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STATE OF OHIO

WATER QUALITY STANDARDS

Chapter 3745-1 of the ADMINISTRATIVE CODE

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Division of Surface Water
Standards & Technical Support Section

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3745-1-01 Purpose and applicability.

(A) It is the purpose of these water quality standards, Chapter 3745-1 of the Administrative Code, to establish minimum water quality requirements for all surface waters of the state, thereby protecting public health and welfare; and to enhance, improve and maintain water quality as provided under the laws of the state of Ohio, section 6111.041 of the Revised Code, the federal Clean Water Act, 33 U.S.C. section 1251 et seq., and rules adopted thereunder.

(B) Whenever two or more use designations apply to the same surface water, the more stringent criteria of each use designation will apply.

(C) These water quality standards will apply to all surface waters of the state except as provided in paragraph (D), (E), or (F) of this rule. Compliance schedules may be granted pursuant to rule 3745-33-05 of the Administrative Code.

(D) These water quality standards will not apply to water bodies when the flow is less than the critical low-flow values determined in rule 3745-2-05 of the Administrative Code.

(E) The following exceptions will apply only to the specific water quality criteria involved in each case for a reasonable period of time as determined by the director.

(1) Whenever chemicals are applied for control of aquatic plants or animals, notice must be given to the director before chemicals are applied. The director, upon receiving such notice, may order that chemicals not be applied if he concludes that the proposed application would pose an unreasonable danger to human or aquatic life. The application of pesticides registered under the Federal Insecticide, Fungicide and Rodenticide Act (7 U.S.C. 136 et seq.) are permitted without notification to the director when:

(a) The pesticide is applied consistent with label instructions; and

(i) The application is to a pond with a surface area equal to or less than five acres; and

(ii) The application is not within one mile upstream of a public water supply intake or within one mile of a reservoir public water supply intake; and

(iii) The application is not to any wetland, borrow pit, quarry or water body used for public swimming.

(b) The pesticide is applied under the direction of a local health department or other government agency in a mosquito abatement program.

(2) Whenever dredging or construction activities occur on or near water bodies or during the period of time when the aftereffects of dredging or construction activities degrade water quality and such activities have been authorized by the United States army corps of engineers and/or by a 401 water quality certification or an isolated wetland permit issued

by the Ohio environmental protection agency.

(3) Whenever coal remining permits are issued pursuant to section 301(p) of the act. This exception applies to pH, iron and manganese for the duration of the remining activity. This exception applies only if: there is a demonstrated potential for improved water quality from the remining operation; and no degradation of existing instream conditions occurs.

(F) Temporary variances. The director may grant temporary variances from compliance with water quality criteria applicable by this chapter pursuant to rule 3745-33-07 of the Adminstrative Code.

Effective: 12/30/2002

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3745-1-02 Definitions.

(A) Acronyms and abbreviations used in Chapter 3745-1 of the Administrative Code shall be defined as listed below.

AAC	Acute aquatic criterion
AAV	Acute aquatic value
ACR	Acute-chronic ratio
ADE	Acceptable daily exposure
BAF	Bioaccumulation factor
BCC	Bioaccumulative chemical of concern
BCF	Bioconcentration factor
BSAF	Biota-sediment accumulation factor
BW	Body weight
CAC	Chronic aquatic criterion
CAV	Chronic aquatic value
$CBOD_5$	Five-day carbonaceous biochemical oxygen demand
CCC	Criterion continuous concentration
C.F.R.	Code of federal regulations
CMC	Criterion maximum concentration
DOC	Dissolved organic carbon
ECBP	Eastern corn belt plains ecoregion
EC_{50}	Median effective concentration
EOLP	Erie/Ontario lake plain ecoregion
EPA	Environmental protection agency
FACR	Final acute-chronic ratio
FAV	Final acute value
FCM	Food-chain multiplier
FCV	Final chronic value
FPV	Final plant value

GMAV	Genus mean acute value
GMCV	Genus mean chronic value
HCC	Human cancer criterion
HCV	Human cancer value
HELP	Huron/Erie lake plain ecoregion
HNC	Human noncancer criterion
HNV	Human noncancer value
IMZM	Inside mixing zone maximum
IP	Interior plateau ecoregion
IRIS	Integrated risk information system
K_{ow}	Octanol-water partition coefficient
LC_{50}	Median lethal concentration
ln	Natural logarithm
LOAEL	Lowest observed adverse effect level
log	Base ten logarithm
MF	Membrane filter
MPN	Most probable number
NIPDWR	National interim primary drinking water regulations
NOAEL	No observed adverse effect level
NPDES	National pollutant discharge elimination system
OMZA	Outside mixing zone average
OMZM	Outside mixing zone maximum
POC	Particulate organic carbon
POTW	Publicly owned treatment works
q_1^*	Cancer slope factor
RAD	Risk associated dose
RSC	Relative source contribution

S	Soluble
SACR	Secondary acute-chronic ratio
SAF	Secondary acute factor
SAR	Structure-activity relationship
SAV	Secondary acute value
SMAV	Species mean acute value
SMCV	Species mean chronic value
T	Total
TD	Test dose
temp	Temperature
TL	Trophic level
TR	Total recoverable
UF	Uncertainty factor
U.S.C.	United States Code
WAP	Western Allegheny plateau ecoregion
WV	Wildlife value

(B) Technical words used in Chapter 3745-1 of the Administrative Code shall be defined as listed below.

(1) "Acceptable daily exposure" or "ADE" means an estimate of the maximum daily dose of a substance which is not expected to result in adverse noncancer effects to the general human population, including sensitive subgroups.

(2) "Act" means the federal Water Pollution Control Act, 33 U.S.C. 1251 et seq. (as amended).

(3) "Acute aquatic criterion" or "AAC" means the Ohio EPA estimation of the highest instream concentration of a chemical to which aquatic organisms can be exposed for a brief period of time without causing mortality.

(4) "Acute-chronic ratio" or "ACR" means a standard measure of the acute toxicity of a material divided by an appropriate measure of the chronic toxicity of the same material under comparable conditions.

(5) "Acute toxicity" means adverse effects that result from an acute exposure and occur within any short observation period which begins when the exposure begins, and usually does not constitute a substantial portion of the life span of the organism.

(6) "Adverse effect" means any deleterious effect to organisms due to exposure to a substance. This includes effects which are or may become debilitating, harmful or toxic to the normal functions of the organism, but does not include non-harmful effects such as tissue discoloration alone or the induction of enzymes involved in the metabolism of the substance.

(7) "Ambient water temperature" means the spatial (longitudinal, lateral and vertical) and temporal water temperature measured in the receiving body of water prior to a specific waste heat discharge, and is outside the influence of any thermal mixing zone.

(8) "Average temperature" represents the arithmetic mean of multiple daily average temperatures over a consecutive fifteen- or thirty-day period.

(9) "Baseline BAF" means:

(a) For organic chemicals, a BAF that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism; and

(b) For inorganic chemicals, a BAF that is based on the wet weight of the tissue.

(10) "Baseline BCF" means:

(a) For organic chemicals, a BCF that is based on the concentration of freely dissolved chemical in the ambient water and takes into account the partitioning of the chemical within the organism; and

(b) For inorganic chemicals, a BCF that is based on the wet weight of the tissue.

(11) "Bioaccumulation" means the net accumulation of a substance by an organism as a result of uptake from all environmental sources.

(12) "Bioaccumulation factor" or "BAF" means the ratio (in l/kg) of a substance's concentration in the tissue of an aquatic organism to its concentration in the ambient water, in situations where both the organism and its food are exposed and the ratio does not change substantially over time.

(13) "Bioaccumulative chemical of concern" or "BCC" is any chemical that has the potential to cause adverse effects which, upon entering the surface waters, by itself or as its toxic transformation product, accumulates in aquatic organisms by a human health

bioaccumulation factor greater than one thousand, after considering metabolism and other physicochemical properties that might enhance or inhibit bioaccumulation, calculated in accordance with the methodology in rule 3745-1-37 of the Administrative Code. Chemicals with half-lives of less than eight weeks in the water column, sediment, and biota are not BCCs. The minimum BAF information needed to define an organic chemical as a BCC is either a field-measured BAF or a BAF derived using the BSAF methodology. The minimum BAF information needed to define an inorganic chemical, including an organometal, as a BCC is either a field-measured BAF or a laboratory-measured BCF. Bioaccumulative chemicals of concern include, but are not limited to, chlordane, 4,4'-DDD (p,p'-DDD, 4,4'-TDE, p,p'-TDE), 4,4'-DDE (p,p'-DDE), 4,4'-DDT (p,p'-DDT), dieldrin, hexachlorobenzene, hexachlorobutadiene (hexachloro-1,3-butadiene), hexachlorocyclohexanes (BHCs), alpha-hexachlorocyclohexane (alpha-BHC), beta-hexachlorocyclohexane (beta-BHC), delta-hexachlorocyclohexane (delta-BHC), lindane (gamma-hexachlorocyclohexane, gamma-BHC), mercury, mirex, octachlorostyrene, PCBs (polychlorinated biphenyls), pentachlorobenzene, photomirex, 2,3,7,8-TCDD (dioxin), 1,2,3,4-tetrachlorobenzene, 1,2,4,5-tetrachlorobenzene, and toxaphene.

(14) "Bioconcentration" means the net accumulation of a substance by an aquatic organism as a result of uptake directly from the ambient water through gill membranes or other external body surfaces.

(15) "Bioconcentration factor" or "BCF" means the ratio (in l/kg) of a substance's concentration in the tissue of an aquatic organism to its concentration in the ambient water, in situations where the organism is exposed through the water only and the ratio does not change substantially over time.

(16) "Biota-sediment accumulation factor" or "BSAF" means the ratio (in kg of organic carbon/kg of lipid) of a substance's lipid-normalized concentration in the tissue of an aquatic organism to its organic carbon-normalized concentration in surface sediment, in situations where the ratio does not change substantially over time, both the organism and its food are exposed, and the surface sediment is representative of average surface sediment in the vicinity of the organism.

(17) "°C" means degree(s) Celsius.

(18) "Carcinogen" means a substance which causes an increased incidence of benign or malignant neoplasms, or substantially decreases the time to develop neoplasms, in animals or humans. The classification of carcinogens is discussed in rule 3745-1-38 of the Administrative Code.

(19) "Chronic aquatic criterion" or "CAC" means the Ohio EPA estimation of the highest instream concentration of a chemical to which aquatic organisms can be exposed indefinitely without causing unacceptable effects (e.g., adverse effects on growth or

reproduction).

(20) "Chronic toxicity" means concurrent and delayed adverse effects that occur only as a result of a chronic exposure. Chronic exposure is exposure of an organism for any long period or for a substantial portion of its life span.

(21) "Coldwater fish" means those species of fish that thrive in relatively cold water. These species include, but are not limited to, salmon and trout (Salmonidae), and may include sculpins (Cottidae), and certain minnow (Cyprinidae) species.

(22) "Confluence" means the point where two or more bodies of water flow together.

(23) "Criteria" mean elements of water quality standards, expressed as constituent concentrations, levels, or narrative statements, representing a quality of water that supports a particular designated use.

(24) "Criterion continuous concentration" or "CCC" means an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed indefinitely without resulting in an unacceptable effect.

(25) "Criterion maximum concentration" or "CMC" means an estimate of the highest concentration of a material in the water column to which an aquatic community can be exposed briefly without resulting in an unacceptable effect.

(26) "Daily average temperature" means the arithmetic mean of multiple temperature measurements to be taken at least once per hour during a twenty-four-hour day.

(27) "Degradation" means a lowering of the existing water quality in the surface waters of the state.

(28) "Depuration" means the loss of a substance from an organism as a result of any active or passive process.

(29) "Designated use" means a use of the surface waters of the state, established by the water quality standards, Chapter 3745-1 of the Administrative Code.

(30) "Director" means the director of the Ohio environmental protection agency.

(31) "Discharge" means the addition of any pollutant to the waters of the state from a point source.

(32) "E. coli" means a specific bacterial species included in the fecal coliform bacteria group, the presence of which in surface waters has been correlated with gastrointestinal illness in swimmers.

(33) "EC_{50}" means the median effective concentratio n and is a statistically or graphically estimated concentration that is expected to cause one or more specified effects in fifty per cent of a group of organisms under specified conditions.

(34) "Estuary" means the section of a lake Erie tributary near the mouth where tributary and lake Erie waters mix. This area is characterized by flow reversals and seiche influences and is generally located between the farthest downstream riffle of the tributary and lake Erie proper. All tributaries of estuaries shall be considered estuaries below the lake Erie mean high water level.

(35) "°F" means degree(s) Fahrenheit.

(36) "Fecal coliform" means the portion of the coliform group of bacteria which is present in the intestinal tract of warmblooded animals, and is evidence of the presence of human or animal wastes.

(37) "Final acute value" or "FAV" means:

(a) A calculated estimate of the concentration of a test material such that ninety-five per cent of the genera (with which acceptable acute toxicity tests have been conducted on the material) have higher GMAVS; or

(b) The SMAV of an important and/or critical species, if the SMAV is lower than the calculated estimate.

(38) "Final chronic value" or "FCV" means:

(a) A calculated estimate of the concentration of a test material such that ninety-five per cent of the genera (with which acceptable chronic toxicity tests have been conducted on the material) have higher GMCVS;

(b) The quotient of an FAV divided by an appropriate acute-chronic ratio; or

(c) The SMCV of an important and/or critical species, if the SMCV is lower than the calculated estimate or the quotient, whichever is applicable.

(39) "Final plant value" or "FPV" means the lowest plant value obtained with an important aquatic plant species in an acceptable toxicity test for which the concentrations of the test material were measured and the adverse effect was biologically important.

(40) "Food-chain multiplier" or "FCM" Means the ratio of a BAF to an appropriate BCF. A food-chain multiplier is meant to account for accumulation of a chemical up the food chain attributable to predation (i.e., between successive trophic levels).

(41) "Genus mean acute value" or "GMAV" means the geometric mean of the SMAVs for the genus.

(42) "Genus mean chronic value" or "GMCV" means the geometric mean of the SMCVS for the genus.

(43) "Geometric mean" means the Nth root of the product of N quantities.

(44) "Great Lakes system" means all the streams, rivers, lakes and other bodies of water within the drainage basin of the Great Lakes within the United States.

(45) "Human cancer criterion" or "HCC" is a human cancer value for a pollutant that meets the minimum data requirements for tier I as specified in rule 3745-1-38 of the Administrative Code.

(46) "Human cancer value" or "HCV" is the maximum ambient water concentration of a substance at which a lifetime of exposure from either: drinking the water, consuming fish from the water, and water-related recreation activities; or consuming fish from the water, and water-related recreation activities, will represent a plausible upper-bound risk of contracting cancer of one in one hundred thousand using the exposure assumptions specified in the methodologies for the development of human health criteria and values in rule 3745-1-38 of the Administrative Code.

(47) "Human noncancer criterion" or "HNC" is a human noncancer value for a pollutant that meets the minimum data requirements for tier I as specified in rule 3745-1-38 of the Administrative Code.

(48) "Human noncancer value" or "HNV" is the maximum ambient water concentration of a substance at which adverse noncancer effects are not likely to occur in the human population from lifetime exposure from either: drinking the water, consuming fish from the water, and water-related recreation activities; or consuming fish from the water and water-related recreation activities, using the methodologies for the development of human health criteria and values in rule 3745-1-38 of the Administrative Code.

(49) "Lake Erie drainage basin" means all the streams, rivers, lakes and other bodies of water within the drainage basin of lake Erie and within the United States.

(50) "LC_{50}" means the median lethal concentration and is a statistically or graphically estimated concentration that is expected to be lethal to fifty per cent of a group of organisms under specified conditions.

(51) "Linearized multistage model" means a conservative mathematical model for cancer risk assessment. This model fits linear dose-response curves to low doses. It is consistent with a no-threshold model of carcinogenesis, i.e., exposure to even a very small amount

of the substance is assumed to produce a finite increased risk of cancer.

(52) "Lowest observed adverse effect level" or "LOAEL" means the lowest tested dose or concentration of a substance which results in an observed adverse effect in exposed test organisms when all higher doses or concentrations result in the same or more severe effects.

(53) "Maximum daily temperature" means the highest temperature observed in a twenty-four-hour day.

(54) "Micrograms per liter (ug/l)" means the micrograms of substance per liter of solution, and is equivalent to 10^{-9} kilograms per liter or parts per billion, assuming unit density.

(55) "Milligrams per kilogram (mg/kg)" means the milligrams of substance per kilogram of weight.

(56) "Milligrams per liter (mg/l)" means the milligrams of substance per liter of solution, and is equivalent to 10^{-6} kilograms per liter or parts per million, assuming unit density.

(57) "Mine drainage" means surface or groundwater flowing through or from mines and mine sites. It is usually characterized by concentrations of acidity or alkalinity, various heavy metals, sulfates, and dissolved solids.

(58) "Mixing zone" means an area of a water body contiguous to a treated or untreated wastewater discharge. The discharge is in transit and progressively diluted from the source concentration to the receiving system concentration. The mixing zone is a place where wastewater and receiving water mix, not a place where wastes are treated.

(59) "Nanograms per liter (ng/l)" means the nanograms of substance per liter of solution, and is equivalent to 10^{-12} kilograms per liter or parts per trillion, assuming unit density.

(60) "Natural conditions" mean those conditions that are measured outside the influence of human activities.

(61) "No observed adverse effect level" or "NOAEL" means the highest tested dose or concentration of a substance which results in no observed adverse effect in exposed test organisms where higher doses or concentrations result in an adverse effect.

(62) "Nonpoint source" means any source of pollutants other than those defined as point sources.

(63) "Octanol-water partition coefficient" or "K_{ow}" means the ratio of the concentration of a substance in the N-octanol phase to its concentration in the aqueous phase in an equilibrated two-phase octanol-water system. For log K_{ow}, the log of the octanol-water

partition coefficient is a base ten logarithm.

(64) "Ohio river drainage basin" means all the streams, rivers, lakes and other bodies of water within the drainage basin of the Ohio river.

(65) "pH" means the negative logarithm of the hydrogen ion activity concentrations when expressed as moles per liter or pH = -log (H+).

(66) "Picograms per liter (pg/l)" means the picograms of substance per liter of solution, and is equivalent to 10^{-15} kilograms per liter or parts per quadrillion, assuming unit density.

(67) "Point source" means any discernible, confined or discrete conveyance from which a pollutant is or may be discharged to the surface waters of the state.

(68) "Pollutant" means sewage, industrial waste or other waste as defined by divisions (B) to (D) of section 6111.01 of the Revised Code.

(69) "Receiving waters" mean the surface waters of the state into which point and nonpoint sources flow.

(70) "Relative source contribution" or "RSC" means the factor (percentage) used in calculating a HNV or HNC to account for all sources of exposure to a contaminant. The RSC reflects the per cent of total exposure which can be attributed to surface water through water intake and fish consumption.

(71) "Representative aquatic species" mean those organisms, either natural or introduced, which presently exist or have existed in the surface waters of the state prior to July 1, 1977, with the exception of those banned species outlined in rule 1501:31-19-01 of the Administrative Code. In addition, it may include any species that are legally introduced into the surface waters of the state. Aquatic species designated as representative shall satisfy one or more of the following:

(a) Species which are particularly vulnerable to the existing or proposed environmental impact in question;

(b) Species which are commercially or recreationally valuable;

(c) Species which are threatened, rare, or endangered;

(d) Species which are critical to the structure and function of the aquatic community;

(e) Species whose presence is causally related to the existing or proposed environmental impact under examination;

(f) Species that are potentially capable of becoming localized nuisance species; or

(g) Species that are representative of the ecological, behavioral, and physiological requirements and characteristics of species determined in paragraphs (B)(71)(a) to(B)(71)(f) of this rule, but which themselves may not be representative.

(72) "Risk associated dose" or "RAD" means a dose of a known or presumed carcinogenic substance in (mg/kg)/day which, over a lifetime of exposure, is estimated to be associated with a plausible upper bound incremental cancer risk equal to one in one hundred thousand.

(73) "Slope factor" or "Q_1*" means the incremental rate of cancer development calculated through use of a linearized multistage model or other appropriate model. It is expressed in (mg/kg/day) of exposure to the chemical in question.

(74) "Species mean acute value" or "SMAV" means the geometric mean of the results of all acceptable flow-through acute toxicity tests (for which the concentrations of the test material were measured) with the most sensitive tested life stage of the species. For a species for which no such result is available for the most sensitive tested life stage, the SMAV is the geometric mean of the results of all acceptable acute toxicity tests with the most sensitive tested life stage.

(75) "Species mean chronic value" or "SMCV" means the geometric mean of the results of all acceptable life-cycle and partial life-cycle toxicity tests with the species; for a species of fish for which no such result is available, the SMCV is the geometric mean of all acceptable early life-stage tests.

(76) "Structure-activity relationship" or "SAR" means a mathematical relationship between a property (i.e., biological activity or response) of a chemical and a number of descriptors of the chemical. These descriptors are chemical or physical characteristics obtained experimentally or predicted from the structure of the chemical.

(77) "Surface waters of the state" or “water bodies" mean all streams, lakes, reservoirs, ponds, marshes, wetlands or other waterways which are situated wholly or partially within the boundaries of the state, except those private waters which do not combine or effect a junction with natural surface or underground waters. Waters defined as sewerage system, treatment works or disposal system in section 6111.01 of the Revised Code are not included.

(78) "Thermal mixing zone" means that portion of a water body into which waste heat is discharged and assimilated, and within which the average and maximum daily average temperatures do not apply, except as prescribed by this chapter.

(79) "Threatened or endangered species" mean those species of the state’s biota which are

threatened with statewide extirpation or national extinction, as listed in rule 1501:31-23-01 of the Administrative Code or 50 C.F.R. 17 or that are listed as endangered or threatened under section 4 of the Endangered Species Act, 16 U.S.C. 1531 et seq. (as amended).

(80) "Threshold effect" means an effect of a substance for which there is a theoretical or empirically established dose or concentration below which the effect does not occur.

(81) "Tier I criteria" mean numeric values derived by use of the tier I methodologies specified in rules 3745-1-36, 3745-1-38 and 3745-1-39 of the Administrative Code, that either have been adopted as numeric criteria into a water quality standard or are used to implement narrative water quality criteria.

