3745-1-07 **Beneficial use designations and biological criteria.**

[Comment: For dates of non-regulatory government publications, publications of recognized organizations and associations, federal rules and federal statutory provisions referenced in this rule, see rule 3745-1-03 of the Administrative Code.]

[Comment: Statewide water quality criteria designed to protect beneficial uses are in rules 3745-1-04 and 3745-1-33 to 3745-1-37 of the Administrative Code. Chemical specific criteria applicable to lake Erie are contained in rule 3745-1-31 of the Administrative Code. Chemical specific criteria applicable to the Ohio river are contained in rule 3745-1-32 of the Administrative Code. Additional chemical specific criteria may be derived as described in rules 3745-1-40 to 3745-1-43 of the Administrative Code.]

(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 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) 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.

(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 in the criteria in table 7-1 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 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 7-1 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 7-1 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 7-1 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 7-1 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 7-1 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 3745-1-39 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) 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.

(3) 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. All surface waters of the state are designated as primary contact recreation unless otherwise designated as bathing waters or secondary contact recreation.

(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) Biological criteria.

Biological criteria presented in table 7-1 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.

(1) 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:

(a) 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, U.S. EPA Office of Water."

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

(2) 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 all of the following:

(a) The point sources are shown to be the primary contributing cause of the nonattainment.

(b) The application of additional or alternative treatment or technology can reasonably be expected to lead to attainment of the designated use.

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

Table 7-1. 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		Modified warmwater habitat			Warmwater habitat	Exceptional warmwater habitat
	Sampling site	Channel modif.	Mine affected	Impounded		
	Ecoregion[1]					
(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
	(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 "Surface Water Field

Sampling Manual (for water quality parameters and flows)," 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 ares less than twenty square miles.

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