whole-effluent criteria unless:

(i) The point sources are shown to be the primary contributing cause of the nonattainment;

(ii) The application of additional or alternate treatment or technology can reasonably be expected to lead to attainment of the designated use; and

(iii) The director has given due consideration to the factors specified in division (J) of section 6111.03 of the Revised Code.

(B) Use designations are defined as follows:

(1) Aquatic life habitat

(a) "Warmwater" - these are waters capable of supporting and maintaining a balanced, integrated, adaptive community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the twenty-fifth percentile of the identified reference sites within each of the following ecoregions: the interior plateau ecoregion, the Erie/Ontario lake plains ecoregion, the western Allegheny plateau ecoregion and the eastern corn belt plains ecoregion. For the Huron/Erie lake plains ecoregion, the comparable species composition, diversity and functional organization are based upon the ninetieth percentile of all sites within the ecoregion. For all ecoregions, the attributes of species composition,

diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all upground storage reservoirs are designated warmwater habitats. Attainment of this use designation (except for upground storage reservoirs) is based on the criteria in table 7-15 of this rule. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(b) "Limited warmwater" - these are waters that were temporarily designated in the 1978 water quality standards as not meeting specific warmwater habitat criteria. Criteria for the support of this use designation are the same as the criteria for the support of the use designation warmwater habitat. However, individual criteria are varied on a case-by-case basis and supersede the criteria for warmwater habitat where applicable. Any exceptions from warmwater habitat criteria apply only to specific criteria during specified time periods and/or flow conditions. The adjusted criteria and conditions for specified stream segments are denoted as comments in rules 3745-1-08 to 3745-1-30 of the Administrative Code. Stream segments currently designated limited warmwater habitats will undergo use attainability analyses and will be redesignated other aquatic life habitats. No additional stream segments will be designated limited warmwater habitats.

(c) "Exceptional warmwater" - these are waters capable of supporting and maintaining an exceptional or unusual community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the seventy-fifth percentile of the identified reference sites on a statewide basis. The attributes of species composition, diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all lakes and reservoirs, except upground storage reservoirs, are designated exceptional warmwater habitats. Attainment of this use designation (except for lakes and reservoirs) is based on the criteria in table 7-15 of this rule. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(d) "Modified warmwater" - these are waters that have been the subject of a use attainability analysis and have been found to be incapable of supporting and

maintaining a balanced, integrated, adaptive community of warmwater organisms due to irretrievable modifications of the physical habitat. Such modifications are of a long-lasting duration (i.e., twenty years or longer) and may include the following examples: extensive stream channel modification activities permitted under sections 401 and 404 of the act or Chapter 6131. of the Revised Code, extensive sedimentation resulting from abandoned mine land runoff, and extensive permanent impoundment of free-flowing water bodies. The attributes of species composition, diversity and functional organization will be measured using the index of biotic integrity, the modified index of well-being and the invertebrate community index as defined in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters," as cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. Attainment of this use designation is based on the criteria in table 7-15 of this rule. Each water body designated modified warmwater habitat will be listed in the appropriate use designation rule (rules 3745-1-08 to 3745-1-32 of the Administrative Code) and will be identified by ecoregion and type of physical habitat modification as listed in table 7-15 of this rule. The modified warmwater habitat designation can be applied only to those waters that do not attain the warmwater habitat biological criteria in table 7-15 of this rule because of irretrievable modifications of the physical habitat. All water body segments designated modified warmwater habitat will be reviewed on a triennial basis (or sooner) to determine whether the use designation should be changed. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(e) "Seasonal salmonid" - these are rivers, streams and embayments capable of supporting the passage of salmonids from October to May and are water bodies large enough to support recreational fishing. This use will be in effect the months of October to May. Another aquatic life habitat use designation will be enforced the remainder of the year (June to September). A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(f) "Coldwater" - these are waters that meet one or both of the characteristics described in paragraphs (B)(1)(f)(i) and (B)(1)(f)(ii) of this rule. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code.

(i) "Coldwater habitat, inland trout streams" - these are waters which support trout stocking and management under the auspices of the Ohio department of natural resources, division of wildlife, excluding waters in lake run stocking programs, lake or reservoir stocking programs, experimental or trial stocking programs, and put and take programs on waters without, or without the potential restoration of, natural coldwater attributes of temperature and

flow. The director shall designate these waters in consultation with the director of the Ohio department of natural resources.

(ii) "Coldwater habitat, native fauna" - these are waters capable of supporting populations of native coldwater fish and associated vertebrate and invertebrate organisms and plants on an annual basis. The director shall designate these waters based upon results of use attainability analyses.

(g) "Limited resource water" - these are waters that have been the subject of a use attainability analysis and have been found to lack the potential for any resemblance of any other aquatic life habitat as determined by the biological criteria in table 7-15 of this rule. The use attainability analysis must demonstrate that the extant fauna is substantially degraded and that the potential for recovery of the fauna to the level characteristic of any other aquatic life habitat is realistically precluded due to natural background conditions or irretrievable human-induced conditions. For water bodies in the Lake Erie drainage basin, the designation of water bodies as limited resource waters shall include demonstrations that the “Outside Mixing Zone Average” water quality criteria and values and chronic whole effluent toxicity levels are not necessary to protect the designated uses and aquatic life pursuant to rule 3745-1-35 of the Administrative Code. All water body segments designated limited resource water will be reviewed on a triennial basis (or sooner) to determine whether the use designation should be changed. Limited resource waters are also termed nuisance prevention for some water bodies designated in rules 3745-1-08 to 3745-1-30 of the Administrative Code. A temporary variance to the criteria associated with this use designation may be granted as described in paragraph (F) of rule 3745-1-01 of the Administrative Code. Waters designated limited resource water will be assigned one or more of the following causative factors. These causative factors will be listed as comments in rules 3745-1-08 to 3745-1-30 of the Administrative Code.

(i) "Acid mine drainage" - these are surface waters with sustained pH values below 4.1 s.u. or with intermittently acidic conditions combined with severe streambed siltation, and have a demonstrated biological performance below that of the modified warmwater habitat biological criteria.

(ii) "Small drainageway maintenance" - these are highly modified surface water drainageways (usually less than three square miles in drainage area) that do not possess the stream morphology and habitat characteristics necessary to support any other aquatic life habitat use. The potential for habitat improvements must be precluded due to regular stream channel maintenance required for drainage purposes.

(iii) Other specified conditions.

(2) Nuisance prevention

This use designation is being replaced by the limited resource water use designation described in paragraph (A)(1)(g) of this rule. All water body segments currently designated nuisance prevention in rules 3745-1-08 to 3745-1-30 of the Administrative Code must meet the limited resource water criteria in this rule. All references to the nuisance prevention use designation in rules 3745-1-08 to 3745-1-30 of the Administrative Code will be phased out over time and replaced with limited resource water.

(3) Water supply

(a) "Public" - these are waters that, with conventional treatment, will be suitable for human intake and meet federal regulations for drinking water. Criteria associated with this use designation apply within five hundred yards of surface water intakes. Although not necessarily included in rules 3745-1-08 to 3745-1-30 of the Administrative Code, the bodies of water with one or more of the following characteristics are designated public water supply:

(i) All publicly owned lakes and reservoirs, with the exception of Piedmont reservoir;

(ii) All privately owned lakes and reservoirs used as a source of public drinking water;

(iii) All surface waters within five hundred yards of an existing public water supply surface water intake;

(iv) All surface waters used as emergency water supplies.

(b) "Agricultural" - these are waters suitable for irrigation and livestock watering without treatment.

(c) "Industrial" - these are waters suitable for commercial and industrial uses, with or without treatment. Criteria for the support of the industrial water supply use designation will vary with the type of industry involved.

(4) Recreation

These use designations are in effect only during the recreation season, which is the period from May first to October fifteenth, for all water bodies except those designated seasonal salmonid habitat. The recreation season for streams designated seasonal salmonid habitat is June first to September thirtieth.

(a) "Bathing waters" - these are waters that, during the recreation season, are suitable for swimming where a lifeguard and/or bathhouse facilities are present, and include any additional such areas where the water quality is approved by the director. Water bodies assigned the bathing waters use designation are not necessarily indicated in rules 3745-1-08 to 3745-1-30 of the Administrative Code but include local areas of those water bodies meeting this definition.

(b) "Primary contact" - these are waters that, during the recreation season, are suitable for full-body contact recreation such as, but not limited to, swimming, canoeing, and scuba diving with minimal threat to public health as a result of water quality. In addition to those water body segments designated in rules 3745-1-08 to 3745-1-32 of the Administrative Code, all lakes and reservoirs, except upground storage reservoirs and those lakes and reservoirs meeting the definition of bathing waters, are designated primary contact recreation.

(c) "Secondary contact" - these are waters that, during the recreation season, are suitable for partial body contact recreation such as, but not limited to, wading with minimal threat to public health as a result of water quality.

(C) Protection of aquatic life - whole-effluent approach.

Whole-effluent toxicity levels shall be applied in accordance with rules 3745-2-09 and 3745-33-07 of the Administrative Code.