(82) "Tier II values" mean numeric values derived by use of the tier II methodologies specified in rules 3745-1-36 and 3745-1-38 of the Administrative Code that are used to implement narrative water quality criteria.

(83) "Toxic substances" mean any substances which can cause death, disease, behavioral abnormalities, cancer, genetic mutations, physiological or reproductive malfunction or physical deformities in any organism or its offspring, or which can become poisonous after concentration in the food chain or in combination with other substances.

(84) "Tributary" means a stream flowing into a larger body of water.

(85) "Uncertainty factor" or "UF" means one of several numeric factors used in operationally deriving criteria from experimental data to account for the quality or quantity of the available data.

(86) "Uptake" means acquisition of a substance from the environment by an organism as a result of any active or passive process.

(87) "Use attainability analysis" means a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors.

(88) "Warmwater fish" means those species of fish that inhabit relatively warm water. These species include, but are not limited to, bass, crappies and sunfish (Centrarchidae), and catfish (Ictaluridae), and may include certain suckers (Catostomidae), minnows (Cyprinidae), and perch and darter (Percidae) species.

(89) "Water quality standards" means the rules set forth in Chapter 3745-1 of the Administrative Code establishing stream use designations and water quality criteria protective of such uses for the surface waters of the state.

(90) "Wetlands" means those areas that are inundated or saturated by surface or ground water at a frequency and duration that are sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. "Wetlands" includes swamps, marshes, bogs, and similar areas that are delineated in accordance with the 1987 United States army corps of engineers wetland delineation manual and any other procedures and requirements adopted by the United States army corps of engineers for delineating wetlands.

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3745-1-03 **Analytical methods and availability of documents.**

(A) Analytical methods.

(1) All methods of analysis used in applying any of the chemical-specific and bacteriological criteria in this chapter shall be in accordance with those prescribed in 40 C.F.R. 136, "Manual of Ohio EPA Laboratory Standard Operating Procedures, Volumes I, II and III," and "Standard Methods for the Examination of Water and Wastewater," as cited in paragraph (B) of this rule.

(2) All methods of sample collection and preservation used in applying any of the chemical-specific and bacteriological criteria in this chapter shall be in accordance with "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices" as cited in paragraph (B) of this rule.

(3) Methods for conducting whole-effluent toxicity tests shall be in accordance with those prescribed in 40 C.F.R. 136 and "Manual of Ohio EPA Laboratory Standard Operating Procedures, Volume IV," as cited in paragraph (B) of this rule.

(4) Mixing zones for thermal discharges will be determined in accordance with "Guidelines for the Submittal of Demonstrations Pursuant to Sections 316(a) and 316(b) of the Clean Water Act and Chapter 3745-1 of the Administrative Code," as cited in paragraph (B) of this rule.

(5) Methods, data collection and data analysis requirements for applying the biological criteria in rule 3745-1-07 of the Administrative Code shall be in accordance with "Biological Criteria for the Protection of Aquatic Life," and "Manual of Ohio EPA Laboratory Standard Operating Procedures, Volumes I, II, III and IV," as cited in paragraph (B) of this rule.

(B) Availability of documents. The following documents are cited in this chapter.

(1) Code of Federal Regulations (CFR) references. The Code of Federal Regulations can generally be found in public libraries, and can be view ed electronically online at http://www.gpoaccess.gov/cfr/index.html and purchased by writing to: "Superintendent of Documents. Attn: New Orders, PO Box 371954, Pittsburgh, PA 15250-7954." The regulations listed in this paragraph are those effective June 1, 2007.

(a) 40 C.F.R. 124.8, "Procedures for Decisionmaking, Subpart A - General Program Requirements - Fact Sheet."

(b) 40 C.F.R. 124.56, "Procedures for Decisionmaking, Subpart D - Specific Procedures Applicable to NPDES Permits - Fact Sheets."

(c) 40 C.F.R. 131, "Water Quality Standards."

(d) 40 C.F.R. 136, "Guidelines Establishing Test Procedures for the Analysis of Pollutants."

(e) 40 C.F.R. 230.10, "Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material - Restrictions on discharge."

(f) 40 C.F.R. 400 to 471, "Subchapter N - Effluent Guidelines and Standards."

(g) 50 C.F.R. 17, "Endangered and Threatened Wildlife and Plants."

(2) Federal statute references. These laws can generally be found in public libraries, and can be viewed electronically online at http://www.gpoaccess.gov/uscode/index.html and purchased by writing to: "Superintendent of Documents. Attn: New Orders, PO Box 371954, Pittsburgh, PA 15250-7954." The laws listed in this paragraph are those as amended through June 1, 2007.

(a) "Federal Water Pollution Control Act (commonly referred to as the Clean Water Act)," 33 U.S.C. 1251 et seq.

(b) "Endangered Species Act," 16 U.S.C. 1531 et seq.

(c) "Federal Insecticide, Fungicide and Rodenticide Act," 7 U.S.C. 136 et seq.

(d) "Safe Drinking Water Act," 42 U.S.C. 300f et seq.

(3) Other references. The availability of these documents is provided with each paragraph.

(a) "Biological Criteria for the Protection of Aquatic Life." These documents are available on the internet at http://www.epa.state.oh.us/dsw/bioassess/BioCriteriaProtAqLife.html.

(i) "Biological Criteria for the Protection of Aquatic Life: Volume I: The Role of Biological Data in Water Quality Assessment, Ohio EPA, Ecological Assessment Section, Division of Water Quality Planning & Assessment, July 24, 1987, updated February 15, 1988."

(ii) "Biological Criteria for the Protection of Aquatic Life: Volume II: Users Manual for Biological Field Assessment of Ohio Surface Waters, Ohio EPA, Ecological Assessment Section, Division of Water Quality Planning & Assessment, October 30, 1987, updated January 1, 1988, amended September 30, 1989, updated November 8, 2006."

(iii) "Biological Criteria for the Protection of Aquatic Life: Volume III: Standardized Biological Field Sampling and Laboratory Methods for Assessing Fish and Macroinvertebrate Communities, Ohio EPA, Ecological Assessment Section, Division of Water Quality Planning & Assessment, September 30, 1989, updated November 8, 2006."

(iv) "The Qualitative Habitat Evaluation Index [QHEI]: Rationale, Methods, and Application, Ohio EPA, Ecological Assessment Section, Division of Water Quality Planning & Assessment, November 6, 1989."

(v) Methods for Assessing Habitat in Flowing Waters: Using the Qualitative Habitat Evaluation Index (QHEI), Ohio EPA Technical Bulletin EAS/2006-06-1, Ohio EPA, Division of Surface Water, June 2006."

(b) "Corps of Engineers Wetlands Delineation Manual, U.S. Army Corps of Engineers, Wetlands Research Program Technical Report Y-87-1, January 1987." This document is available on the internet at http://www.lrh.usace.army.mil/permits/wetlands/.

(c) "Guidance for Water Quality-based Decisions and the TMDL Process, U.S. EPA Office of Water, EPA 440/4-91-001, April 1991." This document is available on the internet at http://www.epa.gov/waterscience/pc/watqual.html.

(d) "Guidelines for Carcinogen Risk Assessment, Risk Assessment Forum, U.S. Environmental Protection Agency, Washington, DC, EPA/630/P-03/001F, March 2005." This document is available on the internet at http://www.epa.gov/iris/backgr-d.htm.

(e) "Guidelines for the Submittal of Demonstrations Pursuant to Sections 316(a) and 316(b) of the Clean Water Act and Chapter 3745-1 of the Administrative Code, Ohio Environmental Protection Agency, Division of Industrial Wastewater, September 30, 1978." This document is available on the internet at http://www.epa.st ate.oh.us/dsw/guidance/guidance.html.

(f) "Manual of Ohio EPA Laboratory Standard Operating Procedures, Volumes I, II, III and IV, 2002." These documents are available from "Ohio EPA, Division of Environmental Services, 8995 East Main Street, Building #22, Reynoldsburg, Ohio 43068."

(g) "Manual of Ohio EPA Surveillance Methods and Quality Assurance Practices 2006, Ohio EPA, Division of Surface Water, Division of Environmental Services." This document is available on the internet at http://www.epa.state.oh.us/dsw /document_index/docindx.html.

(h) "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), Office of Science and Technology, Office of Water, U.S. Environmental Protection Agency, Washington, DC, EPA-822-B-00-004, October 2000." This document is available on the internet at http://www.epa.gov/waterscience/criteria/humanhealth/method/index.html.

(i) "Recommendations for and Documentation of Biological Values for Use in Risk Assessment (U.S. EPA, 1988), EPA/600/6-87/008." This document is available on the internet at http://www.epa.gov/iris/backgr-d.htm.

(j) "Registry of Toxic Effects of Chemical Substances (National Institute for Occupational Safety and Health, Cincinnati, Ohio, July 1997)." This document is available on the internet at http://0-www.cdc.gov.mill1.sjlibrary.org/niosh/97-119.html.

(k) "Standard Methods for the Examination of Water and Wastewater, 21st Edition, American Public Health Association, American Water Works Association and Water Environment Federation, 2005." This document is available on the internet at http://www.standardmethods.org/.

(l) "Standard Practice for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Molluscs. Standard E 1022. Molluscs. Designation E 1022 - 84. Pages 606-622. American Society for Testing and Materials, Philadelphia, PA. (1990)." This document is available on the internet at www.astm.org.

(m) "Water Quality Standards Handbook, U.S. EPA Office of Water, EPA-823-B-94-005, August 1994." This document is available on the internet at http://www.epa.gov/waterscience/standards/policy.htm.

(n) "The Wildlife Exposure Factors Handbook (U.S. EPA, 1993), EPA/600/R-93/187." This document is available on the internet at http://cfpub.epa.gov/ncea/cfm/recordisplay.cfm?deid=2799.

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3745-1-04 **Criteria applicable to all waters.**

The following general water quality criteria shall apply to all surface waters of the state including mixing zones. To every extent practical and possible as determined by the director, these waters shall be:

(A) Free from suspended solids or other substances that enter the waters as a result of human activity and that will settle to form putrescent or otherwise objectionable sludge deposits, or that will adversely affect aquatic life;

(B) Free from floating debris, oil, scum and other floating materials entering the waters as a result of human activity in amounts sufficient to be unsightly or cause degradation;

(C) Free from materials entering the waters as a result of human activity producing color, odor or other conditions in such a degree as to create a nuisance;

(D) Free from substances entering the waters as a result of human activity in concentrations that are toxic or harmful to human, animal or aquatic life and/or are rapidly lethal in the mixing zone;

(E) Free from nutrients entering the waters as a result of human activity in concentrations that create nuisance growths of aquatic weeds and algae;

(F) Free from public health nuisances associated with raw or poorly treated sewage. A public heath nuisance shall be deemed to exist when the conditions set forth in paragraph (F)(1) of this rule are demonstrated.

(1) An inspection conducted by, or under the supervision of, Ohio EPA or a sanitarian registered under Chapter 4736. of the Revised Code documents odor, color and/or other visual manifestations of raw or poorly treated sewage; and

(a) Water samples exceed five thousand fecal coliform counts per one hundred milliliters (either MPN or MF) in two or more samples when five or fewer samples are collected, or in more than twenty per cent of the samples when more than five samples are taken; or

(b) Water samples exceed five hundred seventy-six E. coli counts per one hundred milliliters in two or more samples when five or fewer samples are collected, or in more than twenty per cent of the samples when more than five samples are taken.

(2) Paragraph (F)(1) of this rule may be used by the appropriate authorities to document the existence of unsanitary conditions as described in section 6117.34 of the Revised Code, but does not preclude the use of other evidence of

unsanitary conditions for the purposes described in section 6117.34 of the Revised Code.

(G) For the purposes of applying paragraph (F) of this rule the collection of water samples shall adhere to the following specifications:

(1) The samples shall be collected when flow is representative of steady state dry weather conditions, i.e., base flow or delayed flow, and

(2) The samples shall be collected at least two hours apart, and

(3) The samples shall be collected over a time period not to exceed thirty days.

(H) Nothing in paragraph (F) or (G) of this rule shall limit or otherwise change the applicability of paragraphs (A) to (E) of this rule.

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3745-1-05 Antidegradation.

(A) Definitions.

(1) "Available pollutant assimilative capacity" means the water body pollutant assimilative capacity for a substance, as determined in paragraph (A)(28)(a) of this rule, minus the background pollutant load, or the quantity for a substance as calculated in paragraph (A)(28)(b) of this rule.

(2) "Background pollutant load" means the sum of all upstream pollutant loads of a regulated pollutant and has the same meaning as the background water quality as determined in accordance with paragraph (A)(3) of rule 3745-2-05 of the Administrative Code.

(3) "Best available demonstrated control technology" means a wastewater treatment capable of meeting the following effluent limitations or design criteria.

(a) For the discharge of sanitary wastewater from facilities using conventional treatment technologies, the effluent limitations in table 5-1 of this rule.

(b) For the discharge of sanitary wastewater from alternative treatment technologies such as lagoon systems, land application and controlled discharge systems, constructed wetland systems or combined sewer overflow control systems effluent limitations shall be developed on a case-by-case basis.

(c) For industrial direct discharges subject to federal effluent guidelines, the facility shall be designed to meet the most stringent of the new source performance standards, best conventional pollutant control technology, best available technology economically achievable and best practicable control technology currently available for the appropriate categorical guidelines of 40 C.F.R. 400 to 40 C.F.R. 471.

(d) For categorical industrial indirect dischargers, the facility shall be designed to meet categorical pretreatment standards for existing sources or categorical pretreatment standards for new sources as contained in Chapter 3745-3 of the Administrative Code.

(e) For non-categorical industrial direct or indirect discharges, effluent limitations will be developed based upon best engineering/professional judgment.

(f) For wastewater discharges resulting from clean-up of response action sites contaminated with volatile organic compounds, the facility shall include air-stripping, carbon columns, both, or equivalent treatment capable of achieving final thirty-day average effluent limits of five micrograms per liter or less for each individually regulated volatile organic compound.

(4) "Control document" means any authorization issued by a state or federal agency to any source of pollutants to waters under its jurisdiction that specifies conditions under which the source is allowed to operate.

(5) "Declining fish species" mean those species listed in table 5-2 of this rule. Declining fish species are native species that have declined in distribution across Ohio based on collection records since 1978 compared to historical distributions of fish species.

(6) "Designated uses" mean those uses assigned in Chapter 3745-1 of the Administrative Code for a water body or segment whether or not those uses are being attained. Specific designated uses are defined in rule 3745-1-07 of the Administrative Code.

(7) "Director" means the director of the Ohio environmental protection agency, or the director of the Ohio department of agriculture for projects or activities governed under Chapter 903. of the Revised Code.

(8) "Existing uses" mean those uses actually attained in the water body on or after November 28, 1975.

(9) "Existing source" means any treatment works or disposal system, and its associated treatment/production capacity that:

(a) Was built, operational and discharging prior to July 1, 1993; or

(b) Was authorized by a permit to install and/or national pollutant discharge elimination system permit issued after July 1, 1993.

An individual or a collection of several household sewage treatment systems does not constitute an existing source.

(10) "High quality waters" mean all surface waters of the state except limited quality waters. Pursuant to division (A)(2) of section 6111.12 of the Revised Code, four categories of high quality waters are hereby recognized and described in this paragraph. Categorizations of specific water bodies shall follow the procedures in paragraph (E) of this rule.

(a) "General high quality waters" are wetlands categorized as category 2 or 3 in accordance with rule 3745-1-54 of the Administrative Code and other surface waters that are not specifically categorized limited quality waters, superior high quality waters, outstanding state waters, or outstanding national resource waters.

(b) "Superior high quality waters" are surface waters that possess exceptional ecological values and that have been so categorized pursuant to paragraph (E) of this rule. Except as provided below, exceptional ecological values shall be

assessed based upon a combination of the presence of threatened or endangered species and a high level of biological integrity. The following factors shall be considered in determining exceptional ecological value: providing habitat for Ohio or federal endangered species; providing habitat for Ohio threatened species; harboring stable populations of a declining fish species that coincide with the presence of suitable habitat for that species, or that coincide with an essential migration path between areas of suitable habitat for that species; and displaying a level of biological integrity equivalent to the exceptional warmwater habitat index of biotic integrity and/or invertebrate community index criteria values listed in rule 3745-1-07 of the Administrative Code.

Water bodies that exhibit a pattern of biological integrity equivalent to index of biotic integrity and, where applicable, invertebrate community index scores of fifty-six or greater at most sites are characteristic of a near-pristine aquatic habitat. Such waters, as well as other ecologically unique water bodies that have essentially undisturbed native faunas, but for which the biological criteria in rule 3745-1-07 of the Administrative Code do not apply, may be considered as possessing exceptional ecological values without the presence of threatened or endangered species.

(c) "Outstanding state waters" are waters that have special significance for the state because of their exceptional ecological values and/or exceptional recreational values, and that have been so categorized pursuant to paragraph (E) of this rule. To qualify on the basis of exceptional ecological values they must meet the qualifications for superior high quality waters and be further distinguished as being demonstratively among the best waters of the state from an ecological perspective. To qualify on the basis of exceptional recreational values they must provide outstanding or unique opportunities for recreational boating, fishing or other personal enjoyment.

(d) "Outstanding national resource waters" are surface waters that have a national ecological or recreational significance, and that have been so categorized pursuant to paragraph (E) of this rule. National ecological significance may include providing habitat for populations of federal endangered or threatened species or displaying some unique combination of biological characteristics in addition to those factors listed in paragraph (A)(10)(b) of this rule. National recreational significance may include designation in the national wild and scenic river system.

(11) "Land application and controlled discharge system" means an innovative technology for the treatment of sewage that balances land application of treated wastewater with controlled discharges of wastewater under conditions that minimize stress on the aquatic environment. The system shall be designed to allow a discharge during winter months and required land application of the wastewater during summer months.

(12) "Limited quality waters" mean wetlands categorized as category 1 in accordance with rule 3745-1-54 of the Administrative Code and other surface waters of the state specifically designated in rules 3745-1-08 to 3745-1-30 of the Administrative Code as limited resource water, nuisance prevention, limited warmwater habitat, or modified warmwater habitat.

(13) "Mass discharge limit" means for an existing source:

(a) The average thirty-day mass limit specified in the national pollutant discharge elimination system permit; or

(b) The product of the average concentration limit specified in the permit and the permitted discharge flow, if no average mass limit is specified; or

(c) The product of an average concentration value derived from the maximum concentration limit specified in the permit using derivation methods established in the total maximum daily load procedures and the permitted discharge flow, if no average concentration or mass limit is specified.

(14) "Minimal degradation alternative" means an alternative, other than the applicant's preferred alternative, including pollution prevention alternatives, that would result in a lesser lowering of water quality.

(15) "Mitigative technique alternative" means an alternative, other than the applicant's preferred alternative, or other on-site or off-site control measures designed to offset all or part of the lowering of water quality, preferably within the same watershed.

(16) "Modification of a facility" means:

(a) The addition of new wastewater or sources of pollutants to an existing source, including the addition of new industrial users; and

(b) Any other physical change at the facility from which the discharge is generated that increases the capacity of that facility to discharge a pollutant or results in the discharge of a pollutant not previously discharged, excluding the following:

(i) Routine repair, maintenance and replacement of existing equipment;

(ii) Increases in hours or rates of operation and the use of alternative fuels or raw materials that can be implemented without any physical changes to the facility; and

(iii) Physical changes designed to restore previously existing production or treatment capacity.

An expansion of the wastewater treatment system is not considered a modification of the facility.

(17) "Net increase" means:

(a) For a new source, any level of a regulated pollutant discharged to waters of the state as a result of the activity subject to this rule;

(b) For an existing source:

(i) The amount by which the sum of the following exceeds zero:

(a) The increase in the mass discharge limit attributable to the activity subject to this rule; and

(b) All other contemporaneous increases or decreases attributable to other pollutant source(s) affecting the surface water segment(s) under consideration and which are stipulated as a condition of the applicant's permit and which shall occur during the term of the applicant's permit; or

(ii) For heat, bacteria and any other regulated pollutant which, though not measurable as a mass level is nonetheless susceptible to determinations of net increase, the amount by which the sum of the following exceeds zero:

(a) The increase in an authorized discharge level attributable to the activity subject to this rule; and

(b) All other contemporaneous increases or decreases attributable to other pollutant source(s) affecting the surface water segment(s) under consideration and which are stipulated as a condition of the applicant's permit and which shall occur during the term of the applicant's permit.

(18) "New source" means any treatment works or disposal system other than an existing source, excluding new domestic sewage sources and industrial users tributary to a publicly owned treatment works. A new treatment works built to serve a home or homes with individual systems is considered a new source.

(19) "Non-degradation alternative" means an alternative, other than the applicant's preferred alternative, including pollution prevention alternatives, that would result in the elimination of the need to lower water quality.

(20) "Permit modification" means an application filed by the permit holder pursuant to

paragraph (D) of rule 3745-33-04 of the Administrative Code.

(21) "Permitted discharge flow" means the discharge flow specified in the national pollutant discharge elimination system permit, or permit to install application if not specified in a national pollutant discharge elimination system permit, and shall be representative of the typical wastewater flow to be discharged by a facility when the wastewater facility is operating at full capacity, and considering, where applicable, discharge flows during wet weather events.

(22) "Pollution prevention alternative" means the use of source reduction techniques in order to reduce risk to public health, safety, welfare and the environment and, as a second preference, the use of environmentally sound recycling to achieve these same goals. Pollution prevention avoids cross-media transfers of waste and/or pollutants and is multi-media in scope; it addresses all types of waste and environmental releases to the air, water and land.

(23) "Regulated pollutant" means any parameter for which water quality criteria have been adopted in, or developed pursuant to, Chapter 3745-1 of the Administrative Code with the exception of biological criteria, and any other parameter that may be limited in a national pollutant discharge elimination system permit as a result of new source performance standards, best conventional pollutant control technology, best available technology economically achievable or best practicable control technology currently available for the appropriate categorical guidelines of 40 C.F.R. 400 to 40 C.F.R. 471. For the purposes of this rule, pH and dissolved oxygen are not considered "regulated pollutants".

(24) "Remaining available pollutant assimilative capacity" means the available pollutant assimilative capacity for a substance minus the load already allocated to existing national pollutant discharge elimination system permits for dischargers in the water body segment receiving the allocation. This term is not used in the application of antidegradation for lake Erie.

