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 thirty-first. The director may require effluent disinfection, as a term or condition of a national pollutant discharge elimination system (NPDES) permit, administrative findings and orders or a judicial order, during the

months outside the recreation season if necessary to protect an unusually high level of water based recreation activity such as, but not limited to, canoeing, kayaking, scuba diving, or sport fishing during spawning runs and, in the normal pursuit of the recreation activity, there is a strong likelihood of exposure to water borne pathogens through ingestion of water or from dermal exposure through fresh cuts or abrasions.

(a) "Bathing waters" - these are waters that, during the recreation season, are heavily used for swimming. The bathing water use applies to all waters in areas where a lifeguard or bathhouse facilities are present, and to any additional water bodies designated bathing waters in rules 3745-1-08 to 3745-1-32 of the Administrative Code.

(b) "Primary contact" - these are waters that, during the recreation season, are suitable for one or more full-body contact recreation activities such as, but not limited to, wading, swimming, boating, water skiing, canoeing, kayaking, and scuba diving. ~~Three classes of primary contact recreation use are defined to reflect differences in the observed and potential frequency and intensity of usage.~~ All surface waters of the state are designated as primary contact recreation unless otherwise designated as bathing waters or secondary contact recreation.

~~(i) Class A primary contact recreation. These are waters that support, or potentially support, frequent primary contact recreation activities. The following water bodies are designated as class A primary contact recreation waters:~~

~~(a) All lakes having publicly or privately improved access points; and~~

~~(b) All water bodies listed in table 7-16 of this rule.~~

~~[Comment: The streams and rivers listed in table 7-16 of this rule are popular paddling streams with public access points developed, maintained, and publicized by governmental entities.]~~

~~(ii) Class B primary contact recreation. These are waters that support, or potentially support, occasional primary contact recreation activities. All surface waters of the state are designated as class B primary contact recreation unless otherwise designated as bathing waters, class A primary contact recreation, class C primary contact recreation or secondary contact recreation.~~

~~(iii) Class C primary contact recreation. These are water bodies that support, or potentially support, infrequent primary contact recreation activities such as, but not limited to, wading. The following water bodies are designated class C primary contact recreation:~~

~~(a) All water body segments with drainage areas less than 3.1 square miles and meeting the definition in 6111.01 of the Revised Code of historically channelized watercourse, unless they are specifically designated a different recreational use in rules 3745-1-08 to 3745-1-30 of the Administrative Code; and~~

~~(b) All water bodies specifically designated class C primary contact recreation in rules 3745-1-08 to 3745-1-30 of the Administrative Code.~~

(c) "Secondary contact" - these are waters that result in minimal exposure potential to water borne pathogens because the waters are: rarely used for water based recreation such as, but not limited to, wading; situated in remote, sparsely populated areas; have restricted access points; and have insufficient depth to provide full body immersion, thereby greatly limiting the potential for water based recreation activities. Waters designated secondary contact recreation are identified in rules 3745-1-08 to 3745-1-30 of the Administrative Code.

(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.
Page 1 of 2

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.
Page 2 of 2

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.
Page 1 of 2

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 criteria for the protection of recreation uses. These criteria apply inside and outside the mixing zone at all times during the recreation season.

Recreation use	E. coli (colony counts per 100 ml)	
	~~Seasonal~~30-day geometric mean	~~Single sample maximum~~Statistical threshold value[1]
Bathing water	126	~~235~~410[a]
~~Class A primary~~Primary contact recreation	126	~~298~~410
~~Class B primary contact recreation~~	~~161~~	~~523~~
~~Class C primary contact recreation~~	~~206~~	~~940~~
Secondary contact recreation	1030	1030

[1] ~~Except as noted in footnote a, these~~These criteria shall not be exceeded in more than ten per cent of the samples taken during any thirty-day period.

[a] ~~This criterion shall be used for the issuance of~~A beach action value of 235 E. coli colony counts per 100 ml shall be used for the purpose of issuing ~~-~~beach and bathing water advisories.