Table 7-1. Statewide water quality criteria for the protection of aquatic life.
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| Chemical | Form[1] | Units[2] | IMZM[3] | OMZM[3] | OMZA[3] |
|---|---|---|---|---|---|
| Ammonia-N (WWH) | T | mg/l | -- | Table 7-2 | Table 7-5 |
| Ammonia-N (EWH) | T | mg/l | -- | Table 7-3 | Table 7-6 |
| Ammonia-N (MWH) | T | mg/l | -- | Table 7-2 | Table 7-7 |
| Ammonia-N (SSH[4]) | T | mg/l | -- | Table 7-4 | a |
| Ammonia-N (CWH) | T | mg/l | -- | Table 7-4 | Table 7-8 |
| Ammonia-N (LRW) | T | mg/l | -- | Table 7-2 | -- |
| Arsenic | D[6] | µg/l | 680 | 340 | 150 |
| Arsenic | TR[7] | µg/l | 680 | 340 | 150 |
| Cadmium[8] | | | | | |
| Chlorine | | | | | |
| (WWH, EWH, MWH, CWH) | R | µg/l | -- | 19 | 11 |
| Chlorine (LRW) | R | µg/l | -- | 19 | -- |
| Chlorine (SSH[4]) | R | µg/l | -- | b | b |
| Chromium[8] | | | | | |
| Chromium VI | D | µg/l | 31 | 16 | 11 |
| Copper[8] | | | | | |
| Cyanide | | | | | |
| (Lake Erie drainage basin) | free | µg/l | 44 | 22 | 5.2 |
| (Ohio river drainage basin) | | | | | |
| (WWH, EWH, MWH) | free | µg/l | 92 | 46 | 12 |
| (LRW) | free | µg/l | 92 | 46 | -- |
| (SSH[4], CWH) | free | µg/l | 45 | 22 | 5.2 |
| Dieldrin | T | µg/l | 0.47 | 0.24 | 0.056 |
| Dissolved oxygen[5] (WWH) | T | mg/l | -- | 4.0 | 5.0 |
| Dissolved oxygen[5] (EWH) | T | mg/l | -- | 5.0 | 6.0 |
| Dissolved oxygen[5] (MWH) | T | mg/l | -- | 3.0[c] | 4.0 |
| Dissolved oxygen[5] (SSH[4]) | T | mg/l | -- | a | a |
| Dissolved oxygen[5] (CWH) | T | mg/l | -- | 6.0 | 7.0 |
| Dissolved oxygen[5] (LRW) | T | mg/l | -- | 2.0 | 3.0 |
| Dissolved solids | T | mg/l | -- | -- | 1500[d] |
| Endrin | T | µg/l | 0.17 | 0.086 | 0.036 |
| Lead[8] | | | | | |
| Lindane | T | µg/l | 1.9 | 0.95 | -- |
| Mercury | D[6] | µg/l | 2.9 | 1.4 | 0.77 |
| Mercury | TR[7] | µg/l | 3.4 | 1.7 | 0.91 |
| Nickel[8] | | | | | |
| Parathion | T | µg/l | 0.13 | 0.065 | 0.013 |

Table 7-1. Statewide water quality criteria for the protection of aquatic life.
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| Chemical | Form[1] | Units[2] | IMZM[3] | OMZM[3] | OMZA[3] |
|---|---|---|---|---|---|
| Pentachlorophenol[9] | | | | | |
| pH (WWH, MWH) | -- | s.u. | -- | -- | 6.5-9.0 |
| pH (EWH, CWH) | -- | s.u. | -- | -- | e |
| pH (SSH[4]) | -- | s.u. | -- | -- | a |
| pH (LRW) | -- | s.u. | -- | -- | 6.5-9.0[f] |
| Selenium | D[6] | µg/l | -- | -- | 4.6 |
| Selenium | TR[7] | µg/l | -- | -- | 5.0 |
| Temperature (WWH, MWH) | -- | $^{o}$F($^{o}$C) | -- | Table 7-14 | Table 7-14 |
| Temperature (EWH, CWH) | -- | $^{o}$F($^{o}$C) | -- | g | g |
| Temperature (SSH[4]) | -- | $^{o}$F($^{o}$C) | -- | a | a |
| Temperature (LRW) | -- | $^{o}$F($^{o}$C) | -- | 98(37) | 94(34) |
| Zinc[8] | | | | | |

[1] D = dissolved; R = total residual; T = total; TR = total recoverable.
[2] mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion); s.u. = standard units; $^{o}$F = degrees fahrenheit; $^{o}$C = degrees celsius.
[3] IMZM = inside mixing zone maximum; OMZM = outside mixing zone maximum; OMZA = outside mixing zone average.
[4] This aquatic life habitat use designation is in effect only during the months of October to May.
[5] For dissolved oxygen, OMZM means outside mixing zone minimum and OMZA means outside mixing zone minimum twenty-four-hour average.
[6] These criteria are implemented by multiplying them by a translator approved by the director pursuant to rule 3745-2-04 of the Administrative Code.
[7] These criteria apply in the absence of a translator approved by the director pursuant to rule 3745-2-04 of the Administrative Code.
[8] These criteria are water hardness dependent. See table 7-9 of this rule.
[9] These criteria are water pH dependent. See table 7-10 of this rule.
[a] This criterion is the same as that for the aquatic life use designation in effect June to September. See footnote 4.
[b] No chlorine is to be discharged.
[c] The dissolved oxygen minimum at any time criterion for modified warmwater habitats in the Huron/Erie lake plain ecoregion, as identified in rules 3745-1-08 to 3745-1-30 of the Administrative Code, is 2.5 mg/l.
[d] Equivalent 25°C specific conductance value is 2400 micromhos/cm.
[e] pH is to be 6.5-9.0, with no change within that range attributable to human-induced conditions.
[f] Acid mine drainage streams over sandstone geotype are exempt from the pH criterion.
[g] At no time shall the water temperature exceed the temperature which would occur if there were no temperature change attributable to human activities.

Table 7-2.
Warmwater habitat, modified warmwater habitat and limited resource water outside mixing zone maximum total ammonia-nitrogen criteria (mg/l).

| pH | 6.5 | 6.7 | 6.9 | 7.0 | 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 8.0 | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.8 | 9.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp. (ºC) | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.7 | 10.6 | 8.4 | 6.7 | 5.4 | 4.3 | 3.4 | 2.7 | 1.8 | 1.1 |
| 1 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.5 | 10.5 | 8.3 | 6.6 | 5.3 | 4.2 | 3.4 | 2.7 | 1.7 | 1.1 |
| 2 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.3 | 10.3 | 8.2 | 6.5 | 5.2 | 4.2 | 3.3 | 2.7 | 1.7 | 1.1 |
| 3 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.2 | 8.1 | 6.5 | 5.2 | 4.1 | 3.3 | 2.6 | 1.7 | 1.1 |
| 4 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 | 10.1 | 8.0 | 6.4 | 5.1 | 4.1 | 3.3 | 2.6 | 1.7 | 1.1 |
| 5 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.9 | 9.9 | 7.9 | 6.3 | 5.0 | 4.0 | 3.2 | 2.6 | 1.7 | 1.1 |
| 6 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.7 | 9.8 | 7.8 | 6.3 | 5.0 | 4.0 | 3.2 | 2.6 | 1.7 | 1.1 |
| 7 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.6 | 9.7 | 7.8 | 6.2 | 5.0 | 4.0 | 3.2 | 2.6 | 1.7 | 1.1 |
| 8 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.5 | 9.6 | 7.7 | 6.1 | 4.9 | 3.9 | 3.2 | 2.5 | 1.7 | 1.1 |
| 9 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.4 | 9.6 | 7.6 | 6.1 | 4.9 | 3.9 | 3.1 | 2.5 | 1.7 | 1.1 |
| 10 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.3 | 9.5 | 7.6 | 6.0 | 4.8 | 3.9 | 3.1 | 2.5 | 1.6 | 1.1 |
| 11 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.2 | 9.4 | 7.5 | 6.0 | 4.8 | 3.9 | 3.1 | 2.5 | 1.6 | 1.1 |
| 12 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.1 | 9.3 | 7.5 | 6.0 | 4.8 | 3.8 | 3.1 | 2.5 | 1.6 | 1.1 |
| 13 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.1 | 9.3 | 7.4 | 5.9 | 4.8 | 3.8 | 3.1 | 2.5 | 1.7 | 1.1 |
| 14 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.0 | 9.2 | 7.4 | 5.9 | 4.7 | 3.8 | 3.1 | 2.5 | 1.7 | 1.1 |
| 15 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.9 | 10.9 | 9.2 | 7.4 | 5.9 | 4.7 | 3.8 | 3.1 | 2.5 | 1.7 | 1.1 |
| 16 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.8 | 10.9 | 9.2 | 7.3 | 5.9 | 4.7 | 3.8 | 3.1 | 2.5 | 1.7 | 1.2 |
| 17 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.8 | 10.8 | 9.1 | 7.3 | 5.9 | 4.7 | 3.8 | 3.1 | 2.5 | 1.7 | 1.2 |
| 18 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.7 | 10.8 | 9.1 | 7.3 | 5.8 | 4.7 | 3.8 | 3.1 | 2.5 | 1.7 | 1.2 |
| 19 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.7 | 10.8 | 9.1 | 7.3 | 5.8 | 4.7 | 3.8 | 3.1 | 2.5 | 1.7 | 1.2 |
| 20 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.7 | 10.7 | 9.1 | 7.3 | 5.8 | 4.7 | 3.8 | 3.1 | 2.5 | 1.7 | 1.2 |
| 21 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 10.7 | 9.1 | 7.3 | 5.8 | 4.7 | 3.8 | 3.1 | 2.6 | 1.7 | 1.2 |
| 22 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 10.7 | 9.0 | 7.3 | 5.9 | 4.7 | 3.8 | 3.1 | 2.6 | 1.8 | 1.3 |
| 23 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 10.7 | 9.1 | 7.3 | 5.9 | 4.7 | 3.9 | 3.2 | 2.6 | 1.8 | 1.3 |
| 24 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 10.7 | 9.1 | 7.3 | 5.9 | 4.8 | 3.9 | 3.2 | 2.6 | 1.8 | 1.3 |
| 25 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 10.7 | 9.1 | 7.3 | 5.9 | 4.8 | 3.9 | 3.2 | 2.6 | 1.9 | 1.3 |
| 26 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.8 | 10.0 | 8.5 | 6.8 | 5.5 | 4.5 | 3.7 | 3.0 | 2.5 | 1.8 | 1.3 |
| 27 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.8 | 11.0 | 9.4 | 8.0 | 6.4 | 5.2 | 4.2 | 3.5 | 2.8 | 2.4 | 1.7 | 1.2 |
| 28 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 | 10.3 | 8.8 | 7.5 | 6.0 | 4.9 | 4.0 | 3.3 | 2.7 | 2.2 | 1.6 | 1.2 |
| 29 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.9 | 11.2 | 9.6 | 8.2 | 7.0 | 5.7 | 4.6 | 3.7 | 3.1 | 2.5 | 2.1 | 1.5 | 1.1 |
| 30 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.5 | 9.0 | 7.7 | 6.6 | 5.3 | 4.3 | 3.5 | 2.9 | 2.4 | 2.0 | 1.5 | 1.1 |