(25) "State resource water " is a designation of high quality waters that is being replaced by the categories of high quality waters described in paragraph (A)(10) of this rule. All water body segments currently designated state resource waters in rules 3745-1-08 to 3745-1-30 of the Administrative Code are categorized in this rule as general high quality waters, unless they are specifically listed in tables 5-4 to 5-7 of this rule. Waters designated state resource waters in rules 3745-1-08 to 3745-1-30 of the Administrative Code are subject to the considerations of paragraph (C)(5)(d) of this rule.

(26) "Threatened species" mean those species listed in table 5-3 of this rule. A threatened species is an indigenous species whose survival in Ohio is not in immediate jeopardy, but to which a threat exists. Continued or increased stress will result in its becoming endangered.

(27) "Total maximum daily load procedures" mean the procedures for calculating wasteload allocations adopted in Chapter 3745-2 of the Administrative Code.

(28) "Water body pollutant assimilative capacity" means the total maximum allowable load of a substance for a specific water body segment and is calculated as:

(a) For a stream, the water quality criteria for a substance multiplied by the total applicable flow at the end of the segment being studied. The applicable flow is determined using the total maximum daily load procedures; and

(b) For a lake, a value equal to the permitted discharge flow times Y, where Y equals eleven times the water quality criteria for a substance minus ten times the background concentration for the substance.

Water body pollutant assimilative capacity for a lake can also be determined by any alternative method which the director determines to be appropriate and consistent with the total maximum daily load procedures.

(B) Applicability; responsibilities of the applicant.

Except as provided in paragraphs (B)(2), (D) and (F) of this rule, projects or activities covered under paragraph (B)(1) of this rule shall be subject to an antidegradation review described in paragraph (C) of this rule.

(1) This rule shall apply to the following.

(a) For existing sources, any re-issuance or modification of a national pollutant discharge elimination system permit that, if approved, would result in:

(i) Any net increase of a regulated pollutant;

(ii) If the national pollutant discharge elimination system permit specifies no limit for the pollutant, then the imposition of any effluent limit as a result of a modification of the facility; or

(iii) Approval of combined sewer overflow long term control plans and incorporation of the appropriate conditions into an NPDES permit. Long term control plans shall address planned sewer connections/development tributary to the collection system.

(b) For new sources, any permit to install or national pollutant discharge elimination system permit application that, if approved, would result in a net increase in the discharge of any regulated pollutant. For these sources, if a national pollutant

discharge elimination system permit application is submitted and approved under the provisions of this rule, a subsequent permit to install application proposing the selected alternative will not be subject to review under this rule.

(c) Any section 401 water quality certification application pursuant to Chapter 3745-32 of the Administrative Code.

(d) Any nonpoint source of pollution that results in a net increase in the release of any regulated pollutant, provided the director has separate authority to regulate the activity.

(e) Unless authorized by a section 404 permit and section 401 water quality certification or a state isolated wetland permit, any permit to install application reviewed pursuant to Chapter 6111. of the Revised Code that would authorize the placement of fill or the construction of any portion of a sewerage system in or near surface waters of the state, if the director determines that aquatic habitat alterations caused by the activity and associated construction disturbances would result in the loss of an existing or designated use as defined in this chapter.

(f) The transfer of all or a portion of the wastewater discharged by a treatment works to a different receiving water body, or to a different treatment works discharging to a different water body, unless the transfer is to a treatment works with capacity to accept the transferred wastewater within the terms of its existing national pollutant discharge elimination system permit. If a discharge is relocated on the same receiving water body within two miles of the original discharge then there is considered to be no net increase in the discharge.

(g) The issuance by the director of environmental protection, in accordance with Chapter 3745-38 of the Administrative Code, or by the director of agriculture, in accordance with Chapter 901:10-4 of the Administrative Code, of a general national pollutant discharge elimination system permit that would result in a net increase.

(h) Any state isolated wetland permit application submitted under section 6111.024 of the Revised Code.

(2) The activities, permits, applications, certifications or other circumstances described in this paragraph are exempt from all provisions of this rule.

(a) Any existing source discharging to waters of the state prior to July 1, 1993, or modifications of a facility made after July 1, 1993, that is not discharging under the terms of a national pollutant discharge elimination system permit. Only the portion of the flow that the existing source was capable of discharging as of July 1, 1993 shall not be subject to the rule provisions.

(b) Any existing source where the net increase is simply the result of allowing a previously authorized or documented production/treatment capacity to be achieved.

(c) Any permit to install application for a sanitary sewer line extension or a new or expanding industrial user upstream of combined sewer overflows in a community operating a combined sewer system if:

(i) The application conforms to the conditions related to an approved long term development/planning documents associated with combined sewer overflow control measures incorporated into a national pollutant discharge elimination system permit as referenced in paragraph (B)(1)(a)(iii) of this rule; or

(ii) It can be documented that subsequent overflows from the combined sewer system will only occur in situations where the wet weather flows within the sanitary sewers exceed six times the average dry weather flows within the sanitary sewers; or

(iii) It can be documented that the combined sewers are and will continue to be operating at less than the original design dry weather capacity; or

(iv) There is an approved and ongoing flow/pollutant offset or infiltration/inflow reduction program for the collection system.

(d) Any notice of intent filed with the director of environmental protection requesting coverage under a general national pollutant discharge elimination system permit issued in accordance with Chapter 3745-38 of the Administrative Code or notice of intent filed with the director of agriculture requesting coverage under a general national pollutant discharge elimination system permit issued in accordance with Chapter 901:10-4 of the Administrative Code.

(e) Any discharge that, as the result of the addition of heat associated with the process or wastewater treatment system, increases the ambient temperature of the receiving water body by less than 1/F or is otherwise covered by the provisions of a section 316(a) variance.

(f) The initial inclusion of whole effluent toxicity limitations in any national pollutant discharge elimination system permit or other control document, if there has been no change in discharge since July 1, 1993.

(g) The addition or expansion of an industrial user to a publicly owned treatment works (POTW) collection system that does not trigger a permit limit for the POTW. Local limits shall be established for the POTW pretreatment program, or

equivalent, utilizing a ten per cent safety factor when performing the evaluation related to effluent limitations to protect water quality standards.

(h) The addition of domestic sewage sources to the POTW within the design capacity of the POTW.

(3) Except as provided in paragraphs (B)(2), (D) and (F) of this rule, the applicant covered by paragraph (B)(1) of this rule must submit documentation of the following.

(a) Identification of the substances to be discharged, including the amount of regulated pollutants to be discharged in terms of mass and concentration, and, if paragraph (B)(1)(c) of this rule applies, the amount of dredged and fill material to be discharged.

(b) A description of any construction work, fill or other structures to occur or be placed in or near the stream bed.

(c) A description and schematic of the applicant's preferred alternative for design and operation, including appropriate cost estimates, of the activity.

(d) Description and analyses, including availability, cost effectiveness and technical feasibility, of the utilization of central or regional treatment facilities rather than creating a new point source discharge. This analysis shall include an evaluation of long-range plans outlined in state or local water quality management planning documents and applicable facility planning documents.

(e) Descriptions, schematics and analyses of non-degradation alternatives, minimal degradation alternatives and mitigative technique alternatives for the design and operation, including appropriate cost estimates, of the activity that the applicant has considered.

(f) An estimate of the important social, economic and environmental benefits to be realized through the project or activity if the water quality is lowered, including, as appropriate, the number and types of jobs created and the tax revenues generated.

(g) An estimate of important social, economic and environmental benefits to be lost if water quality is lowered, such as lost or lowered recreational opportunities.

(h) To the extent that such information is known to those in the local community or is otherwise public, a listing and description of all government or privately sponsored conservation projects that have specifically targeted improved water quality and/or enhanced recreational opportunities on the water body(ies) affected by the activity.

(C) Antidegradation review requirements.

(1) Protection of water body uses.

Existing uses, which are determined using the use designations defined in rule 3745-1-07 of the Administrative Code, and the level of water quality necessary to protect existing uses, shall be maintained and protected. There may be no degradation of water quality that results in either a violation of the applicable water quality criteria for the designated uses, unless authorized by a water quality standard variance issued in accordance with rule 3745-33-07 of the Administrative Code, or the elimination or substantial impairment of existing uses. The director shall, pursuant to paragraph (A)(6) of rule 3745-1-07 of the Administrative Code, prohibit increased concentrations of specific regulated pollutants that are incompatible with the attainment or restoration of the designated use. Existing wetland uses, as defined in rule 3745-1-53 of the Administrative Code, shall be maintained and protected in accordance with rules 3745-1-50 to 3745-1-54 of the Administrative Code.

(2) Required treatment technology, nonpoint source controls.

Except as provided in paragraph (D)(2) of this rule, any net increase in the discharge of a specific regulated pollutant resulting from a modification or new source shall, as a minimum, be controlled through best available demonstrated control technology relative to the specific regulated pollutant. More stringent treatment may be required pursuant to paragraph (C)(8) of this rule, or if needed to meet water quality standards. Feasible management or regulatory programs pursuant to sections 208, 303 and 319 of the Act, 33 U.S.C. Sections 1288 (effective February 4, 1987), 1313 (effective October 10, 2000) and 1329 (effective February 4, 1987), shall be applied to nonpoint sources.

(3) Public involvement.

Except as provided in paragraphs (B)(2) and (D) of this rule, the director shall provide for public participation and intergovernmental coordination prior to taking action on all activities covered by paragraph (B)(1) of this rule using the provisions of this paragraph.

(a) In accordance with Chapter 3745-47 of the Administrative Code, the director shall publish a public notice within thirty days regarding receipt of any permit application, section 401 water quality certification application or state isolated wetland permit application covered by paragraph (B)(1) of this rule. The purpose of such notice shall be to allow for inspection and review of the application, to indicate that the project is subject to the provisions of this rule and whether any of the exclusions or waivers described in paragraph (D) of this rule apply, to instruct people to contact the director within thirty days if they want to be on the interested parties mailing list for that application, and, on general high quality waters and limited quality waters, to determine whether there is interest in having a public

hearing.

Notices shall be sent by first class mail to all persons on the mailing list created pursuant to paragraph (C)(3)(d) of this rule.

(b) The director shall develop an informational fact sheet for each permit or activity for which a public notice is issued in accordance with paragraph (C)(3)(a) of this rule, excluding section 401 water quality certification and state isolated wetland permit activities, within thirty days of receipt of the application. The purpose of such fact sheet shall be to: provide information to potentially affected parties; provide a description of the project; outline the review process and schedule; specify where the application/permits can be viewed; identify the waterbody(ies) potentially affected; instruct individuals how to request to be on the interested parties mailing list; provide an opportunity to request a public hearing pursuant to paragraph (C)(3)(f) of this rule; and advertise the date, time and location of a public hearing if one is scheduled pursuant to paragraph (C)(3)(e) of this rule. These fact sheets shall be sent by first class mail, or alternative means as requested, to all persons on the mailing list created pursuant to paragraph (C)(3)(d) of this rule.

(c) All notices of public hearings required by paragraphs (C)(3)(e) and (C)(3)(f) of this rule shall be published once in a newspaper having general circulation in the county where the source, activity or facility is located. The notice shall be published at least forty-five days before the hearing. Notices of hearings shall also be sent by first class mail, or by alternative means as requested, to all persons on the mailing list created pursuant to paragraph (C)(3)(d) of this rule.

(d) The director shall develop and maintain a list of persons and organizations who have expressed an interest in or may, by the nature of their purposes, activities or members, be affected by or have an interest in antidegradation reviews. These persons and organizations may request that all fact sheets or public hearing public notices identified by this rule be forwarded to them by means other than first class mail (e.g., by electronic transmission).

(e) Within ninety days of receipt of the application, the director shall hold a public hearing for any permit application, section 401 water quality certification application or state isolated wetland permit application covered by paragraph (B)(1) of this rule whenever a water body categorized outstanding national resource water, outstanding state water, superior high quality water or category 3 wetland is affected. This public hearing shall be for the purpose of evaluating issues related to lower water quality and shall be prior to and separate from a public hearing on the proposed or draft action on the application.

(f) For general high quality waters other than category 3 wetlands and for limited

quality waters, the director shall hold a public hearing for any permit to install application, national pollutant discharge elimination system permit application, section 401 water quality certification application or state isolated wetland permit application covered by paragraph (B)(1) of this rule whenever the director determines there is significant public interest. A public hearing shall be held for the issuance of any draft general national pollutant discharge elimination system permit.

The director shall hold public hearings relative to issues of lower water quality as a concurrent hearing at the time of the draft or proposed action. However, if the application is not covered by paragraph (D) of this rule, the director may choose to hold a public hearing preceding the draft or proposed action if, at the director's discretion, the project is considered to be controversial or complex. For section 401 water quality certification applications and state isolated wetland permit applications, the public hearing shall precede any action of the director.

(g) A public notice of the director's proposed or draft action regarding the activity and its potential to lower water quality shall be published following the procedures in Chapter 3745-47 of the Administrative Code. The director shall provide notification by first class mail, or alternative means as requested, to all interested parties identified through the procedures in paragraph (C)(3) of this rule. Additional procedures are described in paragraph (C)(8) of this rule.

(h) The director shall notify the Ohio department of natural resources, the United States fish and wildlife service, the United States environmental protection agency and any affected local areawide planning agencies of all proposed activities that may lower water quality. In addition, for activities covered under paragraph (B)(1)(a), (B)(1)(b) or (B)(1)(f) of this rule, the director shall notify the Ohio department of development and any affected local governmental units. The director or the other agencies may initiate additional intergovernmental coordination.

(4) Outstanding national resource waters.

The director shall impose the following requirements on all activities covered by paragraph (B)(1) of this rule that discharge to outstanding national resource waters, or that discharge upstream of outstanding national resource waters.

(a) Present ambient water quality in outstanding national resource waters shall not be degraded for any substance.

(b) The director may re-issue permits for any source discharging to an outstanding national resource water if the source had a national pollutant discharge elimination system permit at the time the water body was categorized an outstanding national

resource water as described in paragraph (E) of this rule, provided there is no increase in the permitted discharge concentrations or loads.

(c) New sources may not discharge directly to outstanding national resource waters, and may not discharge at points located upstream from outstanding national resource waters unless it can be demonstrated by the applicant that the chemical and biological quality of the outstanding national resource water will not be adversely affected.

(d) Notwithstanding the provisions stated in paragraphs (C)(4)(a) and (C)(4)(e) of this rule, activities that result in short-term changes in water quality in outstanding national resource waters may be allowed if the director determines there will be no long-term detrimental impact. Activities resulting in short-term impacts on outstanding national resource waters will be subject to a review of non-degradation alternatives, minimal degradation alternatives, mitigative technique alternatives, economic and social benefits, public participation and intergovernmental coordination.

(e) Notwithstanding the provisions stated in paragraphs (C)(4)(a) and (C)(4)(d) of this rule discharges of dredged and fill material to outstanding national resource waters that are wetlands, and are owned and managed solely for natural area preservation, public recreation, education or scientific purposes, may be authorized provided the discharges and associated activities result in only a short-term disturbance to water quality and will not adversely affect the ecological quality of the wetland or other surface waters. Authorized discharges and associated activities include boardwalk construction, repair and maintenance of dikes and other hydrological controls, and removal of non-native and invasive plant species. For these discharges and associated activities the director may waive the need for the review outlined in paragraph (C)(4)(d) of this rule.

(5) Other waters.

For waters other than outstanding national resource waters and limited quality waters, the director shall impose the following requirements on all activities covered by paragraph (B)(1) of this rule, except that for section 401 water quality certifications and state isolated wetland permits pursuant to section 6111.024 of the Revised Code for high quality waters that are wetlands, the director shall impose the requirements specified in rules 3745-1-50 to 3745-1-54 of the Administrative Code in lieu of paragraphs (C)(5) and (C)(8) of this rule. In addition, the director may apply the items in paragraphs (C)(5)(a) to (C)(5)(f) and (C)(5)(k) to (C)(5)(m) of this rule, may consider cumulative impacts as defined in paragraph (I) of rule 3745-1-50 of the Administrative Code, and shall consider whether the wetland is scarce regionally or statewide and the feasibility of replacing that wetland type, in making a decision whether to allow the lowering of water quality.

The director may approve activities that lower water quality only if there has been an examination of non-degradation, minimal degradation and mitigative technique alternatives, a review of the social and economic issues related to the activity, a public participation process and appropriate intergovernmental coordination, and the director determines that the lower water quality is necessary to accommodate important social or economic development in the area in which the water body is located.

The director may require the applicant to implement a non-degradation alternative, a minimal degradation alternative or a mitigative technique alternative to offset all or part of the proposed lowering of water quality, if the director determines that the alternative is technically feasible and economically justifiable. Any lowering of water quality shall not exceed the limitations specified in paragraph (C)(6) of this rule.

When making determinations regarding proposed activities that lower water quality the director shall consider the following:

(a) The magnitude of the proposed lowering of water quality;

(b) The anticipated impact of the proposed lowering of water quality on aquatic life and wildlife, including threatened and endangered species, important commercial or recreational sport fish species, other individual species and the overall aquatic community structure and function;

(c) The anticipated impact of the proposed lowering of water quality on human health and the overall quality and value of the water resource;

(d) The degree to which water quality may be lowered in waters located within national, state or local parks, preserves or wildlife areas, waters listed as state resource waters in rules 3745-1-08 to 3745-1-30 of the Administrative Code, or waters categorized outstanding national resource waters, outstanding state waters or superior high quality waters;

(e) The effects of lower water quality on the economic value of the water body for recreation, tourism and other commercial activities, aesthetics, or other use and enjoyment by humans;

(f) The extent to which the resources or characteristics adversely impacted by the lowered water quality are unique or rare within the locality or state;

(g) The cost of the water pollution controls associated with the proposed activity;

(h) The cost effectiveness and technical feasibility of the non-degradation alternatives, minimal degradation alternatives or mitigative technique alternatives and the effluent reduction benefits and water quality benefits associated with such

alternatives;

(i) The availability, cost effectiveness, and technical feasibility of central or regional sewage collection and treatment facilities, including long-range plans outlined in state or local water quality management planning documents and applicable facility planning documents;

(j) The availability, reliability and cost effectiveness of any non-degradation alternative, minimal degradation alternative or mitigative technique alternative;

(k) The reliability of the preferred alternative including, but not limited to, the possibility of recurring operational and maintenance difficulties that would lead to increased degradation;

(l) The condition of the local economy, the number and types of new direct and indirect jobs to be created, state and local tax revenue to be generated, and other economic and social factors as the director deems appropriate; and

(m) Any other information regarding the proposed activities and the affected water body that the director deems appropriate.

(6) Set asides to limit lower water quality.

In addition to the other provisions of paragraph (C) of this rule, the director shall not allow water quality to be lowered by more than as specified in this paragraph when acting on applications or activities covered by paragraph (B)(1) of this rule.

(a) For outstanding state waters, the director shall reserve seventy per cent of the remaining available pollutant assimilative capacity for all regulated pollutants for which water quality criteria have been adopted in or developed pursuant to Chapter 3745-1 of the Administrative Code. The reserved portion shall not be allocated to any source unless the provisions of paragraph (C)(7) of this rule are applied. The requirements of this paragraph shall not apply to any water body categorized as outstanding state water solely because of its exceptional recreational value.

(b) For lake Erie, new and existing sources shall be limited to the water body pollutant assimilative capacity as defined in paragraph (A)(28)(b) of this rule.

(c) For superior high quality waters, other than lake Erie and those waters covered by paragraph (C)(6)(e) of this rule, the director shall reserve thirty-five per cent of the remaining available pollutant assimilative capacity for all regulated pollutants for which water quality criteria have been established in Chapter 3745-1 of the Administrative Code. The reserved portion shall not be allocated to any source unless the provisions of paragraph (C)(7) of this rule are applied. The director may

reserve a higher percentage of the remaining available pollutant assimilative capacity if there is scientific evidence that strongly suggests that resident or representative species are more sensitive to a pollutant or class of pollutants and may be inadequately protected using the applicable water quality criteria and the standard set aside provision. The higher set aside shall be established for specific pollutant(s) or classes of pollutants through rule making pursuant to paragraph (E) of this rule.

(d) For general high quality waters and limited quality waters, water quality may not be lower than the applicable water quality criteria for the water body, unless authorized by a water quality standard variance issued in accordance with appropriate rules.

(e) For outstanding state waters so categorized because of exceptional recreational value the director shall:

(i) Evaluate, or cause the applicant to evaluate, the impact of the project on bacteriological contamination for any project covered under paragraph (B)(1) of this rule. No permit shall be granted if the director finds that the project or discharge will result in a significant long term increase in the frequency and duration of bacteriological pollution.

(ii) Review all permit actions, covered under paragraph (B)(1) of this rule, to minimize the introduction of pollutants or floating debris and materials which may affect the aesthetic quality of the receiving waters.

(7) Credit projects.

An applicant for a project covered under paragraph (B)(1) of this rule may request that the director approve a credit project in lieu of the set asides described in paragraphs (C)(6)(a) and (C)(6)(c) of this rule. In order for a credit project to be considered for approval, the proposal must:

(a) Occur in the same water body where the proposed lowering of water quality is to take place; and

(b) Not necessarily offset the proposed pollutant load being pursued, but address an existing or potential threat to the water body. This may include providing for water body enhancement or restoration activities.

If the director determines to approve a credit project in lieu of the set asides described in paragraphs (C)(6)(a) and (C)(6)(c), he may include, at his discretion, an alternative lower set aside to accompany the credit project. A lower set aside must be established through rule making and incorporated into tables established in paragraph (E) of this

rule.

(8) Procedures.

(a) The director shall assess each proposed activity covered by paragraph (B)(1) or (F) of this rule on a case-by-case basis. For each proposed activity, the director shall weigh the information acquired relative to the proposal, that submitted by the applicant or otherwise obtained by the director, and all comments presented during the public review period, including intergovernmental comments, and make a determination to:

(i) Allow the applicant's preferred alternative with appropriate conditions, if applicable, and the lower water quality as proposed because it has been determined that a discharge or the activity is necessary;

(ii) Deny the applicant's preferred alternative as proposed; or

(iii) Require a cost beneficial, technically feasible and/or available non-degradation, minimal degradation or mitigative technique alternative that would result in no or a lesser lowering of water quality.