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 / Sampling site / Ecoregion[1]	Modified warmwater habitat: Channel Modif.	Modified warmwater habitat: Mine Affected	Modified warmwater habitat: 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.

~~Table 7-16. Popular paddling streams with identified public access points designated class A primary contact recreation. The class A designation extends from the most upstream identified public access point to the mouth. (From "Boating On Ohio Streams," Ohio department of natural resources, division of watercraft. The description of these areas is on the Ohio department of natural resources website at http://www.dnr.state.oh.us/watercraft/areas/tabid/2306/default.aspx.)~~

~~Water body name~~	~~Flows into~~	~~Drainage basin~~
~~Alum creek~~	~~Big Walnut creek~~	~~Scioto~~
~~Ashtabula river~~	~~Lake Erie~~	~~Ashtabula~~
~~Auglaize river~~	~~Maumee river~~	~~Maumee~~
~~Big Darby creek~~	~~Scioto river~~	~~Scioto~~
~~Big Walnut creek~~	~~Scioto river~~	~~Scioto~~
~~Black river~~	~~Lake Erie~~	~~Black~~
~~Black river, East branch~~	~~Black river~~	~~Black~~
~~Black river, West branch~~	~~Black river~~	~~Black~~
~~Blanchard river~~	~~Auglaize river~~	~~Maumee~~
~~Buck creek~~	~~Mad river~~	~~Great Miami~~
~~Caesar creek~~	~~Little Miami river~~	~~Little Miami~~
~~Captina creek~~	~~Ohio river~~	~~Central Ohio tributaries~~
~~Chagrin river~~	~~Lake Erie~~	~~Chagrin~~
~~Conneaut creek~~	~~Lake Erie~~	~~Ashtabula~~
~~Conotton creek~~	~~Tuscarawas river~~	~~Muskingum~~
~~Cuyahoga river~~	~~Lake Erie~~	~~Cuyahoga~~
~~Deer creek~~	~~Scioto river~~	~~Scioto~~
~~Duck creek~~	~~Ohio river~~	~~Central Ohio tributaries~~
~~Four-Mile/Talawanda creek (Fourmile creek)~~	~~Great Miami river~~	~~Great Miami~~
~~Grand river~~	~~Lake Erie~~	~~Grand~~
~~Great Miami river~~	~~Ohio river~~	~~Great Miami~~
~~Greenville creek~~	~~Stillwater river~~	~~Great Miami~~
~~Hocking river~~	~~Ohio river~~	~~Hocking~~
~~Huron river~~	~~Lake Erie~~	~~Huron~~
~~Huron river, East branch~~	~~Huron river~~	~~Huron~~
~~Huron River, West branch~~	~~Huron river~~	~~Huron~~