Table 7-3.
Exceptional warmwater habitat
outside mixing zone maximum total ammonia-nitrogen criteria (mg/l).

| pH | 6.5 | 6.7 | 6.9 | 7.0 | 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 8.0 | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.8 | 9.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp. (ºC) | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 10.9 | 9.3 | 7.8 | 6.6 | 5.2 | 4.2 | 3.3 | 2.6 | 2.1 | 1.7 | 1.1 | 0.7 |
| 1 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.4 | 10.7 | 9.1 | 7.7 | 6.5 | 5.2 | 4.1 | 3.3 | 2.6 | 2.1 | 1.7 | 1.1 | 0.7 |
| 2 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.2 | 10.6 | 9.0 | 7.6 | 6.4 | 5.1 | 4.1 | 3.2 | 2.6 | 2.1 | 1.6 | 1.1 | 0.7 |
| 3 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.4 | 8.9 | 7.5 | 6.3 | 5.0 | 4.0 | 3.2 | 2.5 | 2.0 | 1.6 | 1.1 | 0.7 |
| 4 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.9 | 10.3 | 8.8 | 7.4 | 6.2 | 5.0 | 4.0 | 3.2 | 2.5 | 2.0 | 1.6 | 1.0 | 0.7 |
| 5 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.8 | 10.2 | 8.7 | 7.3 | 6.2 | 4.9 | 3.9 | 3.1 | 2.5 | 2.0 | 1.6 | 1.0 | 0.7 |
| 6 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.6 | 10.1 | 8.6 | 7.3 | 6.1 | 4.9 | 3.9 | 3.1 | 2.5 | 2.0 | 1.6 | 1.0 | 0.7 |
| 7 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.5 | 9.9 | 8.5 | 7.2 | 6.0 | 4.8 | 3.8 | 3.1 | 2.5 | 2.0 | 1.6 | 1.0 | 0.7 |
| 8 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.4 | 9.8 | 8.4 | 7.1 | 6.0 | 4.8 | 3.8 | 3.0 | 2.4 | 2.0 | 1.6 | 1.0 | 0.7 |
| 9 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.9 | 11.3 | 9.8 | 8.3 | 7.1 | 5.9 | 4.7 | 3.8 | 3.0 | 2.4 | 1.9 | 1.6 | 1.0 | 0.7 |
| 10 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.8 | 11.2 | 9.7 | 8.3 | 7.0 | 5.9 | 4.7 | 3.7 | 3.0 | 2.4 | 1.9 | 1.6 | 1.0 | 0.7 |
| 11 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.7 | 11.1 | 9.6 | 8.2 | 6.9 | 5.8 | 4.7 | 3.7 | 3.0 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 12 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 11.0 | 9.5 | 8.1 | 6.9 | 5.8 | 4.6 | 3.7 | 3.0 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 13 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.5 | 10.9 | 9.4 | 8.1 | 6.8 | 5.8 | 4.6 | 3.7 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 14 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.4 | 10.8 | 9.4 | 8.0 | 6.8 | 5.7 | 4.6 | 3.7 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 15 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.3 | 10.8 | 9.3 | 8.0 | 6.8 | 5.7 | 4.6 | 3.6 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 16 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.2 | 10.7 | 9.3 | 7.9 | 6.7 | 5.7 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 17 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.2 | 10.7 | 9.2 | 7.9 | 6.7 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 18 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.6 | 9.2 | 7.9 | 6.7 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.6 | 1.0 | 0.7 |
| 19 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.6 | 9.2 | 7.9 | 6.7 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.6 | 1.1 | 0.7 |
| 20 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 | 10.5 | 9.2 | 7.8 | 6.7 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.6 | 1.1 | 0.8 |
| 21 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 | 10.5 | 9.1 | 7.8 | 6.6 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.6 | 1.1 | 0.8 |
| 22 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 | 10.5 | 9.1 | 7.8 | 6.6 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.6 | 1.1 | 0.8 |
| 23 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.9 | 10.5 | 9.1 | 7.8 | 6.6 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 2.0 | 1.6 | 1.1 | 0.8 |
| 24 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.9 | 10.5 | 9.1 | 7.8 | 6.6 | 5.6 | 4.5 | 3.6 | 3.0 | 2.4 | 2.0 | 1.6 | 1.1 | 0.8 |
| 25 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.9 | 10.5 | 9.1 | 7.8 | 6.6 | 5.6 | 4.5 | 3.7 | 3.0 | 2.4 | 2.0 | 1.6 | 1.1 | 0.8 |
| 26 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.5 | 11.1 | 9.8 | 8.5 | 7.3 | 6.2 | 5.3 | 4.2 | 3.4 | 2.8 | 2.3 | 1.9 | 1.5 | 1.1 | 0.8 |
| 27 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.7 | 10.4 | 9.1 | 7.9 | 6.8 | 5.8 | 4.9 | 4.0 | 3.2 | 2.6 | 2.1 | 1.8 | 1.5 | 1.0 | 0.8 |
| 28 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.9 | 9.7 | 8.5 | 7.4 | 6.4 | 5.4 | 4.6 | 3.7 | 3.0 | 2.5 | 2.0 | 1.7 | 1.4 | 1.0 | 0.7 |
| 29 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.4 | 11.3 | 10.2 | 9.1 | 8.0 | 6.9 | 6.0 | 5.1 | 4.3 | 3.5 | 2.8 | 2.3 | 1.9 | 1.6 | 1.3 | 0.9 | 0.7 |
| 30 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 11.6 | 10.6 | 9.5 | 8.5 | 7.5 | 6.5 | 5.6 | 4.8 | 4.1 | 3.3 | 2.7 | 2.2 | 1.8 | 1.5 | 1.2 | 0.9 | 0.7 |

Table 7-4.
Coldwater habitat and seasonal salmonid habitat
outside mixing zone maximum total ammonia-nitrogen criteria (mg/l).