(b) Any action of the director issuing a permit to install or a national pollutant discharge elimination system permit covered under paragraph (B)(1) or (F) of this rule shall be preceded by a draft action and shall be issued in accordance with Chapter 3745-47 of the Administrative Code.

(c) Any action of the director denying a permit to install or a national pollutant discharge elimination system permit covered under paragraph (B)(1) or (F) of this rule shall be preceded by a proposed action and shall be issued in accordance with Chapter 3745-47 of the Administrative Code.

(d) Any action of the director on a section 401 water quality certification covered under paragraph (B)(1) or (F) of this rule shall be taken in accordance with Chapters 3745-32 and 3745-47 of the Administrative Code.

(e) Any action of the director on a state isolated wetland permit application submitted pursuant to section 6111.024 of the Revised Code and covered under paragraph (B)(1) or (F) of this rule shall be taken in accordance with Chapter 3745-47 of the Administrative Code.

(D) Exclusions and waivers.

The exclusions and waivers described in paragraphs (D)(1)(a), (D)(1)(b), (D)(1)(d), (D)(1)(e) and (D)(3) of this rule do not apply to bioaccumulative chemicals of concern within the lake

Erie basin.

(1) The following situations are excluded from the submittal and review requirements listed in paragraphs (B)(3)(e) to (B)(3)(h) and (C)(5) of this rule. In determining the applicability of any of the following exclusions, the evaluation shall not only consider potential effects or impacts to the receiving waters, but also to any subsequent waters potentially affected by the discharge or activity.

(a) Any source discharging to limited quality waters.

(b) Any de minimis net increase determined using the following criteria. For the discharge of primarily sanitary wastewaters, only ammonia-nitrogen will be evaluated to determine the applicability of the appropriate exclusion.

(i) For general high quality waters, any net increase in the discharge of a regulated pollutant that is less than ten per cent of the wasteload allocation to maintain water quality standards calculated using total maximum daily load procedures, provided the proposed lowering of water quality does not exceed eighty per cent of the wasteload allocation to maintain water quality standards calculated using total maximum daily load procedures.

(ii) For superior high quality waters, other than lake Erie, and outstanding state waters any net increase in the discharge of a regulated pollutant that results in less than a five per cent change in the ambient water quality concentration of the receiving water as projected to occur using total maximum daily load procedures, provided the proposed lowering of water quality does not exceed the portion of the remaining available assimilative capacity specified by the director pursuant to paragraphs (C)(6)(a) or (C)(6)(c) and (E) of this rule.

(iii) For lake Erie any net increase in the discharge of a regulated pollutant that is less than ten per cent of the water body pollutant assimilative capacity.

(c) Combined sewer overflow elimination or reduction projects affecting one or more water bodies where there will be a net decrease in the overall pollutant loadings discharged to surface waters of the state. Treatment byproducts of combined sewer overflow discharges (e.g., chlorine for disinfection) shall be excluded from review.

(d) Any disposal system built and operated exclusively for the treatment of contaminated groundwater at response action clean-up sites.

(e) Any disposal system built and operated as a land application and controlled discharge system as defined in paragraph (A)(11) of this rule.

(f) Any net increase in the discharge of a regulated pollutant resulting from a change in fuel used by the discharger, provided the discharger was capable of accommodating the new fuel on the effective date of this rule.

(g) Any imposition of mercury effluent limitations in an NPDES permit for an existing source where the mercury limitations are based on a variance pursuant to paragraph (D)(10) of rule 3745-33-07 of the Administrative Code.

(h) Any discharge of the following regulated pollutants within the range indicated:

(i) Total suspended solids at or below sixty-five mg/l; or

(ii) Oil and grease at or below ten mg/l.

(i) Any discharge that, as the result of the addition of heat associated with the process or wastewater treatment system, increases the ambient temperature of the receiving stream greater than or equal to 1/F, as calculated using total maximum daily load procedures, up to that allowed through water quality standards.

(j) Any general permit developed by the director in accordance with the provisions of Chapter 3745-38 of the Administrative Code.

(2) The director may waive the requirement to install best available demonstrated control technology for new sources discharging sanitary wastewater if:

(a) The modification, new source or national pollutant discharge elimination system application is for a project designed exclusively to restore, maintain or ensure design capacity and associated pollutant discharge levels already authorized in an effective national pollutant discharge elimination system permit; or

(b) The modification, new source or national pollutant discharge elimination system application is the direct and sole result of a proposed transfer of pollutant loading from an existing direct discharge of pollution to waters of the state, and the director has determined that the transfer will result in overall environmental improvement. The director's determination on this matter shall be based upon the antidegradation review process specified in paragraph (C) of this rule, unless otherwise excluded from such review pursuant to paragraph (D) of this rule.

(3) The director may waive the submittal and review requirements listed in paragraphs (B)(3)(f) to (B)(3)(h) and (C)(5) of this rule if it is determined that:

(a) The proposed net increase in the discharge of a regulated pollutant does not result in an increase in the ambient water quality concentration of the receiving water after mixing as projected to occur under the total maximum daily load procedures;

(b) Any proposed net increase in the discharge of nutrients (such as, but not limited to, phosphorus and nitrogen) or toxic substances complies with all applicable water quality standards and will not threaten environmentally sensitive areas such as downstream lakes, reservoirs, wetlands, exceptional warmwater habitats, coldwater habitats, outstanding national resource waters, outstanding state waters, or superior high quality waters; and

(c) The requirements of paragraphs (B)(3)(d) and (B)(3)(e) of this rule have been met and the director determines that none of the non-degradation alternatives, minimal degradation alternatives or mitigative technique alternatives for the design and operation of the activity are technically feasible and economically justifiable.

(4) Nothing in this rule shall prohibit the director from approving activities that lower water quality on a temporary basis whenever the director determines that an emergency exists requiring immediate action to protect public health and welfare. The director shall issue any such approval in accordance with division (C) of section 6111.06 of the Revised Code and rule 3745-47-29 of the Administrative Code.

(5) The director may waive the submittal and review requirements listed in paragraphs (B)(3)(f) to (B)(3)(h) and (C)(5) of this rule if the applicant is seeking a revised water quality based effluent limit based upon the results of either a site specific study of the water quality criteria or a change in the water quality criteria found in Chapter 3745-1 of the Administrative Code and the applicant demonstrates that the facility has not complied with the existing water quality based permit limit. The following conditions must be met for this waiver to apply:

(a) Any proposed net increase in the discharge of regulated pollutants complies with all applicable water quality standards and will not threaten environmentally sensitive areas such as downstream lakes, reservoirs, wetlands, exceptional warmwater habitats, coldwater habitats, outstanding national resource waters, outstanding state waters, or superior high quality waters; and

(b) The requirements of paragraphs (B)(3)(d) and (B)(3)(e) of this rule have been met and the director determines that none of the non-degradation alternatives, minimal degradation alternatives or mitigative technique alternatives for the design and operation of the activity are technically feasible and economically justifiable.

(E) Categorization of waters.

(1) All surface waters are categorized as general high quality waters except as follows.

(a) Lake Erie is categorized as a superior high quality water.

(b) All surface waters of the state meeting the definition of limited quality waters are so categorized, unless the water body is the source of drinking water for a public water supply, in which case it shall be considered a general high quality water for the purposes of this rule.

(c) The water bodies listed in table 5-4 of this rule are categorized superior high quality waters. The reserved set aside percentage established pursuant to paragraph (C)(6)(c) of this rule is thirty-five per cent unless indicated otherwise in table 5-4 of this rule.

(d) The water bodies listed in table 5-5 of this rule are categorized outstanding state waters due to exceptional ecological values. The reserved set aside percentage established pursuant to paragraph (C)(6)(a) of this rule is seventy per cent of the remaining available pollutant assimilative capacity.

(e) The water bodies listed in table 5-6 of this rule are categorized outstanding state waters due to exceptional recreational values. The provisions of paragraph (C)(6)(e) of this rule apply.

(f) The water bodies listed in table 5-7 of this rule are categorized outstanding national resource waters.

(2) At least once every three years, the director, in consultation with the director of the department of natural resources, shall consider available information on water bodies in Ohio and determine appropriate high quality water categorizations. Each determination shall consider attributes of exceptional recreational or ecological value, the national significance of the water body, and other existing and planned uses of the water body. If the director identifies any waters not properly categorized, he shall public notice his intent to categorize them to the appropriate category upon consideration of public comment. The director shall categorize outstanding national resource waters, outstanding state waters and superior high quality waters in tables 5-4 to 5-7 of this rule.

(3) A person adversely affected by the high quality water categorization of a water body pursuant to paragraph (E)(1) or (E)(2) of this rule may petition the director to revise that categorization. Any such petition shall detail the basis for the petition and contain, at a minimum, new relevant and factual information, or relevant and factual information not previously available to the director at the time of the categorization described in paragraph (E)(1) or (E)(2) of this rule. The petition must contain sufficient information, or such additional information as the director may request, to justify a decision by the director to either revise or retain the categorization under paragraph (E)(1) or (E)(2) of this rule. Within three months of receiving a petition containing complete and adequate information, or within such longer time as the director and the petitioner may agree, the director shall either approve or propose to deny the petition in accordance with Chapter 119. of the Revised Code. The director shall subsequently make appropriate revisions

to the high quality water categorization of the water body in tables 5-4 to 5-7 of this rule, as appropriate, in accordance with Chapter 119. of the Revised Code.

(4) A person adversely affected by the set aside percentage established pursuant to paragraph (C)(6)(a) or (C)(6)(c) of this rule may petition the director to revise that set aside percentage. Any such petition shall detail the basis for the petition and contain, at a minimum, new relevant and factual information, or relevant and factual information not previously available to the director. The petition must contain sufficient information, or such additional information as the director may request, to justify a decision by the director to either retain the set aside percentage or establish site specific set asides for one or more pollutants. Within three months of receiving a petition containing complete and adequate information, or within such longer time as the director and the petitioner may agree, the director shall either approve or propose to deny the petition in accordance with Chapter 119. of the Revised Code. The director shall subsequently make appropriate revision to the high quality water categorization of the water body in tables 5-4 to 5-7 of this rule, as appropriate, in accordance with Chapter 119. of the Revised Code.

(F) Special provisions for bioaccumulative chemicals of concern in the lake Erie drainage basin.

The following special provisions are applicable to the discharge or release to the environment of any bioaccumulative chemical of concern in the lake Erie drainage basin. Unless otherwise noted, these requirements shall apply in addition to the provisions found in paragraphs (A) to (E) of this rule.

(1) In lieu of the requirements of paragraph (B)(1) of this rule, any significant lowering of water quality as described in paragraph (F)(2) of this rule shall require the applicant to submit the information required by paragraph (B)(3) of this rule and to complete the demonstration required by paragraph (F)(3) of this rule. The director shall establish conditions in the control document that meet the requirements of paragraph (F)(4) of this rule.

(2) Significant lowering of water quality.

(a) A significant lowering of water quality occurs when there is a new or increased loading of any bioaccumulative chemical of concern from any regulated existing or new facility, either point source or nonpoint source for which there is a control document or reviewable action, as a result of any activity including, but not limited to:

(i) Construction of a new regulated facility or modification of an existing regulated facility such that a new or modified control document is required;

(ii) Modification of an existing regulated facility operating under a current

control document such that the production capacity of the facility is increased;

(iii) Addition of a new source of untreated or pretreated effluent containing or expected to contain any bioaccumulative chemical of concern to an existing wastewater treatment works, whether public or private;

(iv) A request for an increased limit in an applicable control document; and

(v) Other deliberate activities that, based on the information available, could be reasonably expected to result in an increased loading of any bioaccumulative chemical of concern to any waters of the Great Lakes system.

(b) Notwithstanding the above, changes in loadings of any bioaccumulative chemical of concern within the existing capacity and processes that are covered by the existing applicable control document, are not subject to an antidegradation review. These changes include, but are not limited to:

(i) Normal operational variability including, but not limited to, intermittent increased loadings related to wet weather conditions;

(ii) Changes in intake water pollutants;

(iii) Increasing the production hours of the facility, (e.g., adding a second shift), provided production hours do not exceed those described in, or used to derive, the existing control document;

(iv) Increasing the rate of production, provided production rates do not exceed those described in, or used to derive, the existing control document;

(v) Discharges of quantities of a bioaccumulative chemical of concern in the intake water at a facility proposing a new or increased discharge, provided that the new or increased discharge is not expected to result in a net increase in the total load of the bioaccumulative chemical of concern in the receiving water body;

(vi) Increasing the sewered area, connection of new sewers and customers, or acceptance of trucked-in wastes such as septage and holding tank wastes by a POTW unless, for a bioaccumulative chemical of concern, there is increased loading due to the collection of wastewater from a significant industrial user and, based on the industry's raw materials and processes, the wastewater is expected to have quantifiable concentrations of the bioaccumulative chemical of concern significantly above levels typically

associated with domestic wastewater and non-industrial stormwater;

(vii) Increased discharge of a bioaccumulative chemical of concern due to implementation of controls on wet weather-related flows, including, but not limited to, combined sewer overflows and industrial stormwater; and

(viii) Increased discharges of a bioaccumulative chemical of concern resulting from a change in fuel used by the discharger, provided that the discharger was capable of accommodating the new fuel on the effective date of this rule.

(c) Also excluded from an antidegradation review are new effluent limits based on improved monitoring data or new water quality criteria or values that are not a result of changes in pollutant loading.

(d) Also excluded from the antidegradation submittal and review requirements listed in paragraphs (B)(3)(c) to (B)(3)(h) and (C)(5) of this rule is any imposition of mercury effluent limitations in an NPDES permit for an existing source, where the mercury effluent limitations are based on a variance pursuant to paragraph (D)(10) of rule 3745-33-07 of the Administrative Code.

(3) Antidegradation demonstration.

Any entity seeking to significantly lower water quality for a bioaccumulative chemical of concern, as defined in paragraph (F)(2) of this rule, in a limited quality water or high quality water must, in addition to the requirement in paragraph (B)(3) of this rule, submit an antidegradation demonstration for consideration by the director pursuant to the review requirements of this paragraph and paragraph (C) of this rule. The antidegradation demonstration shall include the following:

(a) Pollution prevention alternatives analysis. Identify any cost-effective pollution prevention alternatives and techniques that are available to the entity, that would eliminate or significantly reduce the loadings of bioaccumulative chemical(s) of concern; and

(b) Alternative or enhanced treatment analysis. Identify alternative or enhanced treatment techniques that are available to the entity that would eliminate the lowering of water quality and their costs relative to the cost of treatment necessary to achieve applicable effluent limitations.

(4) For limited quality waters and high quality waters, the director shall ensure that no action resulting in a lowering of water quality occurs unless an antidegradation demonstration has been completed pursuant to paragraphs (B)(3) and (F)(3) of this rule and the information thus provided is determined by the director pursuant paragraph (C) of this

rule to adequately support the lowering of water quality.

(a) The director shall establish conditions in the control document applicable to the regulated facility that prohibit the regulated facility from undertaking any deliberate action, such that there would be an increase in the rate of mass loading of any bioaccumulative chemical of concern, unless an antidegradation demonstration is provided to the director and approved pursuant to paragraph (C) of this rule prior to commencement of the action. Imposition of limits due to improved monitoring data or new water quality criteria or values, or changes in loadings of any bioaccumulative chemical of concern within the existing capacity and processes that are covered by the existing applicable control document, are not subject to an antidegradation review.

(b) For bioaccumulative chemicals of concern known or believed to be present in a discharge, from a point or nonpoint source, a monitoring requirement shall be included in the control document. The control document shall also include a provision requiring the source to notify the director of any increased loadings that would be subject to the provisions of the paragraph (F)(2) of this rule and which have not received approval from the director under the conditions specified in this rule. Upon notification, the director shall require actions as necessary to reduce or eliminate the increased loading if the increase is subject to the provisions of the paragraph (F)(2) of this rule. Requirements to reduce or eliminate the increased loading imposed by the director pursuant to this paragraph shall apply unless or until the director approves the increased loadings under the provisions specified in this rule.

(c) Fact sheets prepared pursuant to 40 C.F.R. 124.8 and 124.56 shall reflect any conditions developed under paragraph (F) of this rule and included in a permit.

Table 5-1. Best available demonstrated control technology for new sources discharging sanitary wastewater.

Parameter	Thirty-day Limit	Daily or Seven-day Limit	Maximum/ Minimum Limit
$CBOD_5$	10 mg/l	15 mg/l	n/a
Total suspended solids	12 mg/l	18 mg/l	n/a
Ammonia			
(Summer)	1.0 mg/l	1.5 mg/l	n/a
(Winter)	3.0 mg/l	4.5 mg/l	
Dissolved oxygen	n/a	n/a	6.0 mg/l (minimum)
Total residual chlorine	n/a	n/a	0.038 mg/l (maximum)
E. coli*	126 / 100 ml	235 / 100 ml	n/a
* E. coli is to be considered a design standard only. Effluent limitations will not be incorporated into permits.			

Table 5-2. Declining fish species.

Common name	Latin name	Comment
Bigeye chub	Notropis amblops	
Bigeye shiner	Notropis boops	
Blacknose shiner	Notropis heterolepis	
Bluebreast darter	Etheostoma camurum	
Brindled madtom	Noturus miurus	
Brook trout	Salvelinus fontinalis	Natives only
Creek chubsucker	Erimyzon oblongus	
Eastern sand darter	Ammocrypta pellucida	
Goldeye	Hiodon alosoides	
Hornyhead chub	Nocomis biguttatus	

Lake chubsucker	Erimyzon sucetta	
Least brook lamprey	Lampetra aepyptera	
Least darter	Etheostoma microperca	
Mimic shiner	Notropis volucellus	
Mooneye	Hiodon tergisus	Lake Erie drainage basin
Mountain madtom	Noturus eleutherus	
Muskellunge	Esox masquinongy	Natives only
North brook lamprey	Ichthyomyzon fossor	
Northern madtom	Noturus stigmosus	
Popeye shiner	Notropis ariommus	
Pugnose minnow	Opsopoeodus emiliae	
Redside dace	Clinostomus elongatus	
River chub	Nocomis micropogon	
River darter	Percina schumardi	Lake Erie drainage basin
Rosyface shiner	Notropis rubellus	
Silver lamprey	Ichthyomyzon unicuspis	
South redbelly dace	Phoxinus erythrogaster	
Streamline chub	Erimystax dissimilis	
Tonguetied minnow	Exoglossum laurae	
Variegate darter	Etheostoma variatum	
Western banded killifish	Fundulus diaphanus menona	

Table 5-3. Threatened species.

Common name	Latin name	Comment
Fish		
Bigmouth shiner	Notropis dorsalis	
Bluebreast darter	Etheostoma camurum	
Lake chubsucker	Erimyzon sucetta	
Paddlefish	Polyodon spathula	
River darter	Percina shumardi	
Rosyside dace	Clinostomus funduloides	
Silver lamprey	Ichthyomyzon unicuspis	
Tippecanoe darter	Etheostoma tippencanoe	
Mollusks		
Black sandshell	Liqumia recta	
Ebonyshell	Fusconaia ebena	
Fawnsfoot	Truncilla donaciformis	
Pondhorn	Uniomerus tetralasmus	
Snuffbox	Epioblasma triquetra	
Threehorn wartyback	Obliquaria reflexa	
Other		
Sloan's crayfish	Orconectes sloanii	

Table 5-4. Superior high quality waters.