~~Water body name~~	~~Flows into~~	~~Drainage basin~~
~~Killbuck creek~~	~~Walhonding river~~	~~Muskingum~~
~~Kokosing river~~	~~Walhonding river~~	~~Muskingum~~
~~Licking river~~	~~Muskingum river~~	~~Muskingum~~
~~Licking river, South fork~~	~~Licking river~~	~~Muskingum~~
~~Licking river, North fork~~	~~Licking river~~	~~Muskingum~~
~~Little Beaver creek~~	~~Ohio river~~	~~Little Beaver~~
~~Little Miami river, East fork~~	~~Little Miami river~~	~~Little Miami~~
~~Little Miami river~~	~~Ohio river~~	~~Little Miami~~
~~Little Muskingum river~~	~~Ohio river~~	~~Central Ohio tributaries~~
~~Little Scioto river (Marion co.)~~	~~Scioto river~~	~~Scioto~~
~~Loramie creek~~	~~Great Miami river~~	~~Great Miami~~
~~Mad river~~	~~Great Miami river~~	~~Great Miami~~
~~Mahoning river~~	~~Ohio river~~	~~Mahoning~~
~~Mahoning river, West branch~~	~~Mahoning river~~	~~Mahoning~~
~~Maumee river~~	~~Maumee bay~~	~~Maumee~~
~~Mohican river~~	~~Walhonding river~~	~~Muskingum~~
~~Mohican river, Black fork~~	~~Mohican river~~	~~Muskingum~~
~~Mohican river, Clear fork~~	~~Mohican river~~	~~Muskingum~~
~~Mohican river, Lake fork~~	~~Mohican river~~	~~Muskingum~~
~~Muskingum river~~	~~Ohio river~~	~~Muskingum~~
~~Ohio Brush creek~~	~~Ohio river~~	~~Southwest Ohio tributaries~~
~~Olentangy river~~	~~Scioto river~~	~~Scioto~~
~~Ottawa river~~	~~Auglaize river~~	~~Maumee~~
~~Paint creek~~	~~Scioto river~~	~~Scioto~~
~~Paint creek, North fork~~	~~Paint creek~~	~~Scioto~~
~~Portage river~~	~~Lake Erie~~	~~Portage~~
~~Portage river, Middle branch~~	~~Portage river~~	~~Portage~~
~~Portage river, North branch~~	~~Portage river~~	~~Portage~~
~~Pymatuning creek~~	~~Shenango river~~	~~Mahoning~~
~~Raccoon creek~~	~~Ohio river~~	~~Southeast Ohio tributaries~~
~~Rocky fork creek (Rocky fork)~~	~~Paint creek~~	~~Scioto~~
~~Rocky river, East branch~~	~~Rocky river~~	~~Rocky~~

~~Water body name~~	~~Flows into~~	~~Drainage basin~~
~~Rocky river~~	~~Lake Erie~~	~~Rocky~~
~~Rocky river, West branch~~	~~Rocky river~~	~~Rocky~~
~~Salt creek~~	~~Scioto river~~	~~Scioto~~
~~Sandusky river~~	~~Sandusky bay~~	~~Maumee~~
~~Sandy creek~~	~~Tuscarawas river~~	~~Muskingum~~
~~Scioto Brush creek~~	~~Scioto river~~	~~Scioto~~
~~Scioto Brush creek, North fork~~	~~Scioto brush creek~~	~~Scioto~~
~~Scioto Brush creek, South fork~~	~~Scioto brush creek~~	~~Scioto~~
~~Scioto river~~	~~Ohio river~~	~~Scioto~~
~~St. Joseph river~~	~~Maumee river~~	~~Maumee~~
~~St. Marys river~~	~~Maumee river~~	~~Maumee~~
~~Stillwater river~~	~~Great Miami river~~	~~Great Miami~~
~~Straight creek~~	~~Ohio river~~	~~Southwest Ohio tributaries~~
~~Sugar creek~~	~~Tuscarawas river~~	~~Muskingum~~
~~Sunfish creek~~	~~Ohio river~~	~~Central Ohio tributaries~~
~~Symmes creek~~	~~Muskingum river~~	~~Muskingum~~
~~Tiffin river~~	~~Maumee river~~	~~Maumee~~
~~Tinkers creek~~	~~Cuyahoga river~~	~~Cuyahoga~~
~~Tuscarawas river~~	~~Muskingum river~~	~~Muskingum~~
~~Twin creek~~	~~Great Miami river~~	~~Great Miami~~
~~Vermilion river~~	~~Lake Erie~~	~~Vermilion~~
~~Walhonding river~~	~~Muskingum river~~	~~Muskingum~~
~~White Oak creek (Whiteoak creek)~~	~~Ohio river~~	~~Southwest Ohio tributaries~~
~~Whitewater river~~	~~Great Miami river~~	~~Great Miami~~
~~Wills creek~~	~~Muskingum river~~	~~Muskingum~~
~~Wills creek, Seneca fork~~	~~Wills creek~~	~~Muskingum~~

Effective:

Five Year Review (FYR) Dates:

Certification

Date

Promulgated Under:	119.03
Statutory Authority:	6111.041
Rule Amplifies:	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, 12/30/2002, 3/15/2010