| pH | 6.5 | 6.7 | 6.9 | 7.0 | 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 8.0 | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.8 | 9.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp. (ºC) | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 10.9 | 9.3 | 7.8 | 6.6 | 5.2 | 4.2 | 3.3 | 2.6 | 2.1 | 1.7 | 1.1 | 0.7 |
| 1 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.4 | 10.7 | 9.1 | 7.7 | 6.5 | 5.2 | 4.1 | 3.3 | 2.6 | 2.1 | 1.7 | 1.1 | 0.7 |
| 2 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.2 | 10.6 | 9.0 | 7.6 | 6.4 | 5.1 | 4.1 | 3.2 | 2.6 | 2.1 | 1.6 | 1.1 | 0.7 |
| 3 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.4 | 8.9 | 7.5 | 6.3 | 5.0 | 4.0 | 3.2 | 2.5 | 2.0 | 1.6 | 1.1 | 0.7 |
| 4 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.9 | 10.3 | 8.8 | 7.4 | 6.2 | 5.0 | 4.0 | 3.2 | 2.5 | 2.0 | 1.6 | 1.0 | 0.7 |
| 5 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.8 | 10.2 | 8.7 | 7.3 | 6.2 | 4.9 | 3.9 | 3.1 | 2.5 | 2.0 | 1.6 | 1.0 | 0.7 |
| 6 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.6 | 10.1 | 8.6 | 7.3 | 6.1 | 4.9 | 3.9 | 3.1 | 2.5 | 2.0 | 1.6 | 1.0 | 0.7 |
| 7 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.5 | 9.9 | 8.5 | 7.2 | 6.0 | 4.8 | 3.8 | 3.1 | 2.5 | 2.0 | 1.6 | 1.0 | 0.7 |
| 8 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.4 | 9.8 | 8.4 | 7.1 | 6.0 | 4.8 | 3.8 | 3.0 | 2.4 | 2.0 | 1.6 | 1.0 | 0.7 |
| 9 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.9 | 11.3 | 9.8 | 8.3 | 7.1 | 5.9 | 4.7 | 3.8 | 3.0 | 2.4 | 1.9 | 1.6 | 1.0 | 0.7 |
| 10 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.8 | 11.2 | 9.7 | 8.3 | 7.0 | 5.9 | 4.7 | 3.7 | 3.0 | 2.4 | 1.9 | 1.6 | 1.0 | 0.7 |
| 11 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.7 | 11.1 | 9.6 | 8.2 | 6.9 | 5.8 | 4.7 | 3.7 | 3.0 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 12 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 11.0 | 9.5 | 8.1 | 6.9 | 5.8 | 4.6 | 3.7 | 3.0 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 13 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.5 | 10.9 | 9.4 | 8.1 | 6.8 | 5.8 | 4.6 | 3.7 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 14 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.4 | 10.8 | 9.4 | 8.0 | 6.8 | 5.7 | 4.6 | 3.7 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 15 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.3 | 10.8 | 9.3 | 8.0 | 6.8 | 5.7 | 4.6 | 3.6 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 16 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.2 | 10.7 | 9.3 | 7.9 | 6.7 | 5.7 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 17 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.2 | 10.7 | 9.2 | 7.9 | 6.7 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.5 | 1.0 | 0.7 |
| 18 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.6 | 9.2 | 7.9 | 6.7 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.6 | 1.0 | 0.7 |
| 19 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.1 | 10.6 | 9.2 | 7.9 | 6.7 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.6 | 1.1 | 0.7 |
| 20 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.0 | 10.5 | 9.1 | 7.8 | 6.7 | 5.6 | 4.5 | 3.6 | 2.9 | 2.4 | 1.9 | 1.6 | 1.1 | 0.8 |
| 21 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 11.2 | 9.8 | 8.5 | 7.3 | 6.2 | 5.2 | 4.2 | 3.4 | 2.7 | 2.2 | 1.8 | 1.5 | 1.0 | 0.7 |
| 22 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 11.7 | 10.4 | 9.1 | 7.9 | 6.8 | 5.8 | 4.9 | 3.9 | 3.2 | 2.6 | 2.1 | 1.7 | 1.4 | 1.0 | 0.7 |
| 23 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.2 | 10.9 | 9.7 | 8.5 | 7.4 | 6.3 | 5.4 | 4.6 | 3.7 | 3.0 | 2.4 | 1.9 | 1.6 | 1.3 | 0.9 | 0.6 |
| 24 | 13.0 | 13.0 | 13.0 | 13.0 | 13.0 | 12.4 | 11.3 | 10.2 | 9.1 | 7.9 | 6.9 | 5.9 | 5.0 | 4.3 | 3.4 | 2.8 | 2.2 | 1.8 | 1.5 | 1.2 | 0.9 | 0.6 |
| 25 | 13.0 | 13.0 | 13.0 | 13.0 | 12.6 | 11.6 | 10.6 | 9.5 | 8.4 | 7.4 | 6.4 | 5.5 | 4.7 | 4.0 | 3.2 | 2.6 | 2.1 | 1.7 | 1.4 | 1.2 | 0.8 | 0.6 |
| 26 | 13.0 | 13.0 | 13.0 | 12.6 | 11.7 | 10.8 | 9.9 | 8.9 | 7.9 | 6.9 | 6.0 | 5.2 | 4.4 | 3.7 | 3.0 | 2.4 | 2.0 | 1.6 | 1.3 | 1.1 | 0.8 | 0.6 |
| 27 | 13.0 | 13.0 | 12.4 | 11.7 | 10.9 | 10.1 | 9.2 | 8.3 | 7.4 | 6.5 | 5.6 | 4.8 | 4.1 | 3.5 | 2.8 | 2.3 | 1.9 | 1.5 | 1.2 | 1.0 | 0.7 | 0.5 |
| 28 | 13.0 | 12.7 | 11.6 | 10.9 | 10.2 | 9.4 | 8.6 | 7.7 | 6.9 | 6.0 | 5.2 | 4.5 | 3.9 | 3.3 | 2.6 | 2.1 | 1.7 | 1.4 | 1.2 | 1.0 | 0.7 | 0.5 |
| 29 | 12.6 | 11.9 | 10.8 | 10.2 | 9.5 | 8.8 | 8.0 | 7.2 | 6.4 | 5.6 | 4.9 | 4.2 | 3.6 | 3.1 | 2.5 | 2.0 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.5 |
| 30 | 11.8 | 11.1 | 10.1 | 9.5 | 8.9 | 8.2 | 7.5 | 6.8 | 6.0 | 5.3 | 4.6 | 4.0 | 3.4 | 2.9 | 2.3 | 1.9 | 1.5 | 1.3 | 1.1 | 0.9 | 0.6 | 0.5 |

Table 7-5.
Warmwater habitat
outside mixing zone 30-day average total ammonia-nitrogen criteria (mg/l).

| pH | 6.5 | 6.7 | 6.9 | 7.0 | 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 8.0 | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.8 | 9.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp. (ºC) | | | | | | | | | | | | | | | | | | | | | | |
| The following criteria apply during the months of December to February: | | | | | | | | | | | | | | | | | | | | | | |
| 0-10 | 13.0 | 13.0 | 13.0 | 12.6 | 11.7 | 10.7 | 9.7 | 8.6 | 7.6 | 6.6 | 5.6 | 4.8 | 4.0 | 3.3 | 2.8 | 2.3 | 1.9 | 1.5 | 1.2 | 1.0 | 0.7 | 0.5 |
| 11 | 13.0 | 13.0 | 12.4 | 11.6 | 10.8 | 9.9 | 8.9 | 8.0 | 7.0 | 6.1 | 5.2 | 4.4 | 3.7 | 3.1 | 2.6 | 2.1 | 1.7 | 1.4 | 1.2 | 0.9 | 0.6 | 0.4 |
| 12 | 13.0 | 12.6 | 11.5 | 10.8 | 10.0 | 9.2 | 8.3 | 7.4 | 6.5 | 5.6 | 4.8 | 4.1 | 3.4 | 2.9 | 2.4 | 2.0 | 1.6 | 1.3 | 1.1 | 0.9 | 0.6 | 0.4 |
| 13 | 12.3 | 11.6 | 10.6 | 10.0 | 9.2 | 8.5 | 7.7 | 6.8 | 6.0 | 5.2 | 4.5 | 3.8 | 3.2 | 2.7 | 2.2 | 1.8 | 1.5 | 1.2 | 1.0 | 0.8 | 0.6 | 0.4 |
| 14 | 11.4 | 10.8 | 9.8 | 9.3 | 8.6 | 7.9 | 7.1 | 6.3 | 5.6 | 4.8 | 4.2 | 3.5 | 3.0 | 2.5 | 2.1 | 1.7 | 1.4 | 1.1 | 0.9 | 0.8 | 0.5 | 0.4 |
| 15 | 10.6 | 10.0 | 9.1 | 8.6 | 8.0 | 7.3 | 6.6 | 5.9 | 5.2 | 4.5 | 3.9 | 3.3 | 2.8 | 2.3 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.5 | 0.3 |
| 16 | 9.8 | 9.3 | 8.5 | 8.0 | 7.4 | 6.8 | 6.1 | 5.5 | 4.8 | 4.2 | 3.6 | 3.0 | 2.6 | 2.1 | 1.8 | 1.5 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.3 |
| 17 | 9.1 | 8.6 | 7.8 | 7.4 | 6.8 | 6.3 | 5.7 | 5.1 | 4.5 | 3.9 | 3.3 | 2.8 | 2.4 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.8 | 0.6 | 0.4 | 0.3 |
| 18 | 8.5 | 8.0 | 7.3 | 6.9 | 6.4 | 5.8 | 5.3 | 4.7 | 4.2 | 3.6 | 3.1 | 2.6 | 2.2 | 1.8 | 1.5 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.4 | 0.3 |
| 19 | 7.9 | 7.4 | 6.8 | 6.4 | 5.9 | 5.4 | 4.9 | 4.4 | 3.9 | 3.3 | 2.9 | 2.4 | 2.1 | 1.7 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 20 | 7.3 | 6.9 | 6.3 | 5.9 | 5.5 | 5.0 | 4.6 | 4.1 | 3.6 | 3.1 | 2.7 | 2.3 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 |
| The following criteria apply during the months of March to November: | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 11 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 12 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 13 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 14 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 15 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 16 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 17 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 |
| 18 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 |
| 19 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 |
| 20 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 |
| 21 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 22 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.6 | 1.4 | 1.2 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 |
| 23 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.5 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 |
| 24 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 | 0.1 |
| 25 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.3 | 1.1 | 1.0 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 |
| 26 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.2 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 |
| 27 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.1 |
| 28 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.1 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 |
| 29 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.0 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 |
| 30 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 |

Table 7-6.
Exceptional warmwater habitat
outside mixing zone 30-day average total ammonia-nitrogen criteria (mg/l).

| pH | 6.5 | 6.7 | 6.9 | 7.0 | 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 8.0 | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.8 | 9.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp. (ºC) | | | | | | | | | | | | | | | | | | | | | | |
| The following criteria apply during the months of December to February: | | | | | | | | | | | | | | | | | | | | | | |
| 0-10 | 13.0 | 13.0 | 13.0 | 12.6 | 11.7 | 10.7 | 9.7 | 8.6 | 7.6 | 6.6 | 5.6 | 4.8 | 4.0 | 3.3 | 2.8 | 2.3 | 1.9 | 1.5 | 1.2 | 1.0 | 0.7 | 0.5 |
| 11 | 13.0 | 13.0 | 12.4 | 11.6 | 10.8 | 9.9 | 8.9 | 8.0 | 7.0 | 6.1 | 5.2 | 4.4 | 3.7 | 3.1 | 2.6 | 2.1 | 1.7 | 1.4 | 1.2 | 0.9 | 0.6 | 0.4 |
| 12 | 13.0 | 12.6 | 11.5 | 10.8 | 10.0 | 9.2 | 8.3 | 7.4 | 6.5 | 5.6 | 4.8 | 4.1 | 3.4 | 2.9 | 2.4 | 2.0 | 1.6 | 1.3 | 1.1 | 0.9 | 0.6 | 0.4 |
| 13 | 12.3 | 11.6 | 10.6 | 10.0 | 9.2 | 8.5 | 7.7 | 6.8 | 6.0 | 5.2 | 4.5 | 3.8 | 3.2 | 2.7 | 2.2 | 1.8 | 1.5 | 1.2 | 1.0 | 0.8 | 0.6 | 0.4 |
| 14 | 11.4 | 10.8 | 9.8 | 9.3 | 8.6 | 7.9 | 7.1 | 6.3 | 5.6 | 4.8 | 4.2 | 3.5 | 3.0 | 2.5 | 2.1 | 1.7 | 1.4 | 1.1 | 0.9 | 0.8 | 0.5 | 0.4 |
| 15 | 10.6 | 10.0 | 9.1 | 8.6 | 8.0 | 7.3 | 6.6 | 5.9 | 5.2 | 4.5 | 3.9 | 3.3 | 2.8 | 2.3 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.5 | 0.3 |
| 16 | 9.8 | 9.3 | 8.5 | 8.0 | 7.4 | 6.8 | 6.1 | 5.5 | 4.8 | 4.2 | 3.6 | 3.0 | 2.6 | 2.1 | 1.8 | 1.5 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.3 |
| 17 | 9.1 | 8.6 | 7.8 | 7.4 | 6.8 | 6.3 | 5.7 | 5.1 | 4.5 | 3.9 | 3.3 | 2.8 | 2.4 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.8 | 0.6 | 0.4 | 0.3 |
| 18 | 8.5 | 8.0 | 7.3 | 6.9 | 6.4 | 5.8 | 5.3 | 4.7 | 4.2 | 3.6 | 3.1 | 2.6 | 2.2 | 1.8 | 1.5 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.4 | 0.3 |
| 19 | 7.9 | 7.4 | 6.8 | 6.4 | 5.9 | 5.4 | 4.9 | 4.4 | 3.9 | 3.3 | 2.9 | 2.4 | 2.1 | 1.7 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 20 | 7.3 | 6.9 | 6.3 | 5.9 | 5.5 | 5.0 | 4.6 | 4.1 | 3.6 | 3.1 | 2.7 | 2.3 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 |
| The following criteria apply during the months of March to November: | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 11 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.3 | 1.1 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 12 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.3 | 1.1 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 13 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.8 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 14 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 15 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 16 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 17 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 18 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 19 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 20 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 21 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.7 | 1.4 | 1.2 | 1.0 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 |
| 22 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 |
| 23 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 | 0.1 |
| 24 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.3 | 1.1 | 1.0 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 |
| 25 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 |
| 26 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.6 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.1 |
| 27 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.1 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 |
| 28 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.0 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 |
| 29 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 |
| 30 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 |