Water body name	Flows into	Drainage basin
Alum creek - headwaters to West branch (RM 42.8)	Big Walnut creek	Scioto
Anderson fork - Grog run (RM 11.02) to the mouth	Caesar creek	Little Miami
Archers fork	Little Muskingum river	Central Ohio tributaries
Arney run - Black run (RM 2.2) to the mouth	Clear creek	Hocking
Ashtabula river - confluence of East and West fork (RM 27.54) to adjacent East 23rd street (RM 2.00)	Lake Erie	Ashtabula
Auglaize river - Kelly road (RM 77.32) to Jennings creek (RM 47.02)	Maumee	Maumee
Baughman creek	Grand river	Grand
Beech fork	Salt creek	Scioto
Bend fork - Joy fork (RM 4.0) to the mouth	Captina creek	Central Ohio tributaries
Big run	Federal creek	Hocking
Big Walnut creek - Rocky fork (RM 28.3) to the mouth	Scioto river	Scioto
Blue creek	Churn creek	Scioto
Brill run	Marietta run	Hocking
Buskirk creek	Deer creek	Scioto
Caesar creek - Caesar Creek lake (RM 13.92) to the mouth	Little Miami river	Little Miami
Cedar fork	Clear Fork Mohican river	Muskingum
Cedar Lick creek	Cross creek	Central Ohio tributaries

Center fork	Elkhorn creek	Central Ohio tributaries
Chapman creek	Mad river	Great Miami
Clear creek	Rocky fork	Scioto
Clear creek - Cattail creek (RM 9.52) to the mouth	Hocking river	Hocking
Compton creek	North Fork Paint creek	Scioto
Congo creek	Scippo creek	Scioto
Deer creek - Bradford/Sugar creek confluence (RM 41.22) to Deer creek reservoir (RM 29.40)	Scioto river	Scioto
Dismal creek	Witten Fork	Central Ohio tributaries
East Branch Jelloway creek	Jelloway creek	Muskingum
East Fork Little Miami river - East Fork lake (RM 20.5) to the mouth	Little Miami river	Little Miami
East Fork Little Miami river - Howard run (RM 45.18) to Tunnel Mill road (RM 30.1)	Little Miami river	Little Miami
East Fork Queer creek	Queer creek	Scioto
Elkhorn creek	Yellow creek	Central Ohio tributaries
Federal creek - Hyde fork (RM 16.21) to the mouth	Hocking river	Hocking
Fish Creek - headwaters to the Indiana state line (RM 29.37)	St. Joseph river	Maumee
Furnace run	Cuyahoga river	Cuyahoga
Goose run - downstream Winnerline road (RM 3.00) to the mouth	Bantas fork	Great Miami
Grace run	Cherry fork	Southwest Ohio tributaries

Great Miami river - Quincy dam (RM 143.4) to Pasco-Montra road (RM 134.8)	Ohio river	Great Miami
Great Miami river - Sidney water works dam (RM 130.2) to Loramie creek RM (119.9)	Ohio river	Great Miami
Great Miami river - Lost creek (RM 100.0) to the CSX railroad bridge (RM 84.5)	Ohio river	Great Miami
Hay run	Deer creek	Scioto
Hellbranch run - Kropp road RM (5.04) to the mouth	Big Darby creek	Scioto
Honey creek	Great Miami river	Great Miami
Huron river - East/West branch confluence (RM 14.7) to the Ohio turnpike (RM 9.1)	Lake Erie	Huron
Indianfield run	Kokosing river	Muskingum
Jelloway creek	Kokosing river	Muskingum
Joes run	Big run	Hocking
Laurel run	Salt creek	Scioto
Leith run	Ohio river	Central Ohio tributaries
Little Darby creek	Big Darby creek	Scioto
Little Muskingum river - Witten fork (RM 46.44) to Fifteen Mile creek (RM 14.75)	Ohio river	Central Ohio tributaries
Lower Twin creek	Ohio river	Southwest Ohio tributaries
Lost creek	Great Miami river	Great Miami
Long run	Rocky fork	Muskingum
Lost run	Rocky fork	Muskingum
Mac-o-chee creek	Mad river	Great Miami

Mad river - headwaters to Mac-o-chee creek (RM 51.75)	Great Miami river	Great Miami
Marietta run	Federal creek	Hocking
Massie creek	Little Miami river	Little Miami
McCullough creek	Scioto Brush creek	Scioto
McKee creek	Stony creek	Great Miami
Middle Fork Laurel run	Laurel run	Scioto
Middle Fork Salt creek	Salt creek	Scioto
Mill creek	South Fork Scioto Brush creek	Scioto
Mohican river - Rocky fork (RM 27.60) to an unnamed tributary (RM 16.10)	Walhonding river	Muskingum
Morgan fork	Sunfish creek	Scioto
Muskingum river - confluence of Tuscarawas and Walhonding rivers (RM 111.13) to state route 208 (RM 92.0)	Ohio river	Muskingum
Muskingum river - Licking river (RM 76.20) to Moxahala creek (RM 73.50)	Ohio river	Muskingum
Muskingum river - Salt creek (RM 67.03) to Branch run (RM 52.58)	Ohio river	Muskingum
Muskingum river - McConnelsville dam (RM 49.0) to Madison run (RM 34.4)	Ohio river	Muskingum
Muskingum river - Beverly dam (RM 24.9) to Cushing run (RM 18.77)	Ohio river	Muskingum

Muskingum river - Lowell dam (RM 14.1) to Rainbow creek (RM 7.7)	Ohio river	Muskingum
Muskingum river - Devola dam (RM 5.77) to the mouth	Ohio river	Muskingum
Nancy run	North Fork Yellow creek	Central Ohio tributaries
Nellis run	Big run	Hocking
North Fork Captina creek - Long run (RM 4.0) to the mouth	Captina creek	Central Ohio tributaries
North Fork Yellow creek	Yellow creek	Cuyahoga
Ohio Brush creek - headwaters to Beasley Fork road (RM 6.30)	Ohio river	Southwest Ohio tributaries
Opossum creek	Ohio river	Central Ohio tributaries
Painter run	Rocky fork	Muskingum
Pine creek	Salt creek	Scioto
Pine creek - Hales creek (RM 38.15) to the mouth	Ohio river	Southeast Ohio tributaries
Piney fork	Sunfish creek	Central Ohio tributaries
Pretty run	Salt creek	Scioto
Proctor run	Treacle creek	Scioto
Queer creek	Salt creek	Scioto
Randall run	Mill creek	Scioto
Rarden creek	Scioto Brush creek	Scioto
Rocky fork - U.S. route 62 (RM 5.1) to the mouth	Big Walnut creek	Scioto
Rocky fork - headwaters to Rocky fork lake (RM 16.88)	Paint creek	Scioto
Schenck creek	Kokosing river	Muskingum

Scioto Brush creek - headwaters to McCullough creek (RM 10.2)	Scioto river	Scioto
Scioto river - Indian run (RM 145.18) to Olentangy river (RM 132.33)	Ohio river	Scioto
Scioto river - Scioto Big run (RM 124.40) to Scippo creek (RM 89.61)	Ohio river	Scioto
Scioto river - Paint creek (RM 63.50) to Salt creek (RM 51.18)	Ohio river	Scioto
Scioto river - Scioto Brush creek (RM 9.2) to the mouth	Ohio river	Scioto
Scippo creek - Old Tarlton pike (RM 14.80) to the mouth	Scioto river	Scioto
Sevenmile creek	Fourmile creek	Great Miami
South Fork Captina creek	Captina creek	Central Ohio tributaries
South Fork Eagle creek	Eagle creek	Mahoning
South Fork Scioto Brush creek - Shawnee creek (RM 8.3) to the mouth	Scioto Brush creek	Scioto
Spain creek	Big Darby creek	Scioto
Spring fork	Little Darby creek	Scioto
Spring run	Federal creek	Hocking
Stillwater river - Englewood dam (RM 9.0) to the mouth	Great Miami river	Great Miami
Strawcamp run	Elkhorn creek	Central Ohio tributaries
Sunfish creek - headwaters to Negro run (RM 1.7)	Ohio river	Central Ohio tributaries
Trail run	Center fork	Central Ohio tributaries
Turkey creek	Ohio river	Southwest Ohio tributaries

Turkey run	Sugartree fork	Muskingum
Unnamed tributary to East Branch Black river at RM 41.41	East Branch Black river	Black
Upper Twin creek	Ohio river	Southwest Ohio tributaries
West Branch Alum creek - Ashley West Liberty road (RM 5.09) to the mouth	Alum creek	Scioto
West Branch Huron river - Slate run (RM 10.52) to the mouth	Huron river	Huron
West Branch St. Joseph river - Michigan state line (RM 11.41) to the mouth	St. Joseph river	Maumee
West fork - Buck run (RM 9.0) to the mouth	Ohio Brush creek	Southwest Ohio tributaries
Whitewater river - Indiana state line (RM 8.26) to the mouth	Great Miami river	Great Miami
Wildcat run	Big run	Hocking
Winding fork	Wakatomika creek	Muskingum
Winterstein run	South Fork Scioto Brush creek	Scioto
Witten fork	Little Muskingum river	Central Ohio tributaries
Witten run	Clear Fork Little Muskingum river	Central Ohio tributaries
Yellow creek	Cuyahoga river	Cuyahoga
Yellow Springs creek	Little Miami river	Little Miami

Table 5-5. Outstanding state waters based on exceptional ecological values.

Water body name	Flows into	Drainage basin
Aurora branch - state route 82 (RM 17.08) to the mouth	Chagrin river	Chagrin
Bantas fork	Twin creek	Great Miami
Big Darby creek	Scioto river	Scioto
Captina creek - North/South forks (RM 25.42) to state route 7 (RM 0.70)	Ohio river	Central Ohio tributaries
Chagrin river - Woodiebrook road (RM 49.14) to state route 6 (RM 11.1)	Lake Erie	Chagrin
Conneaut creek - state line (RM 23.83) to the mouth	Lake Erie	Ashtabula
Cuyahoga river - Troy-Burton township line (RM 83.9) to U.S. route 14 (RM 60.75)	Lake Erie	Cuyahoga
Deer creek - Deer creek dam (RM 23.89) to the mouth	Scioto river	Scioto
East Branch Chagrin river - Heath road (RM 14.49) to the mouth	Chagrin river	Chagrin
Fish creek - Indiana state line (RM 5.57) to the mouth	St. Joseph river	Maumee
Grand river - state route 322 (RM 67.08) to U.S. route 20 (RM 5.67)	Lake Erie	Grand
Greenville creek - Indiana state line (RM 34.48) to the mouth	Stillwater river	Great Miami
Kokosing river	Walhonding river	Muskingum
Little Beaver creek	Ohio river	Little Beaver creek

Little Darby creek	Big Darby creek	Scioto
Little Miami river	Ohio river	Little Miami
Middle Fork Little Beaver creek - Middle run (RM 8.57) to the mouth	Little Beaver creek	Little Beaver creek
North Branch Kokosing river	Kokosing river	Muskingum
North Fork Little Beaver creek - Pennsylvania state line (RM 7.75) to the mouth	Little Beaver creek	Little Beaver creek
North Fork Little Miami river	Little Miami river	Little Miami
North Fork Paint creek - Compton creek (RM 24.57) to the mouth	Paint creek	Scioto
Olentangy river - Delaware dam (RM 32.35) to Old Wilson Bridge road (RM 11.45)	Scioto river	Scioto
Paint creek - Rocky fork (RM 37.12) to North fork (RM 3.80)	Scioto river	Scioto
Pleasant run	Big Darby creek	Scioto
Rocky fork	Licking river	Muskingum
Salt creek	Scioto river	Scioto
Sandusky river - U.S. route 30 (RM 82.1) to Roger Young Memorial park in Fremont (RM 16.6)	Lake Erie	Sandusky
Scioto Brush Creek - McCullough creek (RM 10.20) to the mouth	Scioto river	Scioto
South Fork Scioto Brush creek - Shawnee creek (RM 8.30) to the mouth	Scioto Brush creek	Scioto

Stillwater river - Riffle road (RM 55.90) to the Englewood dam (RM 9.01)	Great Miami river	Great Miami
Twin creek	Great Miami river	Great Miami
Unnamed tributary to East Branch Black river at RM 39.06	East Branch Black river	Black
Vermilion river - Southwest branch (RM 47.66) to state route 2 (RM 3.15)	Lake Erie	Vermilion
Wakatomika creek	Muskingum river	Muskingum
Walhonding river	Tuscarawas river	Muskingum
West Fork Little Beaver creek - Brush creek (RM 15.99) to the mouth	Little Beaver creek	Little Beaver creek

Table 5-6. Outstanding state waters based on exceptional recreational values.

Water body name	Flows into	Drainage basin
Cuyahoga river - Sand run (RM 39.12) to Rockside road (RM 13.13)	Lake Erie	Cuyahoga
Maumee river - Indiana state line (RM 108.1) to the U.S. route 25 bridge (RM 15.05)	Maumee bay	Maumee

Table 5-7. Outstanding national resource waters.

Water body name	Flows into	Drainage basin

Effective: 7/01/2003

R.C. Section 119.032 review dates: 3/25/2002 and 7/01/2008

Promulgated under: R.C. Section 119.03
Rule authorized by: R.C. Section 6111.041
Rule amplifies: R.C. Section 6111.041
Prior effective dates: 2/14/1978, 4/4/1985, 10/1/1996, 10/31/1997, 5/1/1998, 4/17/2001 (Emer.)

3745-1-06 **Mixing zones.**

(A) Non-thermal

(1) Pursuant to Chapter 3745-2 of the Administrative Code, where necessary to attain or maintain the use designated for a surface water by these water quality standards, the director may establish, as a term of a discharge permit issued pursuant to Chapter 3745-33 of the Administrative Code or a permit to install issued pursuant to Chapter 3745-31 of the Administrative Code, a mixing zone applicable to the non-thermal constituents of the point source discharge authorized by such permit.

(2) For lakes and reservoirs (except lake Erie) defined as state resource waters by rule 3745-1-05 of the Administrative Code, no mixing zone shall be permitted.

(B) Thermal

(1) Pursuant to Chapter 3745-2 of the Administrative Code, the director may establish, as a term of a discharge permit issued pursuant to Chapter 3745-33 of the Administrative Code or a permit to install issued pursuant to Chapter 3745-31 of the Administrative Code, a mixing zone applicable to the thermal component of the point source discharge authorized by such permit.

(2) For all watercourses classified as coldwater habitat or exceptional warmwater habitat in rules 3745-1-08 to 3745-1-32 of the Administrative Code, thermal mixing zones will not be permitted.

(3) For lakes and reservoirs (except lake Erie), classified as state resource waters in rule 3745-1-05 of the Administrative Code, no thermal mixing zone shall be permitted.

Effective: 10/31/1997

R.C. 119.032 review dates: 03/29/2007 and 03/29/2012

Promulgated Under: R.C. 119.03
Statutory Authority: R.C. 6111.041
Rule Amplifies: R.C. 6111.041
Prior Effective Dates: 2/14/1978, 4/4/1985, 5/1/1990

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 "Biologi cal 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 w ildlife, excluding waters in lake run stocking programs, lake or reservoir stocking programs, experimental or trial stocking programs, and put and take programs on waters without, or without the potential restoration of, natural coldwater attributes of temperature and

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

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

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

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

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

(iii) Other specified conditions.

(2) Nuisance prevention

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

(3) Water supply

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

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

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

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

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

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

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

(4) Recreation

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

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

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

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

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

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

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

Table 7-1. Statewide water quality criteria for the protection of aquatic life.
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Chemical	Form[1]	Units[2]	IMZM[3]	OMZM[3]	OMZA[3]
Pentachlorophenol [9]					
pH (WWH, MWH)	--	s.u.	--	--	6.5-9.0
pH (EWH, CWH)	--	s.u.	--	--	e
pH (SSH[4])	--	s.u.	--	--	a
pH (LRW)	--	s.u.	--	--	6.5-9.0[f]
Selenium	D[6]	µg/l	--	--	4.6
Selenium	TR[7]	µg/l	--	--	5.0
Temperature (WWH, MWH)	--	°F(°C)	--	Table 7-14	Table 7-14
Temperature (EWH, CWH)	--	°F(°C)	--	gg	
Temperature (SSH[4])	--	°F(°C)	--	aa	
Temperature (LRW)	--	°F(°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; °F = degrees fahrenheit; °C = degrees celsius.
3 IMZM = inside mixing zone maximum; OMZM = outside mixing zone maximum; OMZA = outside mixing zone average.
4 This aquatic life habitat use designation is in effect only during the months of October to May.
5 For dissolved oxygen, OMZM means outside mixing zone minimum and OMZA means outside mixing zone minimum twenty-four-hour average.
6 These criteria are implemented by multiplying them by a translator approved by the director pursuant to rule 3745-2-04 of the Administrative Code.
7 These criteria apply in the absence of a translator approved by the director pursuant to rule 3745-2-04 of the Administrative Code.
8 These criteria are water hardness dependent. See table 7-9 of this rule.
9 These criteria are water pH dependent. See table 7-10 of this rule.
a This criterion is the same as that for the aquatic life use designation in effect June to September. See footnote 4.
b No chlorine is to be discharged.
c The dissolved oxygen minimum at any time criterion for modified warmwater habitats in the Huron/Erie lake plain ecoregion, as identified in rules 3745-1-08 to 3745-1-30 of the Administrative Code, is 2.5 mg/l.
d Equivalent 25°C specific conductance value is 2400 micromhos/cm.
e pH is to be 6.5-9.0, with no change within that range attributable to human-induced conditions.
f Acid mine drainage streams over sandstone geotype are exempt from the pH criterion.
g At no time shall the water temperature exceed the temperature which would occur if there were no temperature change attributable to human activities.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Table 7-9. Statewide water quality criteria for the protection of aquatic life for water hardness dependent criteria.
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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]	Tμ	g/l	$e^{(1.005\ [pH] - 4.176)}$	11	29	48	130
OMZM[3]	Tμ	g/l	$e^{(1.005\ [pH] - 4.869)}$	5.3	14	24	65
OMZA[3]	Tμ	g/l	$e^{(1.005\ [pH] - 5.134)}$	4.0	11	18	50

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

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

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

[1] T = total.
[2] mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion).
[3] IMZM = inside mixing zone maximum; OMZM = outside mixing zone maximum.
[a] This criterion is based on the protection against organoleptic (taste and/or odor) effects.
[b] Surface waters shall be free from floating oils and shall at no time produce a visible sheen or color film. Levels of oils or petrochemicals in the sediment or on the banks of a watercourse which cause deleterious effects to the biota will not be permitted.
[c] Total phosphorus as P shall be limited to the extent necessary to prevent nuisance growths of algae, weeds, and slimes that result in a violation of the water quality criteria set forth in paragraph (E) of rule 3745-1-04 of the Administrative Code or, for public water supplies, that result in taste or odor problems. In areas where such nuisance growths exist, phosphorus discharges from point sources determined significant by the director shall not exceed a daily average of one milligram per liter as total P, or such stricter requirements as may be imposed by the director in accordance with the international joint commission (United States-Canada agreement).

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

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

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

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

Bathing waters

Fecal coliform - geometric mean fecal coliform content (either MPN or MF), based on not less than five samples within a thirty-day period, shall not exceed 200 per 100 ml and fecal coliform content (either MPN or MF) shall not exceed 400 per 100 ml in more than ten per cent of the samples taken during any thirty-day period.

E. coli - geometric mean E. coli content (either MPN or MF), based on not less than five samples within a thirty-day period, shall not exceed 126 per 100 ml and E. coli content (either MPN or MF) shall not exceed 235 per 100 ml in more than ten per cent of the samples taken during any thirty-day period.

Primary contact

Fecal coliform - geometric mean fecal coliform content (either MPN or MF), based on not less than five samples within a thirty-day period, shall not exceed 1,000 per 100 ml and fecal coliform content (either MPN or MF) shall not exceed 2,000 per 100 ml in more than ten per cent of the samples taken during any thirty-day period.

E. coli - geometric mean E. coli content (either MPN or MF), based on not less than five samples within a thirty-day period, shall not exceed 126 per 100 ml and E. coli content (either MPN or MF) shall not exceed 298 per 100 ml in more than ten per cent of the samples taken during any thirty-day period.

Secondary contact

Fecal coliform - shall not exceed 5,000 per 100 ml (either MPN or MF) in more than ten per cent of the samples taken during any thirty-day period.

E. coli - shall not exceed 576 per 100 ml in more than ten per cent of the samples taken during any thirty-day period.

Table 7-14. Temperature criteria.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Table 7-15 Page 1 of 2.

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

Index Sampling site Ecoregion[1]	Modified warmwater habitat Channel Modif.	Mine Affected	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	242	4-	-	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	242	43	0	40	48
ECBP	24	--	30	42	48
(3) Headwater sites[3]					
HELP	20	--	--	28	50
IP	24	--	--	40	50
EOLP	24	--	--	40	50
WAP	242	4-	-	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	223	0-	-	36	46
ECBP	22	--	--	36	46

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

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

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

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

Effective: 12/30/2002

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

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

3745-1-08 **Hocking river drainage basin.**

(A) The water bodies listed in table 8-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of Ohio outlining the water body drainage basins and listing associated rule numbers in Chapter 3745-1 of the Administrative Code. Figure 2 of the appendix to this rule is a generalized map of the Hocking river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Hocking river - Lithopolis rd. (RM 94.9) to Baldwin-Ewing run (RM 89.02)				+					+	+		+		EOLP ecoregion - channel modification
- bordering Rockbridge nature preserve	o	+							+	+		+		
- all other segments		+							+	+		+		
McGill run		*							*	*		*		
Ross run		*							*	*		*		
Fourmile creek	*	+							+	+		+		
East Fourmile creek	*	+							+	+		+		
Wolfpen creek		*							*	*		*		
Tar creek		*							*	*		*		
Skunk run		+							+	+		+		
Frost run		+							+	+		+		
Jordan run - headwaters to intersection of twp. rd. 153 and co. rd. 65 (RM 3.59)	*	+							++			+		
- within Marie J. Desonier nature preserve	o	+							+	+		+		
- all other segments		+							+	+		+		
Jordan run tributaries from the headwaters of Jordan run to the intersection of twp. rd. 153 and co. rd. 65 (RM 3.59)	*	*							**			*		
Lead run		*							*	*		*		
Rowell run		*							*	*		*		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Twomile run		*							*	*		*		
Federal creek			+						+	+		+		
Sharps run		+							+	+		+		
Herrold run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Big run		+							+	+		+		
Joes run			+						*	*		*		
Ellis run			+						*	*		*		
Wildcat run			+						*	*		*		
Spring run			+						*	*		*		
Marietta run		+							+	+		+		
Brill run			+						*	*		*		
Sharps fork		+							+	+		+		
Sulphur run		+							+	+		+		
Opossum run		+							+	+		+		
Joy run			*						*	*		*		
McElfresh run			*						*	*		*		
McDougall branch		+							+	+		+		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Wyatt run		+							+	+		+		
Mush run		+							+	+		+		
Dutch creek		+							+	+		+		
Sugar run			*						*	*		*		
Bryson branch		+							+	+		+		
Linscott run - headwaters to RM 0.8			*						+	+		+		
- RM 0.8 to the mouth		+							+	+		+		
Ewing run			*						*	*		*		
Kasler creek		+							+	+		+		
Hyde fork		+							+	+		+		
Hyde branch			*						*	*		*		
Miners fork		+							+	+		+		
Piper run		*							*	*		*		
Miller run		*							*	*		*		
Tiger run		*							*	*		*		
Green run		*							*	*		*		
Butts run		*							*	*		*		
Rocky run		*							*	*		*		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Willow creek		+							+	+		+		
Lick run		*							*	*		*		
Scott creek		+							+	+		+		
Canaanville run		*							*	*		*		
Stroud run - free flowing segments		+							+	+		+		
- all other segments		+							*	*		*		
Margaret creek		+							+	+		+		
Biddle creek		+							+	+		+		
Factory creek		+							+	+		+		
Little Factory creek		*							*	*		*		
West branch		+							+	+		+		
Sugar creek		+							+	+		+		
Mill creek		*							*	*		*		
Sunday creek		+							+	+		+		
Big Bailey run - Big Bailey seep (RM 0.4) to the mouth				+					+	+		+		WAP ecoregion - mine affected
- all other segments		+							+	+		+		
Carr Bailey run (North branch)		*							+	+			+	
Middle Bailey run		+							+	+		+		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
West Bailey run		+							+	+			+	
Unnamed tributary (Sunday creek RM 2.9)		+							+	+		+		
Jackson run (Sunday creek RM 5.21)		+							+	+		+		
Oregon Ridge tributary (Sunday creek RM 6.71)							+		+	+			+	Acid mine drainage
Greens run		+							+	+		+		
Little Greens run (Taylor run)		+							+	+		+		
Unnamed tributary (Sunday creek RM 9.02)		+							+	+		+		
Congress run		+							+	+		+		
West branch - headwaters to T-238 (RM 7.94)							+		+	+		+		
- T-238 to the mouth		+							+	+		+		
Mud fork		+							+	+		+		
Unnamed tributary (Mud fork RM1.06)		+							+	+		+		
Unnamed tributary (Mud fork RM2.79)		+							+	+		+		
Unnamed tributary (West branch RM 3.47)		+							+	+		+		
Johnson run		+							+	+		+		
Indian run		+							+	+		+		
Unnamed tributary (West branch RM 10.43)		+							+	+		+		
Unnamed tributary (Unnamed tributary RM 0.9)		+							+	+		+		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Unnamed tributary (Unnamed tributary RM 2.32)							+		+	+		+		Acid mine drainage
Unnamed tributary (West branch RM 12.41)		+							+	+		+		
Pine run				+					+	+		+		WAP ecoregion - mine affected
Long run (Sunday creek RM 17.15)		+							+	+		+		
East branch - headwaters to Burr Oak reservoir		+							+	+		+		
- at RM 0.23		*						o	+	+		+		PWS intake - Burr Oak regional water district
- all other segments		*							+	+		+		
Bloody run		*							*	*		*		
Eels run		+							+	+		+		
Cedar run		+							+	+		+		
San Toy creek		+							+	+		+		
Dotson creek		+							+	+		+		
Eighteen run		+							+	+		+		
Unnamed tributary (Sunday creek RM 25.45)		+							+	+		+		
Unnamed tributary (Sunday creek RM 26.38)		+							+	+			+	
Hamley run		+							+	+		+		
Monday creek		+							+	+		+		
Snow fork							+		+	+		+		Acid mine drainage