Table 7-7.
Modified warmwater habitat
outside mixing zone 30-day average total ammonia-nitrogen criteria (mg/l).

| pH | 6.5 | 6.7 | 6.9 | 7.0 | 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 8.0 | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.8 | 9.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp. (ºC) | | | | | | | | | | | | | | | | | | | | | | |
| The following criteria apply during the months of December to February: | | | | | | | | | | | | | | | | | | | | | | |
| 0-10 | 13.0 | 13.0 | 13.0 | 12.6 | 11.7 | 10.7 | 9.7 | 8.6 | 7.6 | 6.6 | 5.6 | 4.8 | 4.0 | 3.3 | 2.8 | 2.3 | 1.9 | 1.5 | 1.2 | 1.0 | 0.7 | 0.5 |
| 11 | 13.0 | 13.0 | 12.4 | 11.6 | 10.8 | 9.9 | 8.9 | 8.0 | 7.0 | 6.1 | 5.2 | 4.4 | 3.7 | 3.1 | 2.6 | 2.1 | 1.7 | 1.4 | 1.2 | 0.9 | 0.6 | 0.4 |
| 12 | 13.0 | 12.6 | 11.5 | 10.8 | 10.0 | 9.2 | 8.3 | 7.4 | 6.5 | 5.6 | 4.8 | 4.1 | 3.4 | 2.9 | 2.4 | 2.0 | 1.6 | 1.3 | 1.1 | 0.9 | 0.6 | 0.4 |
| 13 | 12.3 | 11.6 | 10.6 | 10.0 | 9.2 | 8.5 | 7.7 | 6.8 | 6.0 | 5.2 | 4.5 | 3.8 | 3.2 | 2.7 | 2.2 | 1.8 | 1.5 | 1.2 | 1.0 | 0.8 | 0.6 | 0.4 |
| 14 | 11.4 | 10.8 | 9.8 | 9.3 | 8.6 | 7.9 | 7.1 | 6.3 | 5.6 | 4.8 | 4.2 | 3.5 | 3.0 | 2.5 | 2.1 | 1.7 | 1.4 | 1.1 | 0.9 | 0.8 | 0.5 | 0.4 |
| 15 | 10.6 | 10.0 | 9.1 | 8.6 | 8.0 | 7.3 | 6.6 | 5.9 | 5.2 | 4.5 | 3.9 | 3.3 | 2.8 | 2.3 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.5 | 0.3 |
| 16 | 9.8 | 9.3 | 8.5 | 8.0 | 7.4 | 6.8 | 6.1 | 5.5 | 4.8 | 4.2 | 3.6 | 3.0 | 2.6 | 2.1 | 1.8 | 1.5 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.3 |
| 17 | 9.1 | 8.6 | 7.8 | 7.4 | 6.8 | 6.3 | 5.7 | 5.1 | 4.5 | 3.9 | 3.3 | 2.8 | 2.4 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.8 | 0.6 | 0.4 | 0.3 |
| 18 | 8.5 | 8.0 | 7.3 | 6.9 | 6.4 | 5.8 | 5.3 | 4.7 | 4.2 | 3.6 | 3.1 | 2.6 | 2.2 | 1.8 | 1.5 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.4 | 0.3 |
| 19 | 7.9 | 7.4 | 6.8 | 6.4 | 5.9 | 5.4 | 4.9 | 4.4 | 3.9 | 3.3 | 2.9 | 2.4 | 2.1 | 1.7 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 20 | 7.3 | 6.9 | 6.3 | 5.9 | 5.5 | 5.0 | 4.6 | 4.1 | 3.6 | 3.1 | 2.7 | 2.3 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 |
| The following criteria apply during the months of March to November: | | | | | | | | | | | | | | | | | | | | | | |
| 10 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 2.9 | 2.5 | 2.1 | 1.7 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.4 | 0.2 |
| 11 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 2.9 | 2.5 | 2.1 | 1.7 | 1.3 | 1.1 | 0.8 | 0.7 | 0.6 | 0.4 | 0.2 |
| 12 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 2.9 | 2.4 | 2.1 | 1.6 | 1.3 | 1.1 | 0.8 | 0.7 | 0.5 | 0.4 | 0.2 |
| 13 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 3.4 | 2.9 | 2.4 | 2.0 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.2 |
| 14 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 2.9 | 2.4 | 2.0 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.2 |
| 15 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 2.8 | 2.4 | 2.0 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 16 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 2.8 | 2.4 | 2.0 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 17 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 2.8 | 2.4 | 2.0 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.3 |
| 18 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 2.8 | 2.4 | 2.0 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.6 | 0.4 | 0.3 |
| 19 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 3.3 | 2.8 | 2.4 | 2.0 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.6 | 0.4 | 0.3 |
| 20 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 | 2.8 | 2.4 | 2.0 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.6 | 0.4 | 0.3 |
| 21 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 3.0 | 2.6 | 2.2 | 1.9 | 1.5 | 1.2 | 1.0 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 |
| 22 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.4 | 2.1 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.3 | 0.2 |
| 23 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.6 | 2.3 | 1.9 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.6 | 0.5 | 0.3 | 0.2 |
| 24 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.1 | 1.8 | 1.5 | 1.2 | 1.0 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 |
| 25 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 |
| 26 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 |
| 27 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.7 | 1.5 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 |
| 28 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.9 | 1.6 | 1.4 | 1.2 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 |
| 29 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.5 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 |
| 30 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 |

Table 7-8.
Coldwater habitat
outside mixing zone 30-day average total ammonia-nitrogen criteria (mg/l).

| pH | 6.5 | 6.7 | 6.9 | 7.0 | 7.1 | 7.2 | 7.3 | 7.4 | 7.5 | 7.6 | 7.7 | 7.8 | 7.9 | 8.0 | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 8.8 | 9.0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Temp. (ºC) | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 | 2.1 | 1.8 | 1.5 | 1.2 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 1 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.1 | 1.8 | 1.5 | 1.2 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 2 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.1 | 1.7 | 1.5 | 1.2 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 3 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.4 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 4 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 5 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 6 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.0 | 1.7 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.2 | 0.2 |
| 7 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 2.3 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.4 | 0.4 | 0.2 | 0.2 |
| 8 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.4 | 1.1 | 0.9 | 0.7 | 0.6 | 0.4 | 0.4 | 0.2 | 0.2 |
| 9 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.4 | 0.4 | 0.2 | 0.2 |
| 10 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 11 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.3 | 1.1 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 12 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.9 | 1.6 | 1.3 | 1.1 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 13 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 | 1.8 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 14 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.6 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 15 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 2.1 | 1.8 | 1.5 | 1.3 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.2 | 0.2 |
| 16 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 1.7 | 1.4 | 1.2 | 1.0 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 |
| 17 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 | 1.6 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.1 |
| 18 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.5 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 | 0.1 |
| 19 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 | 1.4 | 1.2 | 1.0 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 |
| 20 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 | 1.3 | 1.1 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 |
| 21 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.4 | 1.2 | 1.0 | 0.8 | 0.7 | 0.5 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.1 |
| 22 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 | 1.1 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 |
| 23 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.2 | 1.0 | 0.9 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.1 | 0.1 |
| 24 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.0 | 0.8 | 0.7 | 0.6 | 0.4 | 0.4 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 |
| 25 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.9 | 0.8 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 |
| 26 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 |
| 27 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 |
| 28 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 |
| 29 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.7 | 0.6 | 0.5 | 0.4 | 0.3 | 0.3 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |
| 30 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.6 | 0.5 | 0.5 | 0.4 | 0.3 | 0.2 | 0.2 | 0.2 | 0.1 | 0.1 | 0.1 |

Table 7-9. Statewide water quality criteria for the protection of aquatic life for water hardness dependent criteria.
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| Chemical | Form[1] | Units[2] | Equation | Criteria[6] 100 | 200 | 300 | 400 |
|---|---|---|---|---|---|---|---|
| Cadmium | | | | | | | |
| IMZM[3] | D[4] | µg/l | $e^{(1.128\ [\ln H] - 3.051)}$ | 8.5 | 19 | 29 | 41 |
| OMZM[3] | D[4] | µg/l | $e^{(1.128\ [\ln H] - 3.744)}$ | 4.3 | 9.3 | 15 | 20 |
| OMZA[3] | D[4] | µg/l | $e^{(0.7852\ [\ln H] - 2.810)}$ | 2.2 | 3.9 | 5.3 | 6.6 |
| Cadmium | | | | | | | |
| IMZM[3] | TR[5] | µg/l | $e^{(1.128\ [\ln H] - 2.9936)}$ | 9.0 | 20 | 31 | 43 |
| OMZM[3] | TR[5] | µg/l | $e^{(1.128\ [\ln H] - 3.6867)}$ | 4.5 | 9.9 | 16 | 22 |
| OMZA[3] | TR[5] | µg/l | $e^{(0.7852\ [\ln H] - 2.715)}$ | 2.5 | 4.2 | 5.8 | 7.3 |
| Chromium | | | | | | | |
| IMZM[3] | D[4] | µg/l | $e^{(0.819\ [\ln H] + 3.2667)}$ | 1100 | 2000 | 2800 | 3500 |
| OMZM[3] | D[4] | µg/l | $e^{(0.819\ [\ln H] + 2.5736)}$ | 570 | 1000 | 1400 | 1800 |
| OMZA[3] | D[4] | µg/l | $e^{(0.819\ [\ln H] + 0.5340)}$ | 74 | 130 | 180 | 230 |
| Chromium | | | | | | | |
| IMZM[3] | TR[5] | µg/l | $e^{(0.819\ [\ln H] + 4.4187)}$ | 3600 | 6400 | 8900 | 11000 |
| OMZM[3] | TR[5] | µg/l | $e^{(0.819\ [\ln H] + 3.7256)}$ | 1800 | 3200 | 4400 | 5600 |
| OMZA[3] | TR[5] | µg/l | $e^{(0.819\ [\ln H] + 0.6848)}$ | 86 | 150 | 210 | 270 |
| Copper | | | | | | | |
| IMZM[3] | D[4] | µg/l | $e^{(0.9422\ [\ln H] - 1.048)}$ | 27 | 52 | 76 | 99 |
| OMZM[3] | D[4] | µg/l | $e^{(0.9422\ [\ln H] - 1.741)}$ | 13 | 26 | 38 | 50 |
| OMZA[3] | D[4] | µg/l | $e^{(0.8545\ [\ln H] - 1.743)}$ | 9.0 | 16 | 23 | 29 |
| Copper | | | | | | | |
| IMZM[3] | TR[5] | µg/l | $e^{(0.9422\ [\ln H] - 1.007)}$ | 28 | 54 | 79 | 100 |
| OMZM[3] | TR[5] | µg/l | $e^{(0.9422\ [\ln H] - 1.700)}$ | 14 | 27 | 39 | 52 |
| OMZA[3] | TR[5] | µg/l | $e^{(0.8545\ [\ln H] - 1.702)}$ | 9.3 | 17 | 24 | 30 |
| Lead | | | | | | | |
| IMZM[3] | D[4] | µg/l | $e^{(1.273\ [\ln H] - 0.5964)}$ | 190 | 470 | 780 | 1100 |
| OMZM[3] | D[4] | µg/l | $e^{(1.273\ [\ln H] - 1.289)}$ | 97 | 230 | 390 | 570 |
| OMZA[3] | D[4] | µg/l | $e^{(1.273\ [\ln H] - 4.237)}$ | 5.1 | 12 | 21 | 30 |
| Lead | | | | | | | |
| IMZM[3] | TR[5] | µg/l | $e^{(1.273\ [\ln H] - 0.3619)}$ | 240 | 590 | 990 | 1400 |
| OMZM[3] | TR[5] | µg/l | $e^{(1.273\ [\ln H] - 1.055)}$ | 120 | 300 | 500 | 710 |
| OMZA[3] | TR[5] | µg/l | $e^{(1.273\ [\ln H] - 4.003)}$ | 6.4 | 16 | 26 | 37 |

Table 7-9. Statewide water quality criteria for the protection of aquatic life for water hardness dependent criteria.
Page 2 of 2

| Chemical | Form[1] | Units[2] | Equation | Criteria[6] 100 | 200 | 300 | 400 |
|---|---|---|---|---|---|---|---|
| Nickel | | | | | | | |
| IMZM[3] | D[4] | µg/l | $e^{(0.846 [\ln H] + 2.946)}$ | 940 | 1700 | 2400 | 3000 |
| OMZM[3] | D[4] | µg/l | $e^{(0.846 [\ln H] + 2.253)}$ | 470 | 840 | 1200 | 1500 |
| OMZA[3] | D[4] | µg/l | $e^{(0.846 [\ln H] + 0.0554)}$ | 52 | 93 | 130 | 170 |
| Nickel | | | | | | | |
| IMZM[3] | TR[5] | µg/l | $e^{(0.846 [\ln H] + 2.948)}$ | 940 | 1700 | 2400 | 3000 |
| OMZM[3] | TR[5] | µg/l | $e^{(0.846 [\ln H] + 2.255)}$ | 470 | 840 | 1200 | 1500 |
| OMZA[3] | TR[5] | µg/l | $e^{(0.846 [\ln H] + 0.0584)}$ | 52 | 94 | 130 | 170 |
| Zinc | | | | | | | |
| IMZM[3] | D[4] | µg/l | $e^{(0.8473 [\ln H] + 1.555)}$ | 230 | 420 | 590 | 760 |
| OMZM[3] | D[4] | µg/l | $e^{(0.8473 [\ln H] + 0.862)}$ | 120 | 210 | 300 | 380 |
| OMZA[3] | D[4] | µg/l | $e^{(0.8473 [\ln H] + 0.870)}$ | 120 | 210 | 300 | 380 |
| Zinc | | | | | | | |
| IMZM[3] | TR[5] | µg/l | $e^{(0.8473 [\ln H] + 1.577)}$ | 240 | 430 | 610 | 780 |
| OMZM[3] | TR[5] | µg/l | $e^{(0.8473 [\ln H] + 0.884)}$ | 120 | 220 | 300 | 390 |
| OMZA[3] | TR[5] | µg/l | $e^{(0.8473 [\ln H] + 0.884)}$ | 120 | 220 | 300 | 390 |

[1] D = dissolved; TR = total recoverable.

[2] µg/l = micrograms per liter (parts per billion).

[3] IMZM = inside mixing zone maximum; OMZM = outside mixing zone maximum; OMZA = outside mixing zone average.

[4] These criteria are implemented by multiplying them by a translator approved by the director pursuant to rule 3745-2-04 of the Administrative Code.

[5] These criteria apply in the absence of a translator approved by the director pursuant to rule 3745-2-04 of the Administrative Code.

[6] Numeric criteria are presented at example water hardnesses. The equations can be used to calculate numeric criteria at any water hardness up to 400 mg/l $CaCO_3$. "e" = the base e exponential function. "ln H" = the natural logarithm of the water hardness. The criteria at a water hardness of 400 mg/l $CaCO_3$ are used for water hardnesses above 400 mg/l $CaCO_3$.

Table 7-10. Statewide water quality criteria for the protection of aquatic life for water pH dependent criteria.

| Chemical | Form[1] | Units[2] | Equation | Criteria[4] 6.5 | 7.5 | 8.0 | 9.0 |
|---|---|---|---|---|---|---|---|
| Pentachlorophenol | | | | | | | |
| IMZM[3] | T | µg/l | $e^{(1.005\ [pH] - 4.176)}$ | 11 | 29 | 48 | 130 |
| OMZM[3] | T | µg/l | $e^{(1.005\ [pH] - 4.869)}$ | 5.3 | 14 | 24 | 65 |
| OMZA[3] | T | µg/l | $e^{(1.005\ [pH] - 5.134)}$ | 4.0 | 11 | 18 | 50 |

[1] T = total.
[2] µg/l = micrograms per liter (parts per billion).
[3] IMZM = inside mixing zone maximum; OMZM = outside mixing zone maximum; OMZA = outside mixing zone average.
[4] Numeric criteria are presented at example water pH. The equations can be used to calculate numeric criteria at any water pH between 6.5 and 9.0. "e" = the base e exponential function.

Table 7-11. Statewide water quality criteria for the protection against adverse aesthetic conditions.

| Chemical | Form[1] | Units[2] | IMZM[3] | OMZM[3] | Drinking |
|---|---|---|---|---|---|
| 2-Chlorophenol | T | µg/l | -- | -- | 0.1[a] |
| 2,4-Dichlorophenol | T | µg/l | -- | -- | 0.3[a] |
| MBAS (foaming agents) | T | mg/l | -- | 0.50 | -- |
| Oil & grease | T | mg/l | -- | 10[b] | -- |
| Phenol | T | µg/l | -- | -- | 1.0[a] |
| Phosphorus | T | mg/l | C | -- | C |

[1] T = total.

[2] mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion).

[3] IMZM = inside mixing zone maximum; OMZM = outside mixing zone maximum.

[a] This criterion is based on the protection against organoleptic (taste and/or odor) effects.

[b] Surface waters shall be free from floating oils and shall at no time produce a visible sheen or color film. Levels of oils or petrochemicals in the sediment or on the banks of a watercourse which cause deleterious effects to the biota will not be permitted.

[c] Total phosphorus as P shall be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that result in a violation of the water quality criteria set forth in paragraph (E) of rule 3745-1-04 of the Administrative Code or, for public water supplies, that result in taste or odor problems. In areas where such nuisance growths exist, phosphorus discharges from point sources determined significant by the director shall not exceed a daily average of one milligram per liter as total P, or such stricter requirements as may be imposed by the director in accordance with the international joint commission (United States-Canada agreement).