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Whitmore hollow (Snow fork RM 1.80)		+							+	+		+		
Long hollow (Snow fork RM 3.30)							+		+	+		+		Acid mine drainage
Brush fork (Snow fork RM 4.83)							+		+	+		+		Acid mine drainage
Spencer hollow (Snow fork RM 6.66)							+		+	+		+		Acid mine drainage
Sycamore hollow (Middle fork) (Snow fork RM 6.82)							+		+	+		+		Acid mine drainage
Salem hollow (Snow fork RM 6.82) - headwaters to Perry co. line (RM 3.0)		+							+	+		+		
- Perry co. line to the mouth				+					+	+		+		WAP ecoregion - mine affected
Snake hollow (Monday creek RM 4.55)							+		+	+			+	Acid mine drainage
Monkey hollow (Monday creek RM 9.88)		+							+	+			+	
Unnamed tributary (Monkey hollow RM 0.12)		+							+	+			+	
Sand run		+							+	+		+		
Unnamed tributary (Sand Run RM 1.44)		+							+	+			+	
Kitchen run		+							+	+		+		
Unnamed tributary (Kitchen Run RM 0.37)		+							+	+		+		
Little Monday creek		+							+	+		+		
Unnamed tributary (Little Monday creek RM 4.85)		+							+	+		+		
Unnamed tributary (Little Monday creek RM 5.69)		+							+	+			+	
Temperance hollow (Little Monday creek RM 7.07)		+							+	+		+		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Unnamed tributary (Little Monday creek RM 9.90)		+							+	+		+		
Coal brook (Little Monday creek RM 10.54)		+							+	+			+	
Lost run							+		+	+			+	Acid mine drainage
Dans run (Monday creek RM 19.73)		+							+	+		+		
New Straightsville tributary (Monday creek RM 20.03)		+							+	+		+		
Salt run		+							+	+		+		
Stone Chruch run (Monday creek RM 22.85)		+							+	+		+		
Rock run (Monday creek RM 23.4)							+		+	+		+		Acid mine drainage
Shawnee creek		*							+	+		+		
Unnamed tributary (Shawnee creek RM 0.59)		+							+	+		+		
Dixie hollow (Monday creek RM 25.20)							+		+	+		+		Acid mine drainage
Minkers run		+							+	+		+		
Dorr run							+		*	*		*		Acid mine drainage
Unnamed tributary (Hocking river mile 62.18)		+							+	+		+		
Fivemile creek		+							+	+		+		
Unnamed tributary (Fivemile creek RM 3.44)		+							+	+		+		
Threemile creek		+							+	+		+		
Monkey run		*							*	*		*		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Oldtown creek		+							+	+		+		
Unnamed tributary (Oldtown creek RM 4.25)		+							+	+		+		
Scott creek		+							+	+		+		
Clear fork - free flowing segments		+							+	+		+		
- all other segments		+							*	*		*		
Duck creek		+							+	+		+		
Dry run		+							+	+		+		
Unnamed tributary (Dry run RM 1.48)		+							+	+		+		
Harper run		+							+	+		+		
Unnamed tributary (Hocking river mile 74.82)		+							+	+		+		
Buck run		+							+	+		+		
East branch		+							+	+		+		
Clear creek		+							+	+		+		
Unnamed tributary (Clear creek RM 4.93)						+			+	+		+		
Unnamed tributary (Clear creek RM 6.80)						+			+	+		+		
Arney run		+							+	+		+		
Black run		*							*	*		*		
Muddy Prairie run		+							+	+		+		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Cattail creek (Clear creek RM 9.52)		+							+	+		+		
Dunkle run		+							+	+		+		
Dace ditch (Clear creek RM 13.5)		+							+	+		*		
Amanda creek (Clear creek RM 14.2)		+							+	+		*		
Muddy Prairie creek		+							+	+		+		
Sand run		+							+	+		+		
Toby creek		*							*	*		*		
Brushy fork		+							+	+		+		
Rush creek - headwaters to confluence with little Rush creek (RM 15.7)							+		+	+		+		Acid mine drainage
- little Rush creek to Raccoon creek (RM 14.39)				+					+	+		+		WAP ecoregion - mine affected
- Raccoon creek to the mouth		+							+	+		+		
Unnamed tributary (Rush creek RM 2.06)						+			+	+		+		
Durbin run		+							+	+		+		
Turkey run		+							+	+		+		
Raccoon run		+							+	+		+		
Unnamed tributary (Raccoon run RM 3.62)		+							+	+		+		
Little Rush creek - free flowing segments		+							+	+		+		
- all other segments		+							+	+		*		

Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Indian creek - free flowing segments		+							+	+		+		
- all other segments		*							*	*		*		
Muddy run		*							*	*		*		
Unnamed tributary (little Rush creek RM 17.51)		+							+	+		+		
Unnamed tributary (Rush creek RM 17.89)		+							+	+		+		
Turkey run (Rush creek RM 19.4)		+							+	+		*		
Dry run (Rush creek RM 21.19)		+							+	+		+		
Center branch - at RM 5.45		+						o	+	+		+		PWS intake - Somerset
- all other segments		+							+	+		+		
Somerset creek		+							+	+		+		
Unnamed tributary (Somerset creek RM 1.84) - at RM 0.89			*					o	*	*		*		PWS intake - Somerset
- Somerset reservoir (RM 0.89 to RM 1.15)			*						*	*		*		
Turkey run (Rush creek RM 24.37)							+		+	+		+		Acid mine drainage
Unnamed tributary (Rush creek RM 27.40)		+							+	+		+		
Yeager creek (Rush creek RM 28.46) - at RM 1.0		+						o	+	+		+		PWS intake - New Lexington
- all other segments		+							+	+		+		
New Lexington reservoir			*					o	*	*		*		PWS intake - New Lexington
New Lexington new reservoir			*					o	*	*		*		PWS intake - New Lexington

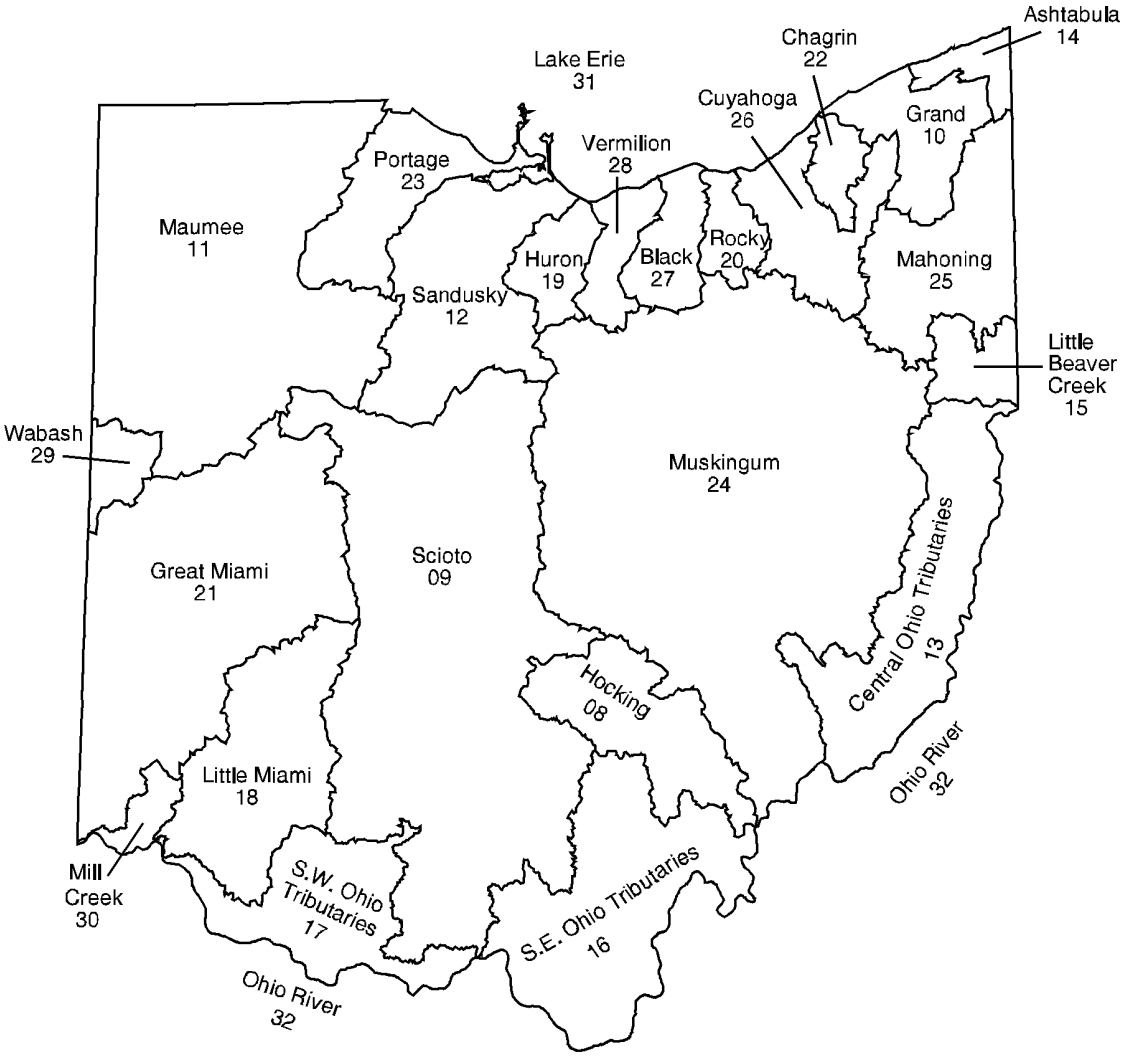
Table 8-1. Use designations for water bodies in the Hocking river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Unnamed tributary (Rush creek RM 30.32)							+		+	+			+	Acid mine drainage
Unnamed tributary (Hocking river mile 82.57)		+							+	+		+		
Unnamed tributary (Hocking river mile 84.38)		+							+	+		+		
Pleasant run		+							+	+		+		
Ewing run (Baldwin run)		+							+	+		+		
Fetters run		*							*	*		*		
Hunters run		+							+	+		+		
Ohio canal (Hocking river mile 93.62)														
Claypool run (Ohio canal RM 1.72)		+							+	+		+		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Ohio drainage basins and associated rule numbers in Chapter 3745-1 of the Administrative Code.



08 Hocking River
09 Scioto River
10 Grand River
11 Maumee River
12 Sandusky River
13 Central Ohio Tributaries
14 Ashtabula River
15 Little Beaver Creek
16 S.E. Ohio Tributaries
17 S.W. Ohio Tributaries
18 Little Miami River
19 Huron River
20 Rocky River
21 Great Miami River
22 Chagrin River
23 Portage River
24 Muskingum River
25 Mahoning River
26 Cuyahoga River
27 Black River
28 Vermilion River
29 Wabash River
30 Mill Creek
31 Lake Erie
32 Ohio River

Figure 2. Hocking river drainage basin.

Effective: 4/23/2008

R.C. 119.032 rule review date: 4/23/2013

Promulgated Under: R.C. 119.03
Statutory Authority: R.C. 6111.041
Rule Amplifies: R.C. 6111.041
Prior Effective Dates: 4/4/1985, 8/19/1985, 4/21/1992, 7/31/1998, 7/21/2002, 4/1/2007

3745-1-09 **Scioto river drainage basin.**

(A) The water bodies listed in table 9-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Scioto river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Scioto river - at RM 33.6		+						o	+	+		+		PWS intake - U.S. Enrichment (emergency intake)
- Greenlawn dam (RM 129.8) to the mouth		+							+	+		+		
- Olentangy river (RM 132.3) to Greenlawn dam				+					+	+		+		ECBP ecoregion - impounded
- Dublin rd. WTP dam (RM 133.4) to the Olentangy river (RM 132.3)		+							+	+		+		
- O'Shaughnessy dam (RM 148.8) to the Dublin rd. WTP dam		+						+	+	+		+		PWS intake - Columbus
- at RM 180.04		*						o	*	*		*		PWS intake - Marion
- all other segments		*							*	*		*		
Pond creek		*							*	*		*		
Dry run		*							*	*		*		
Wolf run		*							*	*		*		
Carroll run		*							*	*		*		
Sheep Pen run		*							*	*		*		
Scioto Brush creek			*						*	*		*		
Duck run			*						*	*		*		
Sweeney run			*						*	*		*		
McCullough creek			*						*	*		*		
East branch			*						*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Bear creek			*						*	*		*		
Saw Pit run			*						*	*		*		
Watts run			*						*	*		*		
Long fork			*						*	*		*		
Right fork			*						*	*		*		
Straight fork			*						*	*		*		
Left fork			*						*	*		*		
Slate run			*						*	*		*		
Stony run			*						*	*		*		
Davis run			*						*	*		*		
South fork			*						*	*		*		
Rocky fork			*						*	*		*		
Sugarcamp run			*						*	*		*		
Spruce run			*						*	*		*		
Little Spruce run			*						*	*		*		
Big run			*						*	*		*		
Canada run			*						*	*		*		
Beech fork			*						*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Liston run			*						*	*		*		
Turkey creek			*						*	*		*		
Dry fork			*						*	*		*		
Shawnee creek			*						*	*		*		
Turkey run			*						*	*		*		
Deep run			*						*	*		*		
Laurel run			*						*	*		*		
Cassel run			*						*	*		*		
Walker run			*						*	*		*		
Winterstein run			*						*	*		*		
Mill creek			*						*	*		*		
Randall run			*						*	*		*		
Middle branch			*						*	*		*		
Middle fork			*						*	*		*		
Hickman run			*						*	*		*		
Ellis run			*						*	*		*		
Burr run			*						*	*		*		
Bailey run			*						*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Churn creek			*						*	*		*		
Blue creek			*						*	*		*		
Glen run			*						*	*		*		
Minque run			*						*	*		*		
Moon run			*						*	*		*		
Hog run			*						*	*		*		
Hollow fork (formerly Haw fork)			*						*	*		*		
Bolander run			*						*	*		*		
Johnson run			*						*	*		*		
Slate fork			*						*	*		*		
Buttermilk fork			*						*	*		*		
Coffer run			*						*	*		*		
Carter run			*						*	*		*		
Bloody run			*						*	*		*		
Chambers run			*						*	*		*		
Whites run			*						*	*		*		
Early run			*						*	*		*		
Laurel run			*						*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Dry run			*						*	*		*		
Sugarcamp run			*						*	*		*		
Staley run			*						*	*		*		
Salome run			*						*	*		*		
U P run			*						*	*		*		
Thompson run			*						*	*		*		
Mullen run			*						*	*		*		
Abe run			*						*	*		*		
Jessie run			*						*	*		*		
Dunlap creek			*						*	*		*		
Rarden creek			*						*	*		*		
Dry fork			*						*	*		*		
Cedar fork			*						*	*		*		
Plum run			*						*	*		*		
Sturgeon run		*							*	*		*		
Candy run		*							*	*		*		
Miller run		*							*	*		*		
Cockrell run		*							*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Devers run		*							*	*		*		
Big run		+							+	+		+		
Slate run		*							*	*		*		
Bear creek		*							*	*		*		
Camp creek		*							*	*		*		
Spunk run		*							*	*		*		
Left fork		*							*	*		*		
Rock run		*							*	*		*		
Drake run		*							*	*		*		
Salt creek		*							*	*		*		
Ganderhook creek		*							*	*		*		
Piketon DOE tributary							oo			o			o	
West ditch		+							o	o			+	
Sunfish creek	*	*							*	*		*		
Loys run	*	*							*	*		*		
Chenoweth fork	*	*							*	*		*		
Bull run	*	*							*	*		*		
Carter run	*	*							*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Camp run	*	*							*	*		*		
Georges run	*	*							*	*		*		
Long run	*	*							*	*		*		
Leeth creek	*	*							*	*		*		
Morgan fork		*							*	*		*		
Left fork	*	*							*	*		*		
Right fork	**								**			*		
Lick run	*	*							*	*		*		
Sparcy run	*	*							*	*		*		
Grassy fork	**								**			*		
Kincaid creek	*	*							*	*		*		
Dry Bone creek	*	*							*	*		*		
Beaver creek - headwaters to Piketon	*	+							+	+		+		
- all other segments		+							+	+		+		
Little Beaver creek	*	+							+	+		+		
Millers run	*	*							*	*		*		
Fourmile creek	*	*							*	*		*		
Fivemile creek	*	*							*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Pecks creek	*	*							*	*		*		
Millstone run	*	*							*	*		*		
Dutch run	*	*							*	*		*		
Swift creek	*	*							*	*		*		
No Name creek		*							*	*		*		
Long fork		*							*	*		*		
Sugar run		*							*	*		*		
Boswell run		*							*	*		*		
Peepee creek		*							*	*		*		
Crooked creek		*							*	*		*		
Left fork		*							*	*		*		
Honey creek		*							*	*		*		
Wintergreen run		*							*	*		*		
Long branch		*							*	*		*		
Wolf run		*							*	*		*		
Haw fork		*							*	*		*		
Turkey run		*							*	*		*		
Brushy fork		*							*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Marcus run		*							*	*		*		
Straight creek		*							*	*		*		
Meadow run		*							*	*		*		
Wilson run		*							*	*		*		
Moore run		*							*	*		*		
Cars run		*							*	*		*		
Jackson run		*							*	*		*		
Bee lick		*							*	*		*		
Mutton run		*							*	*		*		
Hickson run		*							*	*		*		
Sandy Bottom creek		*							*	*		*		
Salt creek			+						+	+		+		
Whisky run	*	*							*	*		*		
Salt Lick creek (little Salt creek) - bordering Lake Katherine nature preserve	*	+							++			+		
- all other segments		+							+	+		+		
Middle fork Salt creek		+							+	+		+		
Pigeon creek		+							+	+		+		
Long branch	*	+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Skunk hollow creek (Pigeon creek RM 6.66)		+							+	+		+		
Unnamed tributary (Pigeon creek RM 7.52)		+							+	+		+		
Glade run	*	*							*	*		*		
Stevens branch	*	*							*	*		*		
Unnamed tributary (middle fork Salt creek RM 13.00)		+							+	+		+		
Kelly branch	*		+			+			+	+		+		
Riley run	*	+							+	+		+		
Unnamed tributary (middle fork Salt creek RM 20.62)		+							+	+		+		
Pigeon creek (Salt Lick creek RM 6.35)		+							+	+		+		
Poplar run	*	+							+	+		+		
Big run	*	+							+	+		+		
Dry run	*	*							*	*		*		
Sour run		+							+	+		+		
Rock run	*	*							*	*		*		
Buckeye creek	*	+							+	+		+		
Buckeye creek tributaries	*		*						*	*		*		
Unnamed tributary (Salt Lick creek RM 22.55)		+							+	+		+		
Jisco lake tributaries	*		*						*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Horse creek		+							+	+		+		
Sugar run		+							+	+		+		
Fourmile creek	*	+							+	+		+		
Goose creek	*	*							*	*		*		
Mulgee run (Salt creek RM 5.55)		+							+	+		+		
Poe run	*		+						*	*		+		
Bluelick run	*	*							*	*		*		
Cox run	*	*							*	*		*		
Pike run	*		+						+	+		+		
East fork	*	+							+	+		+		
Pretty run - headwaters to Dry branch (RM 1.88)			+			+			+	+		+		
- Dry branch to the mouth			+						+	+		+		
Dry branch	*	*							*	*		*		
North branch	*					+			+	+		+		
Queer creek			+			+			+	+		+		
Goose creek	*		+			+			+	+		+		
East ork			+++							+		+		
Unnamed tributary (East fork RM 4.24)						+			+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Blue creek	*	*							*	*		*		
Pine creek						++				+		+		
Little Pine creek - headwaters to Wagner rd. (RM 1.4)	*					+			+	+		+		
- Wagner rd. to the mouth	*	+							+	+		+		
Spruce run	*	*							*	*		*		
Rocky branch	*	*							*	*		*		
Little Blackjack branch	*	*							*	*		*		
Blackjack branch	*	*							*	*		*		
Sams creek	*		+						+	+		+		
California branch	*	*							*	*		*		
Brimstone creek	*	+							+	+		+		
Laurel run - headwaters to Toad hollow (RM 9.0)			+			+			+	+		+		
- Toad hollow to the mouth			+						+	+		+		
Moccasin creek	*					+			+	+		+		
Dry run	*	*							*	*		*		
Middle fork			+						+	+		+		
Long run	*	*							*	*		*		
Cola creek	*					+			+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Little Cola creek	*	*							*	*		*		
Beech fork (Salt creek RM 34.1)			+						+	+		+		
Bull creek (Beech fork RM 1.54)	*	+							+	+		+		
Pikehole creek (Beech fork RM 1.9)	*	*							*	*		*		
Plum run	*		+						+	+		+		
Walnut creek			+						*	*		+		
Sugar run		*							*	*		*		
Little Walnut creek		*							*	*		*		
Spud run		*							*	*		*		
Piny run		*							*	*		*		
Stony creek		*							*	*		*		
Dry run		*							*	*		*		
Indian creek		*							*	*		*		
North branch		*							*	*		*		
Paint creek - at RM 71.4		*						o	*	*		*		PWS intake - Washington Court House
- U.S. rte. 35 (RM 67.4) to Paint creek reservoir (RM 46.5)			+						*	*		*		
- Paint creek reservoir (RM 46.5) to st. rte. 772 (RM 3.8)			+						+	+		+		
- st. rte. 772 (RM 3.8) to the mouth		+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
- all other segments		*							*	*		*		
North fork			+						+	+		+		
Biers run		*							*	*		*		
Mad run		*							*	*		*		
Anderson run		*							*	*		*		
Sulphur lick		*							*	*		*		
Dry run		*							*	*		*		
Little creek		*							*	*		*		
Dewey creek		*							*	*		*		
Oldtown run		*							*	*		*		
McCortney run		*							*	*		*		
Herrod creek		*							*	*		*		
Whetstone run		*							*	*		*		
Compton creek			+						+	+		+		
Crooked creek		*							*	*		*		
Mud run		*							*	*		*		
Thompson creek		*							*	*		*		
Ralston run		*							*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Cattail run		*							*	*		*		
Owl creek		*							*	*		*		
Plug run		*							*	*		*		
Black run		*							*	*		*		
Mine run		*							*	*		*		
Lower Twin creek		*							*	*		*		
Upper Twin creek		*							*	*		*		
Proud run		*							*	*		*		
Sulphur lick		*							*	*		*		
Minnehan run		*							*	*		*		
Buckskin creek		*							*	*		*		
Slate run		*							*	*		*		
North fork		*							*	*		*		
Cove run		*							*	*		*		
Massie run		*							*	*		*		
Rocky fork			+						+	+		+		
Factory branch	*		*						*	*		*		
Pickett run	*		*						*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Heads branch	*		*						*	*		*		
Puncheon run	*		*						*	*		*		
Franklin branch	*		*						*	*		*		
Plum run	*		*						*	*		*		
Blinco branch	*		*						*	*		*		
Churn creek	*		*						*	*		*		
Smith branch	*		*						*	*		*		
Clear creek - at RM 7.4			+					o	+	+		+		PWS intake - Hillsboro
- all other segments			+						+	+		+		
Moberly branch		+							+	+		+		
Hussey run	*		*						*	*		*		
South fork	*		*						*	*		*		
Cliff creek		*							*	*		*		
Plum run		*							*	*		*		
Rattlesnake creek		+							+	+		+		
Cedar run		*							*	*		*		
Fell creek		*							*	*		*		
Big branch		*							*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Hardin creek		*							*	*		*		
Bull creek		*							*	*		*		
Bridgewater creek		*							*	*		*		
Walnut creek		+							+	+		+		
Lees creek		+							+	+		+		
Middle fork		+							+	+		+		
South fork		*							*	*		*		
West branch		+							+	+			+	
Grassy branch		*							*	*		*		
Wilson creek		*							*	*		*		
Opossum run		*							*	*		*		
Farmers run		*							*	*		*		
Duncan run		*							*	*		*		
Sugar run		*							*	*		*		
Holliday run		*							*	*		*		
Stone run		*							*	*		*		
Buck run		*							*	*		*		
Indian creek		*							*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Wabash creek		*							*	*		*		
Sugar creek		+							+	+		+		
East fork		+							+	+		+		
Big run		*							*	*		*		
Brock ditch		*							*	*		*		
County ditch		*							*	*		*		
Lick run		*							*	*		*		
Dry run		*							*	*		*		
Dry run		*							*	*		*		
Kinnikinnick creek			+						*	*		+		
Deer creek - Sugar run (RM 41.22) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Waugh run		+							+	+		+		
Hay run		+							+	+		+		
Stall run		*							*	*		*		
Dry run		*							*	*		*		
Buskirk creek - headwaters to RM 2.7		+							+	+		+		
- RM 2.7 to the mouth			+						+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Clark run		+							+	+		+		
Georges run		*							*	*		*		
Long branch		*							*	*		*		
Duff's fork		*							*	*		*		
Opossum run		*							*	*		*		
Sugar run			+						+	+		+		
Mud run		*							*	*		*		
Bradford creek - headwaters to RM 6.1		*							*	*		*		
- RM 6.1 to the mouth			+						+	+		+		
South fork		+							+	+		+		
Turtle run		*							*	*		*		
Turkey run		*							*	*		*		
Oak run		+							+	+		+		
Walnut run		+							+	+		+		
Glade run		*							*	*		*		
North fork		+							+	+		+		
Blackwater creek		*							*	*		*		
Scippo creek - old Tarlton pike (RM 14.8) to the mouth			+						*	*		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- all other segments		+							*	*		+		
Congo creek (Scippo creek RM 1.64)			+						*	*		+		
Unnamed tributary (Scippo creek RM 16.31)		+							*	*			+	
Unnamed tributary (Scippo creek RM 18.87)							+		*	*			+	Small drainageway maintenance
Yellowbud creek - upstream Ebenhack rd. (RM 3.0) to the mouth			+						*	*		+		
- all other segments		+							*	*		+		
Wolf run		*							*	*		*		
Lick run		*							*	*		*		
RCA tributary (Scioto river RM 96.5)							+		+	+			+	Small drainageway maintenance
Hargus creek		*							*	*		*		
Hominy creek		*							*	*		*		
Big Darby creek - twp. rd. 157 (RM 79.23) to the mouth			+						+	+		+		
- headwaters to twp. rd. 157			+			+			+	+		+		
Georges run (creek)		+							+	+			+	
Greenbrier creek		+							+	+		*		
Unnamed tributary (Big Darby creek RM 18.41)		+							+	+			+	
Unnamed tributary (Big Darby creek RM 20.2)		+							+	+		+		
Unnamed tributary (Big Darby creek RM 23.77)		+							+	+			+	