Table 7-12. Statewide water quality criteria for the protection of agricultural uses.

| Chemical | Form[1] | Units[2] | OMZA[3] |
|---|---|---|---|
| Arsenic | TR | µg/l | 100 |
| Beryllium | TR | µg/l | 100 |
| Cadmium | TR | µg/l | 50 |
| Total chromium | TR | µg/l | 100 |
| Copper | TR | µg/l | 500 |
| Fluoride | T | µg/l | 2,000 |
| Iron | TR | µg/l | 5,000 |
| Lead | TR | µg/l | 100 |
| Mercury | TR | µg/l | 10 |
| Nickel | TR | µg/l | 200 |
| Nitrates + nitrites | T | mg/l | 100 |
| Selenium | TR | µg/l | 50 |
| Zinc | TR | µg/l | 25,000 |

[1] T = total; TR = total recoverable.
[2] mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion).
[3] OMZA = outside mixing zone average.

Table 7-13. Statewide numerical and narrative criteria for recreational use designations. For each designation at least one of the two bacteriological standards (fecal coliform or E. coli) must be met. These criteria apply outside the mixing zone.

| |
|---|
| Bathing waters |
| Fecal coliform - geometric mean fecal coliform content (either MPN or MF), based on not less than five samples within a thirty-day period, shall not exceed 200 per 100 ml and fecal coliform content (either MPN or MF) shall not exceed 400 per 100 ml in more than ten per cent of the samples taken during any thirty-day period. |
| E. coli - geometric mean E. coli content (either MPN or MF), based on not less than five samples within a thirty-day period, shall not exceed 126 per 100 ml and E. coli content (either MPN or MF) shall not exceed 235 per 100 ml in more than ten per cent of the samples taken during any thirty-day period. |
| Primary contact |
| Fecal coliform - geometric mean fecal coliform content (either MPN or MF), based on not less than five samples within a thirty-day period, shall not exceed 1,000 per 100 ml and fecal coliform content (either MPN or MF) shall not exceed 2,000 per 100 ml in more than ten per cent of the samples taken during any thirty-day period. |
| E. coli - geometric mean E. coli content (either MPN or MF), based on not less than five samples within a thirty-day period, shall not exceed 126 per 100 ml and E. coli content (either MPN or MF) shall not exceed 298 per 100 ml in more than ten per cent of the samples taken during any thirty-day period. |
| Secondary contact |
| Fecal coliform - shall not exceed 5,000 per 100 ml (either MPN or MF) in more than ten per cent of the samples taken during any thirty-day period. |
| E. coli - shall not exceed 576 per 100 ml in more than ten per cent of the samples taken during any thirty-day period. |

Table 7-14. Temperature criteria.

(A) General Ohio river basin - includes all waters of the state within the boundaries of the Ohio river basin, excluding the Ohio river and those water bodies or water body segments as designated in paragraphs (B) to (F) of this table. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 47 (8.3) | 47 (8.3) | 51 (10.0) | 54 (12.2) | 59 (15.0) | 65 (18.3) | 67 (19.4) | 70 (21.1) | 74 (23.3) |
| Daily Maximum: | 52 (11.1) | 52 (11.1) | 56 (13.3) | 59 (15.0) | 65 (18.3) | 70 (21.1) | 73 (22.8) | 76 (24.4) | 80 (26.7) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 82 (27.8) | 82 (27.8) | 82 (27.8) | 82 (27.8) | 73 (22.8) | 71 (21.7) | 65 (18.3) | 60 (15.6) | 47 (8.3) |
| Daily Maximum: | 85 (29.4) | 85 (29.4) | 85 (29.4) | 85 (29.4) | 78 (25.6) | 76 (24.4) | 70 (21.1) | 65 (18.3) | 52 (11.1) |

(B) Lower great Miami river - Steele dam in Dayton (river mile 81.3) to the confluence with the Ohio river. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 49 (9.4) | 49 (9.4) | 53 (11.9) | 56 (13.3) | 59 (15.0) | 65 (18.3) | 67 (19.4) | 70 (21.1) | 75 (23.9) |
| Daily Maximum: | 54 (12.2) | 54 (12.2) | 58 (14.4) | 61 (16.1) | 68 (20.0) | 74 (23.3) | 77 (25.0) | 79 (26.1) | 83 (28.3) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 85 (29.4) | 85 (29.4) | 85 (29.4) | 85 (29.4) | 78 (25.6) | 71 (21.7) | 66 (18.9) | 63 (17.2) | 49 (9.4) |
| Daily Maximum: | 89 (31.7) | 89 (31.7) | 89 (31.7) | 89 (31.7) | 83 (28.3) | 76 (24.4) | 71 (21.7) | 68 (20.0) | 54 (12.2) |

(C) Scioto river - Griggs dam in Columbus (river mile 136) to the confluence with the Ohio river. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 47 (8.3) | 47 (8.3) | 51 (10.6) | 54 (12.2) | 59 (15.0) | 62 (16.7) | 67 (19.4) | 72 (22.2) | 75 (23.9) |
| Daily Maximum: | 52 (11.1) | 52 (11.1) | 56 (13.3) | 59 (15.0) | 65 (18.3) | 70 (21.1) | 75 (23.9) | 79 (26.1) | 82 (27.8) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 83 (28.3) | 83 (28.3) | 83 (28.3) | 83 (28.3) | 75 (23.9) | 71 (21.7) | 65 (18.3) | 58 (14.4) | 47 (8.3) |
| Daily Maximum: | 87 (30.6) | 87 (30.6) | 87 (30.6) | 87 (30.6) | 80 (26.7) | 76 (24.4) | 70 (21.1) | 63 (17.2) | 52 (11.1) |

(D) Hocking river - entire mainstem. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 45 (7.2) | 45 (7.2) | 51 (10.6) | 56 (13.3) | 59 (15.0) | 65 (18.3) | 67 (19.4) | 70 (21.1) | 74 (23.3) |
| Daily Maximum: | 50 (10.0) | 50 (10.0) | 56 (13.3) | 61 (16.1) | 66 (18.9) | 70 (21.1) | 73 (22.8) | 76 (24.4) | 80 (26.7) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 83 (28.3) | 83 (28.3) | 83 (28.3) | 83 (28.3) | 77 (25.0) | 65 (18.3) | 62 (16.7) | 58 (14.4) | 45 (7.2) |
| Daily Maximum: | 87 (30.6) | 87 (30.6) | 87 (30.6) | 87 (30.6) | 82 (27.8) | 70 (21.1) | 67 (19.4) | 63 (17.2) | 50 (10.0) |

(E) Muskingum river - entire mainstem. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 45 (7.2) | 45 (7.2) | 53 (11.7) | 53 (11.7) | 58 (14.4) | 65 (18.3) | 68 (20.0) | 72 (22.2) | 76 (24.4) |
| Daily Maximum: | 50 (10.0) | 50 (10.0) | 58 (14.4) | 58 (14.4) | 63 (17.2) | 70 (21.1) | 74 (23.3) | 77 (25.0) | 84 (28.9) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 85 (29.4) | 85 (29.4) | 85 (29.4) | 85 (29.4) | 80 (26.7) | 73 (22.8) | 67 (19.4) | 62 (16.7) | 47 (8.3) |
| Daily Maximum: | 89 (31.7) | 89 (31.7) | 89 (31.7) | 89 (31.7) | 85 (29.4) | 77 (25.0) | 72 (22.2) | 67 (19.4) | 52 (11.1) |

(F) Mahoning river - Leavitt road dam (river mile 46.1) to the Ohio- Pennsylvania state line (river mile 12.6). Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 47 (8.3) | 47 (8.3) | 50 (10.0) | 54 (12.2) | 59 (15.0) | 65 (18.3) | 68 (20.0) | 73 (22.8) | 77 (25.0) |
| Daily Maximum: | 53 (11.7) | 53 (11.7) | 57 (13.9) | 61 (16.1) | 65 (18.3) | 70 (21.1) | 76 (24.4) | 79 (26.1) | 84 (28.9) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 85 (29.4) | 85 (29.4) | 85 (29.4) | 85 (29.4) | 78 (25.6) | 73 (22.8) | 67 (19.4) | 60 (15.6) | 51 (10.6) |
| Daily Maximum: | 89 (31.7) | 89 (31.7) | 89 (31.7) | 89 (31.7) | 83 (28.3) | 77 (25.0) | 72 (22.2) | 66 (18.9) | 55 (12.8) |

(G) General lake Erie basin - includes all surface waters of the state within the boundaries of the lake Erie drainage basin, excluding lake Erie and those water bodies as designated in paragraphs (H) to (L) of this table. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 44 (6.7) | 44 (6.7) | 48 (8.9) | 51 (10.6) | 54 (12.2) | 60 (15.6) | 64 (17.8) | 66 (18.9) | 72 (22.2) |
| Daily Maximum: | 49 (9.4) | 49 (9.4) | 53 (11.7) | 56 (13.3) | 61 (16.1) | 65 (18.3) | 69 (20.6) | 72 (22.2) | 76 (24.4) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 82 (27.8) | 82 (27.8) | 82 (27.8) | 82 (27.8) | 75 (23.9) | 67 (19.4) | 61 (16.1) | 54 (12.2) | 44 (6.7) |
| Daily Maximum: | 85 (29.4) | 85 (29.4) | 85 (29.4) | 85 (29.4) | 80 (26.7) | 72 (22.2) | 66 (18.9) | 59 (15.0) | 49 (9.4) |

(H) Lake Erie tributary estuaries - includes all lake Erie tributary estuaries within the lake breakwaters and extending upstream to the lake Erie mean high water level. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | - | - | - | - | - | - | - | - | - |
| Daily Maximum: | 52 (11.1) | 52 (11.1) | 55 (12.8) | 55 (12.8) | 59 (15.0) | 63 (17.2) | 66 (18.9) | 76 (24.4) | 82 (27.8) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 84 (28.9) | 84 (28.9) | 84 (28.9) | 84 (28.9) | - | - | - | - | - |
| Daily Maximum: | 88 (31.1) | 88 (31.1) | 88 (31.1) | 88 (31.1) | 84 (28.9) | 75 (23.9) | 70 (21.1) | 65 (18.3) | 55 (12.8) |

(I) Maumee river - Ohio-Indiana state line to Maumee river estuary. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 45 (7.2) | 45 (7.2) | 47 (8.3) | 53 (11.7) | 58 (14.4) | 61 (16.1) | 67 (19.4) | 70 (21.1) | 75 (23.9) |
| Daily Maximum: | 50 (10.0) | 50 (10.0) | 52 (11.1) | 58 (14.4) | 63 (17.2) | 68 (20.0) | 72 (22.2) | 76 (24.4) | 80 (26.7) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 85 (29.4) | 85 (29.4) | 85 (29.4) | 85 (29.4) | 80 (26.7) | 71 (21.7) | 65 (18.3) | 58 (14.4) | 45 (7.2) |
| Daily Maximum: | 89 (31.7) | 89 (31.7) | 89 (31.7) | 89 (31.7) | 85 (29.4) | 76 (24.4) | 70 (21.1) | 63 (17.2) | 50 (10.0) |

(J) Maumee bay - includes all waters of the state known as Maumee bay including the Maumee river estuary and the estuary portions of all tributaries entering Maumee bay to the lake Erie mean high water level. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 47 (8.3) | 47 (8.3) | 48 (8.9) | 50 (10.0) | 52 (11.1) | 57 (13.9) | 61 (16.1) | 65 (18.3) | 71 (21.7) |
| Daily Maximum: | 52 (11.1) | 52 (11.1) | 53 (11.7) | 54 (12.2) | 59 (15.0) | 63 (17.2) | 63 (18.9) | 76 (24.4) | 77 (25.0) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 83 (29.3) | 83 (28.3) | 83 (28.3) | 83 (28.3) | 75 (23.9) | 69 (20.6) | 64 (17.8) | 59 (15.0) | 47 (8.3) |
| Daily Maximum | 87 (30.6) | 87 (30.6) | 87 (30.6) | 87 (30.6) | 80 (26.7) | 74 (23.3) | 69 (20.6) | 64 (17.8) | 52 (11.1) |

(K) Sandusky bay - includes all waters of the state known as Sandusky bay including the Sandusky river estuary and the estuary portions of all tributaries entering Sandusky bay to the lake Erie mean high water level. Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 47 (8.3) | 47 (8.3) | 48 (8.9) | 50 (10.0) | 52 (11.1) | 57 (13.9) | 63 (17.2) | 68 (20.0) | 74 (23.3) |
| Daily Maximum: | 52 (11.1) | 52 (11.1) | 53 (11.7) | 55 (12.8) | 57 (13.9) | 62 (16.7) | 68 (20.0) | 73 (22.8) | 79 (26.1) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 83 (28.3) | 83 (28.3) | 83 (28.3) | 83 (28.3) | 75 (23.9) | 69 (20.6) | 64 (17.8) | 59 (15.0) | 47 (8.3) |
| Daily Maximum: | 87 (30.6) | 87 (30.6) | 87 (30.6) | 87 (30.6) | 80 (26.7) | 74 (23.3) | 69 (20.6) | 64 (17.8) | 52 (11.1) |

(L) Cuyahoga river - headwaters of the Cuyahoga river gorge dam pool (river mile 46.2) to the Cuyahoga river ship channel (river mile 5.6). Shown as degrees fahrenheit and (celsius).

| | Jan. 1-31 | Feb. 1-29 | Mar. 1-15 | Mar. 16-31 | Apr. 1-15 | Apr. 16-30 | May 1-15 | May 16-31 | June 1-15 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 45 (7.2) | 45 (7.2) | 51 (10.6) | 53 (11.7) | 55 (12.8) | 60 (15.6) | 65 (18.3) | 71 (21.7) | 80 (26.7) |
| Daily Maximum: | 49 (9.4) | 49 (9.4) | 55 (12.8) | 57 (13.9) | 62 (16.7) | 66 (18.9) | 70 (21.1) | 78 (25.6) | 84 (28.9) |

| | June 16-30 | July 1-31 | Aug. 1-31 | Sept. 1-15 | Sept. 16-30 | Oct. 1-15 | Oct. 16-31 | Nov. 1-30 | Dec. 1-31 |
|---|---|---|---|---|---|---|---|---|---|
| Average: | 84 (28.9) | 84 (28.9) | 84 (28.9) | 84 (28.9) | 77 (25.0) | 70 (21.1) | 63 (17.2) | 55 (12.8) | 45 (7.2) |
| Daily Maximum | 88 (31.1) | 88 (31.1) | 88 (31.1) | 88 (31.1) | 82 (27.8) | 75 (23.9) | 69 (20.6) | 64 (17.8) | 52 (11.1) |

Table 7-15 Page 1 of 2.

Biological criteria for warmwater, exceptional warmwater and modified warmwater habitats. Description and derivation of indices and ecoregions are contained in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters" cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. These criteria do not apply to the Ohio river, lakes or lake Erie river mouths.

| Index<br>Sampling site<br>Ecoregion[1] | Modified warmwater habitat<br>Channel Modif. | <br>Mine Affected | <br>Impounded | Warmwater Habitat | Exceptional Warmwater Habitat |
|---|---|---|---|---|---|
| (A) Index of biotic integrity (fish) | | | | | |
| (1) Wading sites[2] | | | | | |
| HELP | 22 | -- | -- | 32 | 50 |
| IP | 24 | -- | -- | 40 | 50 |
| EOLP | 24 | -- | -- | 38 | 50 |
| WAP | 24 | 24 | -- | 44 | 50 |
| ECBP | 24 | -- | -- | 40 | 50 |
| (2) Boat sites[2] | | | | | |
| HELP | 20 | -- | 22 | 34 | 48 |
| IP | 24 | -- | 30 | 38 | 48 |
| EOLP | 24 | -- | 30 | 40 | 48 |
| WAP | 24 | 24 | 30 | 40 | 48 |
| ECBP | 24 | -- | 30 | 42 | 48 |
| (3) Headwater sites[3] | | | | | |
| HELP | 20 | -- | -- | 28 | 50 |
| IP | 24 | -- | -- | 40 | 50 |
| EOLP | 24 | -- | -- | 40 | 50 |
| WAP | 24 | 24 | -- | 44 | 50 |
| ECBP | 24 | -- | -- | 40 | 50 |
| (B) Modified index of well-being (fish)[4] | | | | | |
| (1) Wading sites[2] | | | | | |
| HELP | 5.6 | --- | --- | 7.3 | 9.4 |
| IP | 6.2 | --- | --- | 8.1 | 9.4 |
| EOLP | 6.2 | --- | --- | 7.9 | 9.4 |
| WAP | 6.2 | 5.5 | --- | 8.4 | 9.4 |
| ECBP | 6.2 | --- | --- | 8.3 | 9.4 |

Table 7-15 Page 2 of 2.

Biological criteria for warmwater, exceptional warmwater and modified warmwater habitats. Description and derivation of indices and ecoregions are contained in "Biological Criteria for the Protection of Aquatic Life: Volume II, Users Manual for Biological Field Assessment of Ohio Surface Waters" cited in paragraph (B) of rule 3745-1-03 of the Administrative Code. These criteria do not apply to the Ohio river, lakes or lake Erie river mouths.

| Index Sampling site Ecoregion[1] | Modified Warmwater Habitat Channel Modif. | Mine Affected | Impounded | Warmwater Habitat | Exceptional Warmwater Habitat |
|---|---|---|---|---|---|
| (2) Boat sites[2] | | | | | |
| HELP | 5.7 | --- | 5.7 | 8.6 | 9.6 |
| IP | 5.8 | --- | 6.6 | 8.7 | 9.6 |
| EOLP | 5.8 | --- | 6.6 | 8.7 | 9.6 |
| WAP | 5.8 | 5.4 | 6.6 | 8.6 | 9.6 |
| ECBP | 5.8 | --- | 6.6 | 8.5 | 9.6 |
| (C) Invertebrate community index (macroinvertebrates) | | | | | |
| (1) Artificial substrate samplers[2] | | | | | |
| HELP | 22 | -- | -- | 34 | 46 |
| IP | 22 | -- | -- | 30 | 46 |
| EOLP | 22 | -- | -- | 34 | 46 |
| WAP | 22 | 30 | -- | 36 | 46 |
| ECBP | 22 | -- | -- | 36 | 46 |

[1] HELP = Huron/Erie lake plain ecoregion. IP = interior plateau ecoregion. EOLP = Erie/Ontario lake plain ecoregion. WAP = western Allegheny plateau ecoregion. ECBP = eastern corn belt plains ecoregion.

[2] Sampling methods descriptions are found in the "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices," cited in paragraph (B) of rule 3745-1-03 of the Administrative Code.

[3] Modification of the IBI that applies to sites with drainage areas less than twenty square miles.

[4] Does not apply to sites with drainage areas less than twenty square miles.

Effective: 12/30/2002

R.C. Section 119.032 review dates: 3/25/2002 and 12/30/2007

Promulgated under: R.C. Section 119.03
Rule authorized by: R.C. Section 6111.041
Rule amplifies: R.C. Section 6111.041
Prior effective dates: 2/14/1978, 4/4/1985, 8/19/1985, 4/30/1987, 5/1/1990, 4/26/1997, 10/31/1997, 7/31/1998, 7/31/1999, 2/22/2002