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Springwater run		+							+	+		+		
Hellbranch run - Kropp rd. (RM 5.04) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Clover Groff ditch - headwaters to Feder rd.				+					+	+		+		ECBP ecoregion - channel modification
- Feder rd. (RM 2.5) to the mouth		+							+	+		+		
Hamilton ditch - headwaters to Feder rd. (RM 2.1)				+					+	+		+		ECBP ecoregion - channel modification
- Feder rd. to the mouth		+							+	+		+		
Gay run		+							+	+		+		
Smith ditch - unnamed tributary adjacent Lilly Chapel rd. at RM 3.7 to the mouth			+						+	+		+		
Unnamed tributary (Smith ditch RM 0.06)			+						+	+		+		
Little Darby creek - Lake run (RM 36.9) to the mouth			+						+	+		+		
- headwaters to Lake run			+			+			+	+		+		
Spring fork			+						+	+		+		
Bales ditch (Spring fork RM 3.64) - downstream st. rte. 29 (RM 1.3) to the mouth		+							+	+			+	
Wamp ditch - adjacent Finley-Guy rd. (RM 0.4) to the mouth		+							+	+			+	
Barron creek - Rosedale-Plain city rd. (RM 2.1) to the mouth	+	+							+	+			+	
- headwaters to Rosedale-Plain city rd.	+		*						+	+			+	

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Treacle creek	+		+						+	+		+		
Proctor run	+		+						+	+		+		
Howard run	+		+						+	+		+		
Lake run	+		*						+	+		+		
Jumping run - adjacent Bullard-Rutan rd. (RM 1.5) to the mouth	+	+							++			+		
- headwaters to Bullard-Rutan rd.	+		*						*	*		*		
Clover run	+	+							+	+			+	
Fitzgerald ditch (Threemile run) - RM 1.65 (terminus of county maintenance) to the mouth		+							+	+		+		
- headwaters to RM 1.65		*							*	*		*		
Yutzy ditch - adjacent Price-Hilliards rd. (RM 1.0) to the mouth		+							+	+		+		
Ballenger-Jones ditch - U.S. rte. 42 (RM 2.4) to the mouth		+							+	+		+		
Worthington ditch - upstream Plain city-Georgesville rd. (RM 1.0) to the mouth		+							+	+		+		
Sugar run - headwaters to Taylor rd. (RM 6.7)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Sweeney run - Lafayette-Plain city rd. (RM 1.8) to the mouth		+							+	+		+		
Robinson run		+							+	+		+		
Sugar run		+							+	+		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Buck run		+							+	+		+		
Prairie run		+							+	+		*		
Hay run - upstream Mechanicsburg-Plain city rd. (RM 0.5) to the mouth			+						+	+		+		
- headwaters to Mechanicsburg-Plain city rd.		*							*	*		*		
Unnamed tributary (Big Darby creek RM 69.4)		+							+	+			+	
Pleasant run			+						+	+		+		
Spain creek - headwaters to Erie-Lackawanna railroad crossing (RM 5.0)		+				+			+	+		+		
- all other segments			+			+			+	+		+		
Unnamed tributary (Big Darby creek RM 74.91)			+						+	+			+	
Little Darby creek (Big Darby creek RM 78.34)			+			+			+	+		+		
Flat branch				+					+	+		+		ECBP ecoregion - channel modification
Dry run		*							*	*		*		
Griffy run		*							*	*		*		
Walnut creek (little Walnut creek)		+							+	+		+		
Little Walnut creek - headwaters to Ringgold northern rd. (RM 4.04)						+			+	+		+		
- Ringgold northern rd. to Turkey run (RM 3.0)			+						+	+		+		
- Turkey run to the mouth		+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Bull run		+							+	+		+		
Turkey run - headwaters to Creek rd. (RM 6.53)						+			+	+		+		
- Creek rd. to Circleville Winchester rd. (RM 0.93)		+							+	+		+		
- Winchester rd. to the mouth			+						+	+		+		
Lick run		*							*	*		*		
Cherry run		+							+	+		+		
Manns run (Walnut creek RM 9.96)		+							+	+			+	
Mud run		+							+	+		+		
Slate run	+	+							+	+		+		
Rickenbacker tributary (Walnut creek RM 15.54)				+					+	+			+	ECBP ecoregion - channel modification
Rickenbacker tributary (Walnut creek RM 15.64)		+							+	+			+	
Big run - headwaters to Elder rd. (RM 3.9)						+			+	+		+		
- Elder rd. to the mouth		+							+	+		+		
Georges creek		+							+	+		+		
East fork (Georges creek RM 2.0)		+							+	+		+		
Tussing ditch - headwaters to Groveport rd. (RM 0.4)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Unnamed tributary (Walnut creek RM 23.70)		+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Sycamore creek		+							+	+		+		
Unnamed tributary (Walnut creek RM 29.83)						+			+	+		+		
Gillette run (Walnut creek RM 32.10)		+							+	+			+	
Poplar creek			+						+	+		+		
Pawpaw creek		+							+	+		+		
Zellerbach tributary (West branch Pawpaw creek)		+							+	+			+	
Unnamed tributary (Pawpaw creek RM 1.77)		+							+	+		+		
Pleasantville-Thurston WWTP tributary		+							+	+			+	
Van Meter run		*							*	*		*		
Grove run		*							*	*		*		
Big Walnut creek - Williams rd. (RM 15.8) to the mouth			+						+	+		+		
- Hoover reservoir			*					+	+	+		+		PWS intake - Lake of the Woods
- at RM 32.64		+						o	+	+		+		PWS intake - Columbus
- at RM 51.4		+						+	+	+		+		PWS intake - Sunbury
- headwaters to Hoover reservoir		+							+	+		+		
- all other segments		*							*	*		*		
Alum creek - at Rms 26.74 and 21.20		+						o	+	+		+		PWS intakes - DELCO (RM26.74) and Westerville (RM 21.20
- all other segments		+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Bliss run		*							*	*		*		
American ditch							o		o	o			o	Small drainageway maintenance
Kilbourne run (Alum creek RM 16.34)		+							+	+		+		
West Spring run (Alum creek RM 17.15)		+							+	+		+		
Spring run (Alum creek RM 17.22)		+							+	+		+		
Unnamed tributary (Alum creek RM 23.47)		+							+	+		+		
Unnamed tributary (Alum creek RM 25.50)		+							+	+		+		
Big run		+							+	+		+		
Johnson run		*							*	*		*		
Longwell run		*							*	*		*		
Slate run		*							*	*		*		
Bald lick		*							*	*		*		
Salt Well run		*							*	*		*		
West branch - at RM 5.57		+						o	+	+		+		PWS intake - Ashley (formerly)
- all other segments		+							+	+		+		
Turkey run		+							+	+		+		
Indigo creek		*							*	*		*		
Bunker run		+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Blacklick creek		+							+	+		+		
Unnamed tributary (Blacklick creek RM 6.5)		+							+	+		+		
Unnamed tributary (Blacklick creek RM 10.4)		+							+	+		+		
Unnamed tributary (Blacklick creek RM 11.3)		+							+	+		+		
Unnamed tributary (Blacklick creek RM 12.9)		+							+	+		+		
French run (Blacklick creek RM 13.66)		+							+	+		+		
North branch (French run RM 0.33)			+						+	+		+		
Dysar run (Blacklick creek RM 14.64)		+							+	+		+		
Unnamed tributary (Dysar run RM 1.67)		+							+	+		+		
Unnamed tributary (Dysar run RM 2.58)		+							+	+		+		
Unzinger ditch (Blacklick creek RM 15.88) - headwaters to RM 0.6							+		+	+			+	Small drainageway maintenance
- all other segments		+							+	+		+		
Swisher creek (Blacklick creek RM 20.94)		+							+	+		+		
Mason run - headwaters to Fifth ave. (RM 6.1)							+		+	+		+		Small drainageway maintenance
- Fifth ave. to I-70 (RM 1.9)				+					+	+		+		ECBP ecoregion - channel modification
- I-70 to the mouth		+							+	+		+		
Turkey run - headwaters to RM 1.6							+		+	+			+	Small drainageway maintenance
- RM 1.6 to the mouth				+					+	+			+	ECBP ecoregion - channel modification

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Unnamed tributary (Big Walnut creek RM 27.29)		+							+	+		+		
Rocky fork - headwaters to U.S. rte. 62 (RM 5.1)		+							+	+		+		
- U.S. rte. 62 to the mouth			+						+	+		+		
Rose run (Rocky fork RM 6.4)		+							+	+		+		
Sugar run (Rocky fork RM 6.6)		+							+	+		+		
McKenna creek (Big Walnut creek RM 29.65)		+							+	+		+		
Unnamed tributary (Big Walnut creek RM 32.60)		+							+	+		+		
Duncan run - at RM 0.68		+						o	+	+		+		PWS intake - Lake-of-the-Woods
- all other segments		+							+	+		+		
Little Walnut creek		+							+	+		+		
Butler run		+							+	+		+		
East branch		+							+	+		+		
West branch		+							+	+		+		
Unnamed tributary (little Walnut creek RM 9.5)		+							+	+		+		
Prairie run		+							+	+		+		
Rattlesnake creek		+							+	+		+		
North fork		+							+	+		+		
East fork		+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
South fork		+							+	+		+		
Perfect creek		+							+	+		+		
Dry run		+							+	+		*		
Culver creek		+							+	+		+		
Unnamed tributary (Culver creek RM 3.32)		+							+	+		+		
Sugar creek		+							+	+		+		
Long run		+							+	+		+		
Reynolds run		+							+	+		+		
Mill creek		+							+	+		+		
Light creek		+							+	+		*		
Castro run		+							+	+		+		
Hayes ditch		+							+	+		*		
Plum run		*							*	*		*		
Grant run		*							*	*		*		
Republican run (Scioto river RM 122.9)		+							+	+			+	
South branch							+		+	+			+	Small drainageway maintenance
Scioto Big run		*							*	*		*		
Marsh run		*							*	*		*		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Kian run		*							*	*		*		
Williams ditch (tributary to quarry along Scioto river at RM 126.7)							+		+	+			+	Small drainageway maintenance
Renick run		*							*	*		*		
Olentangy river - at RMs 31.23 and 31.02		+						o	+	+		+		PWS intakes - Delaware
- Old Winter rd. (RM 20.4) to I-270 (RM 11.6)			+						+	+		+		
- at RM 18.19			+					o	+	+		+		PWS intake - DELCO
- Adena brook (RM 5.9) to the Dodridge st. dam (RM 4.0)				+					+	+		+		ECBP ecoregion - impounded
- adjacent Tuttle park (RM 3.4) to the Fifth ave. dam (RM 1.9)				+					+	+		+		ECBP ecoregion - impounded
- Conrail railroad crossing (RM 0.5) to the mouth				+					+	+		+		ECBP ecoregion - impounded
- at RM 0.2				+				o	+	+		+		ECBP ecoregion - impounded; PWS intake - Columbus
- all other segments		+							+	+		+		
Glen Echo ravine		+										+		
Turkey run (Olentangy river RM 5.82)		+							+	+			+	
Big run (Adena brook)		+							+	+		*		
Bill Moose creek (Olentangy river RM 7.82)		+								+			+	
Turkey run		*							*	*		*		
Kempton run (Olentangy river RM 8.59)		+								+			+	

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Rush run		+							+	+			+	
Linworth run (Olentangy river RM 9.9)		+								+			+	
Bartholomew run		+							+	+			+	
Deep run		+							+	+		+		
Unnamed tributary (Olentangy river RM 18.19)		+							+	+			+	
Unnamed tributary (Olentangy river RM 20.71)		+							+	+		+		
Weiser run		*							*	*		*		
Kingsbury run		*							*	*		*		
Mill run		+							+	+		+		
Delaware run		+							+	+		+		
Sugar run		+							+	+		+		
Clear run		*							*	*		*		
Horseshoe run		+							+	+			+	
Norris run		+							+	+		+		
Indian run		+							+	+		+		
Whetstone creek - headwaters to st. rte. 229 (RM 2.6)			+						+	+		+		
- all other segments		+							+	+		+		
Claypole run		+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Mitchell run		+							+	+		+		
Shaw creek		+							+	+		+		
Mud run		*							*	*		*		
Big run		+							+	+		+		
Pugh ditch		*							*	*		*		
Sams creek		+							+	+		+		
Unnamed tributary (Whetstone creek RM 33.71)		+				+			+	+		+		
East branch		+				+			+	+		+		
Brondige run		+							+	+		+		
Norton run		*							*	*		*		
Qa Qua creek (aka Cauquaw run) - headwaters to RM 3.7				+					+	+			+	ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Mack ditch (Cauquaw run RM 5.3)							+		*	*			+	Small drainageway maintenance
Laucher and Berringer ditch (Mack ditch RM 0.86)							+		*	*			+	Small drainageway maintenance
Grave creek - headwaters to RM 2.4				+					+	+			+	ECBP ecoregion - channel modification
- all other segments		+							+	+			+	
Riffle creek - headwaters to RM 4.0				+					+	+			+	ECBP ecoregion - channel modification
- all other segments		+							+	+			+	

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Ulsh ditch				+					+	+			+	ECBP ecoregion - channel modification
Clendenon ditch				+					+	+			+	ECBP ecoregion - channel modification
Ruehrmond ditch		*							*	*		*		
McKibben ditch		*							*	*		*		
Beaver run		*							*	*		*		
Muskrat ditch		*							*	*		*		
Otter creek		+							+	+		+		
Mud river		*							*	*		*		
Flat run		+							+	+		+		
Thorn run		+							+	+		+		
Noblet drain		*							*	*		*		
Mud run		*							*	*		*		
Mud run				+					+	+			+	ECBP ecoregion - channel modification
Bee run		+							+	+		+		
Zimmerman ditch (Olentangy river RM 81.2)				+					+	+			+	ECBP ecoregion - channel modification
Rocky fork (Olentangy river RM 84.84) - at RM 0.6		+						o	+	+		+		PWS intake - Galion
- all other segments		+							+	+		+		
Shoemaker ditch (Olentangy river RM 88.5)							+		+	+			+	Small drainageway maintenance

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Dry run		+							+	+		+		
Slate run		*							*	*		*		
Hayden run		*							*	*		*		
North Fork Indian run		*							*	*		*		
South Fork Indian run		*							*	*		*		
Deer run		*							*	*		*		
Eversole run		*							*	*		*		
Mill creek - at RM 19.45		+						o	+	+		+		PWS intake - Marysville
- all other segments		+							+	+		+		
Blues creek - headwaters to st. rte. 4 (RM 11.5)				+					+	+		+		ECBP ecoregion - channel modification
- st. rte. 4 to the mouth		+							+	+		+		
Ronolds run		*							*	*		*		
Dry run		*							*	*		*		
Grassy run		*							*	*		*		
Dun run		*							*	*		*		
BMY tributary (Mill creek RM 9.3)							+		+	+			+	Small drainageway maintenance
Phelps run		*							*	*		*		
Crosses run		+							+	+		+		

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
North branch		+							+	+			+	
Town run		+											+	
Otter run		*							*	*		*		
Otter creek		+							+	+		+		
Moors run		*							*	*		*		
Prairie run		*							*	*		*		
Bokes creek - RM 35.51 (0.66 river miles downstream of st. rte.292) to RM 37.30 (1.13 river miles upstream of st. rte. 292)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Smith run		+							+	+			+	
Brush run		+							+	+			+	
Powderlick run - headwaters to RM 3.0 (0.35 river miles downstream of st. rte. 739)							+		+	+			+	Small drainageway maintenance
- all other segments		+							+	+			+	
Unnamed tributary (Powderlick run RM 2.0)		+							+	+			+	
North Fork West Mansfield tributary - headwaters to RM 4.51 (0.15 river miles upstream of Conrail railroad tracks)				+					+	+			+	ECBP ecoregion - channel modification
- all other segments		+							+	+			+	
West Fork West Mansfield tributary		+							+	+			+	
East Fork West Mansfield tributary		+							+	+			+	

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Mayor Painter ditch							+		+	+			+	Small drainageway maintenance
South branch		+							+	+			+	
Fulton creek		*							*	*		*		
Big run		*							*	*		*		
Richwood tributary (Fulton creek RM 9.4)							+		+	+			+	Small drainageway maintenance
Utz run		*							*	*		*		
Kebler run		*							*	*		*		
Ottawa creek - headwaters to Mooney rd. (RM 1.6)							+		*	*			+	Small drainageway maintenance
- Mooney rd. to the mouth		*							*	*		*		
Battle run		*							*	*		*		
Patton run		*							*	*		*		
Beaver run		*							*	*		*		
Davids run		*							*	*		*		
Little Scioto river - RM 9.0 (0.2 miles downstream of Hillman Ford rd.) to the mouth				+					+	+		+		ECBP ecoregion - channel modification
- at RM 7.1				+				o	+	+		+		PWS intake - Marion
- all other segments		+							+	+		+		
Honey creek		+							+	+			+	
Rider ditch (Honey creek RM 1.75)							+		*	*			+	Small drainageway maintenance

Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Cusic ditch (little Scioto river RM 2.55)		+							*	*			+	
Rock Swale ditch							+		+	+			+	Small drainageway maintenance
Columbia ditch - Sawyer lake outlet (RM 2.2) to the mouth				+					+	+		+		ECBP ecoregion - channel modification
North Rockswale ditch - RM 4.4 to the mouth				+					+	+			+	ECBP ecoregion - channel modification
- all other segments		+							+	+			+	
Rock fork		+							+	+		+		
Long branch		*							*	*		*		
Zeig ditch		*							*	*		*		
Rush creek		*							*	*		*		
McDonald creek		+							+	+		+		
Dudley run		*							*	*		*		
Big swale							+		*	*			+	Small drainageway maintenance
Rocky fork		*							*	*		*		
Wildcat creek		+							+	+		+		
Ash run		*							*	*		*		
South Wildcat creek		*							*	*		*		
Panther creek		+							+	+		+		
Jims creek		*							*	*		*		

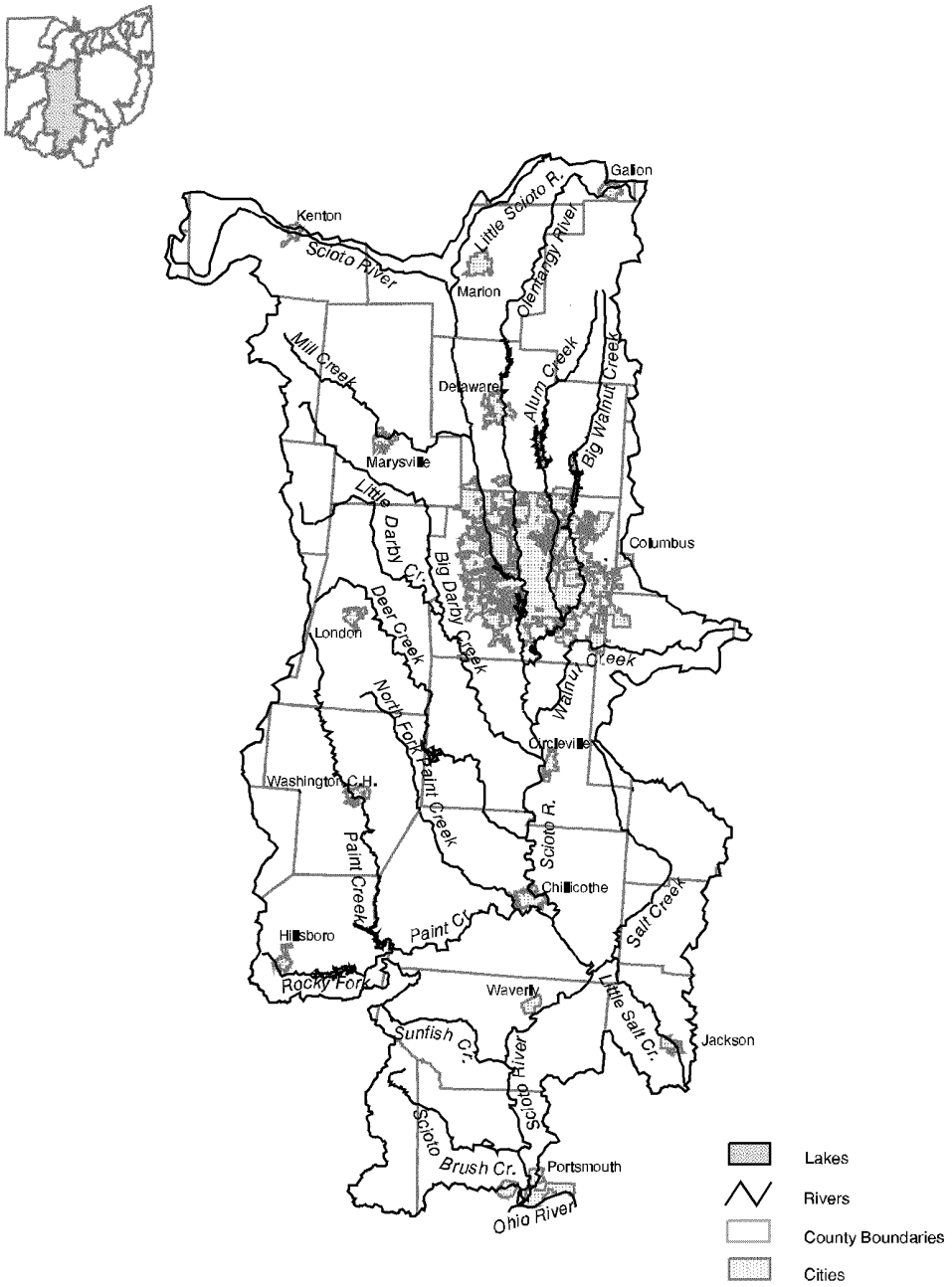
Table 9-1. Use designations for water bodies in the Scioto river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Wolf creek		*							*	*		*		
Garwood run		*							*	*		*		
Gander run		*							*	*		*		
Manlove run		*							*	*		*		
Taylor creek		+							+	+		+		
Silver creek		+							+	+		+		
Jordan run		*							*	*		*		
Batchlet run		*							*	*		*		
Payden run		*							*	*		*		
McCoy run		*							*	*		*		
Cooney ditch		*							*	*		*		
Cottonwood ditch - Hardin county rd. 35 (RM 4.5) to the mouth				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		*							*	*		*		
Twin branches		*							*	*		*		
Dunlap creek		*							*	*		*		
Elder creek		*							*	*		*		
Poe ditch		*							*	*		*		
Wallace fork		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Scioto river drainage basin.



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3745-1-10 **Grand river drainage basin.**

(A) The water bodies listed in table 10-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Grand river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 10-1. Use designations for water bodies in the Grand river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Marsh creek		*							*	*		*		
Mentor creek and Mentor marsh	*	*							*	*		*		
Black brook		*							*	*		*		
Heisley creek		*							*	*		*		
Grand river - headwaters to U.S. rte. 422 (RM 95.5)		*							*	*		*		
- U.S. rte. 422 to st. rte. 608 (RM 91.8)			+						+	+		+		
- st. rte. 608 to Fobes rd. (RM 44.7)		+							+	+		+		
- at RM 89.12		+						o	+	+		+		PWS intake - West Farmington
- Fobes rd. to Harpersfield dam (RM 30.9)			+						+	+		+		
- Harpersfield dam to st. rte. 2 (RM 5.5)			+		o				+	+		+		
- st. rte. 2 to the mouth		*			o				*	*		*		
Pebble branch		*							*	*		*		
Red creek		*			o				*	*		*		
Big creek - headwaters to Girdled rd. (RM 7.1)		+							+	+		+		
- Girdled road to the mouth		+			o				+	+		+		
Kellogg creek		+			o				+	+		+		
Ellison creek		+			o				+	+		+		
Gordon (Jordan) creek						+			+	+		+		

Table 10-1. Use designations for water bodies in the Grand river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
East creek						++				+		+		
Aylworth creek						++				+		+		
Jenks creek						++				+		+		
Cutts creek						++				+		+		
Paine creek - headwaters to Paine falls (RM 2.9)		+							+	+		+		
- Paine falls to the mouth			+		o				+	+		+		
Bates creek		*							+	+		+		
Phelps creek			+			+			+	+		+		
Unnamed tributary (Paine creek RM 7.2)			+			+			+	+		+		
Talcott creek						++				+		+		
Griswold creek		*							*	*		*		
Mill creek - headwaters to Doty rd. (RM 1.5)					o	+			+	+		+		
- Doty rd. to the mouth		+			o				+	+		+		
Unnamed tributary (Mill creek RM 4.3)						+			+	+		+		
Coffee creek		+							+	+		+		
Center creek		*							*	*		*		
Mill creek		+							+	+		+		
Cemetery creek		+							+	+		+		

Table 10-1. Use designations for water bodies in the Grand river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Griggs creek		*							*	*		*		
Askue run		+							+	+		+		
Peters creek		+							+	+		+		
Bronson creek		*							*	*		*		
Trumbull creek			+						*	*		*		
Spring creek		*							*	*		*		
Three Brothers creek		*							*	*		*		
Badger run		*							*	*		*		
Rock creek		+							+	+		+		
Plum creek		*							*	*		*		
Sugar creek		*							*	*		*		
Whetstone creek		*							*	*		*		
Lebanon creek		*							*	*		*		
Shanty creek		*							*	*		*		
Crooked creek			+						*	*		*		
Mud creek		*							*	*		*		
Hoskins creek			+						*	*		*		
Indian creek			+						*	*		*		

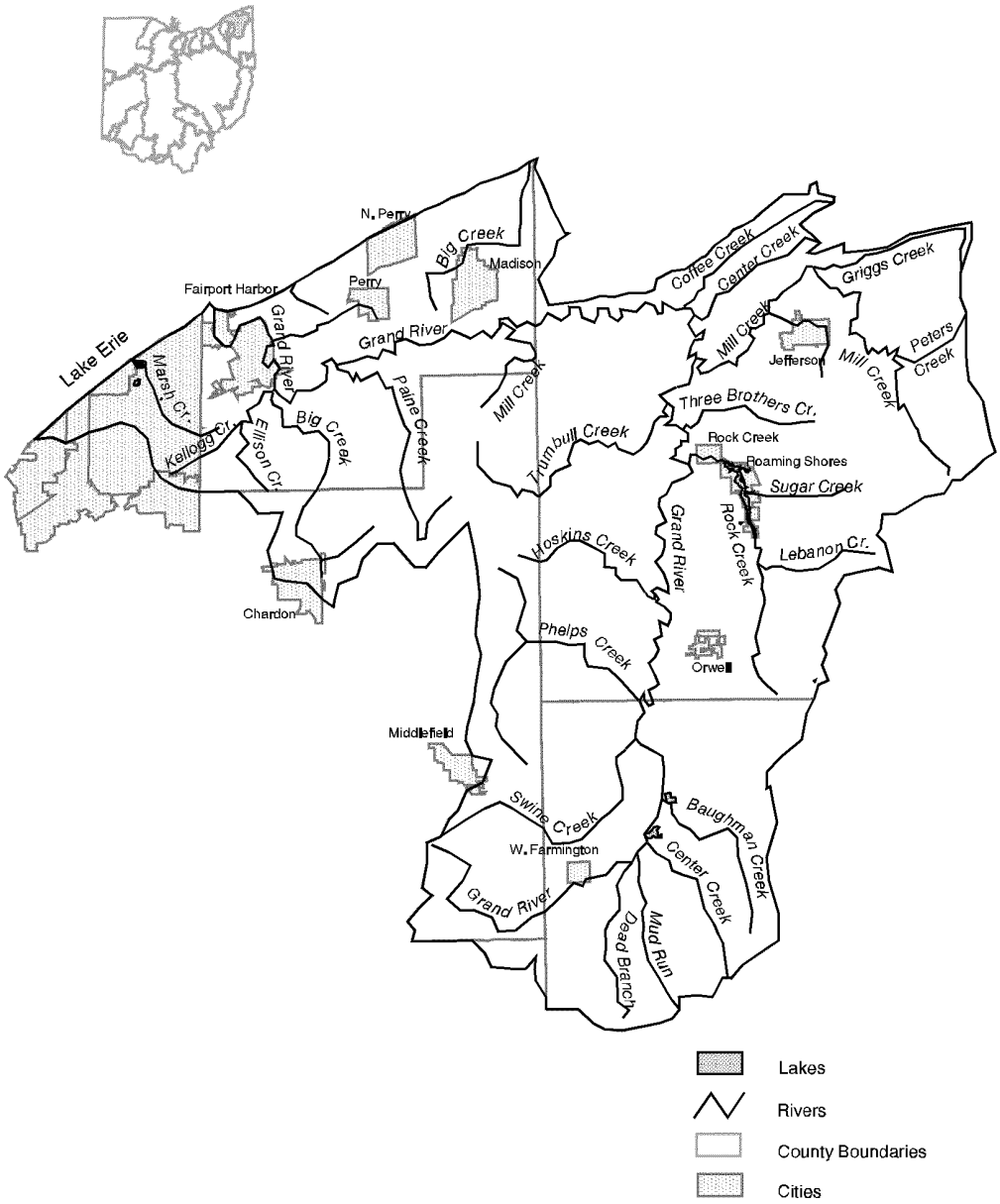
Table 10-1. Use designations for water bodies in the Grand river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Montville ditch		*							*	*		*		
Phelps creek			+						+	+		+		
North branch		*							*	*		*		
South branch		*							*	*		*		
Mill creek			+						*	*		*		
Garden creek		*							*	*		*		
Swine creek		+							+	+		+		
Grapevine creek		*							*	*		*		
Andrews creek		*							*	*		*		
Plum creek		*							*	*		*		
Coffee creek		*							*	*		*		
Baughman creek		+							+	+		+		
Center creek		*							*	*		*		
Mud run		*							*	*		*		
Dead branch		*							*	*		*		
McKinley creek		*							*	*		*		
Big creek		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Grand river drainage basin.



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3745-1-11 **Maumee river drainage basin.**

(A) The water bodies listed in table 11-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Maumee river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Raisin creek		*							*	*		*		
Bear creek		*							*	*		*		
Little Bear creek		*							*	*		*		
Halfway creek		*							*	*		*		
Shantee creek - headwaters to Detroit ave. (RM 2.8)							+		+	+		+		Small drainageway maintenance
- Detroit ave. to the mouth				+					+	+		+		HELP ecoregion - channel modification
Eisenbraum ditch							+		+	+			+	Small drainageway maintenance
Tifft ditch							+		+	+			+	Small drainageway maintenance
Silver creek - headwaters to upstream Maybee rd. (RM 2.9)							+		+	+		+		Small drainageway maintenance
- RM 2.9 to the mouth				+					+	+		+		HELP ecoregion - channel modification
Ketcham ditch (Silver creek RM 4.34)							+		+	+			+	Small drainageway maintenance
Ottawa river - Cherry st. to Summit st.		+							*	*		+		
- RM 10.6 to RM 7.9	o	+							*	*		+		
- all other segments		+							*	*		+		
Sibley creek							+		+	+		+		Small drainageway maintenance
Flieg ditch (Ottawa river RM 9.66)							+		+	+			+	Small drainageway maintenance
Williams ditch (Flieg ditch RM 1.0)							+		+	+			+	Small drainageway maintenance
Hill ditch (Ottawa river RM 11.81)							+		+	+			+	Small drainageway maintenance

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Heldman ditch (Hill ditch RM 0.47)				+					+	+			+	HELP ecoregion - channel modification
Haefner ditch (Hill ditch RM 0.96)							+		+	+			+	Small drainageway maintenance
Tenmile creek		+							*	*		*		
North branch		+							*	*		*		
Ottawa lake outlet		*							*	*		*		
Clampitt drain		*							*	*		*		
Big Ravine drain		*							*	*		*		
Saxton drain		*							*	*		*		
Bischoff drain		*							*	*		*		
Prairie ditch		*							*	*		*		
Unnamed tributary (Tenmile creek RM 16.92) - at RM 1.25								o						PWS intake - Metamora
Maumee river - I-75 (RM 7.1) to confluence with Maumee bay		o							*	*		*		
- at RM 23.16		*						o	*	*		*		PWS intake - Bowling Green
- RM 54.0 (downstream of Florida) to Grand Rapids dam (RM 32.3)				+					+	+		+		HELP ecoregion - impounded
- at RMs 35.91, 45.88, and 47.13				+				o	+	+		+		PWS intakes - McClure (RM 35.91), Campbell soup (RM 45.88), and Napoleon (RM 47.13)
- Tiffin river (RM 65.8) to Independence dam (RM 60.0)				+					+	+		+		HELP ecoregion - impounded

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
- at RM 65.84		*						o	*	*		*		PWS intake - Defiance
- all other segments		*							*	*		*		
Duck creek		+							*	*		*		
Swan creek - at RM 30.84		+						o	*	*		*		PWS intake - Swanton
- all other segments		+							*	*		*		
Heilman ditch							+		+	+			+	Small drainageway maintenance
Wolf creek		+							*	*		*		
Cairl creek (formerly Dry creek)		*							*	*		*		
Blue creek		+							*	*		*		
Mosquito creek		*							*	*		*		
South Swan creek		*							*	*		*		
Gail run		*							*	*		*		
West fork		*							*	*		*		
Delaware creek		*							*	*		*		
Grassy creek		+							*	*		*		
Tontogany creek		*							*	*		*		
Kettle run		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Beaver creek		*							*	*		*		
Little Beaver creek		*							*	*		*		
Cutoff ditch		*							*	*		*		
Brush creek		+							+	+			+	
Hickey ditch							+		+	+			+	Small drainageway maintenance
Selhorst ditch							+		+	+			+	Small drainageway maintenance
Yellow creek				+					+	+			+	HELP ecoregion - channel modification
West creek		*							*	*		*		
Little Yellow creek							+		+	+			+	Small drainageway maintenance
East Beaver creek		*							*	*		*		
West Beaver creek		*							*	*		*		
Big creek		*							*	*		*		
Lick creek		*							*	*		*		
Bad creek - headwaters to Fulton county line		+							+	+			+	
- Fulton county line to the mouth		+							+	+		+		
- at RM 17		+						+	+	+			+	PWS intake - Delta
South branch		+							+	+			+	
Dry creek		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
South Turkeyfoot creek		*							*	*		*		
Turkeyfoot creek		*							*	*		*		
Lost creek		*							*	*		*		
Brush creek		*							*	*		*		
West creek		*							*	*		*		
Mess ditch		*							*	*		*		
Gustwiller ditch		*							*	*		*		
Brinkman ditch		*							*	*		*		
North Turkeyfoot creek		+							+	+			+	
Konzen ditch (north Turkeyfoot creek RM 4.65)				+					+	+			+	HELP ecoregion - channel modification
Unnamed tributary segments immediately adjacent to Wauseon reservoir		*						+	*	*		*		PWS intake - Wauseon
Unnamed tributary (north Turkeyfoot creek RM 17.3)		+							+	+			+	
Unnamed tributary (north Turkeyfoot creek RM 18.4)							+		+	+			+	Small drainageway maintenance
Obernouse creek		*							*	*		*		
Vannyning creek		*							*	*		*		
Garrett creek		*							*	*		*		
Benien creek		*							*	*		*		
Brubaker creek		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Barnes creek		*							*	*		*		
Wade creek		*							*	*		*		
Huston creek		*							*	*		*		
Miami and Erie canal (Maumee river RM 53.6) - Independence (RM 6.1) to the mouth				+					*	*		+		HELP ecoregion - channel modification
Preston run		*							*	*		*		
Auglaize river - headwaters to Blanchard river (RM 26.2)		+							+	+		+		
- at Agerter rd. (RM 64.58)		+						+	+	+		+		PWS intake - Lima
- all other segments		*							*	*		*		
Powell creek		*							*	*		*		
Wagner run		*							*	*		*		
North Powell creek		*							*	*			+	
Hogback run		*							*	*		*		
South Powell creek		*							*	*			+	
Continental ditch							+		*	*			+	Small drainageway maintenance
Threemile creek		*							*	*		*		
Jackson ditch		*							*	*		*		
Beetree creek		*							*	*		*		
Fivemile creek		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Eagle creek		*							*	*		*		
Sixmile creek		*							*	*		*		
Bull creek		*							*	*		*		
Little Flatrock creek		*							*	*		*		
Flatrock creek - at RM 14.13		+						o	+	+		+		PWS intake - Paulding
- all other segments		+							+	+		+		
Wildcat creek		*							*	*		*		
Blue creek				+					+	+		+		HELP ecoregion - channel modification
Barcer run		*							*	*		*		
Dalaet-Broughton ditch (Blue creek RM 8.1)				+					+	+			+	HELP ecoregion - channel modification
Zielke ditch (aka Webster ditch)				+					+	+			+	HELP ecoregion - channel modification
Cunningham creek		*							*	*		*		
Buchanan ditch		*							*	*		*		
Upper Prairie creek		*							*	*		*		
Parker ditch		*							*	*		*		
Sponseller ditch		*							*	*		*		
Little Auglaize river				+					+	+			+	HELP ecoregion - channel modification
Prairie creek				+					+	+			+	HELP ecoregion - channel modification

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
West branch				+					+	+			+	HELP ecoregion - channel modification
Hog run				+					+	+			+	HELP ecoregion - channel modification
Hoaglin creek				+					+	+			+	HELP ecoregion - channel modification
Monkey run				+					+	+			+	HELP ecoregion - channel modification
Dog run				+					+	+			+	HELP ecoregion - channel modification
Hagerman creek				+					+	+			+	HELP ecoregion - channel modification
Dry creek				+					+	+			+	HELP ecoregion - channel modification
Middle creek				+					+	+			+	HELP ecoregion - channel modification
Maddox creek				+					+	+			+	HELP ecoregion - channel modification
Balyeat ditch				+					+	+			+	HELP ecoregion - channel modification
Sheets ditch (Maddox creek RM 21.7)				+					+	+			+	HELP ecoregion - channel modification
Town creek - at RM 18.35				+				+	+	+			+	HELP ecoregion - channel modification; PWS intake - Van Wert
- all other segments				+					+	+			+	HELP ecoregion - channel modification
Roller creek				+					+	+			+	HELP ecoregion - channel modification
Dog creek				+					+	+			+	HELP ecoregion - channel modification
Emmit Bell ditch				+					+	+			+	HELP ecoregion - channel modification
Spice run				+					+	+			+	HELP ecoregion - channel modification
Brandehoff ditch				+					+	+			+	HELP ecoregion - channel modification

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Dry fork				+					+	+			+	HELP ecoregion - channel modification
Hermann ditch				+					+	+			+	HELP ecoregion - channel modification
Benson ditch				+					+	+			+	HELP ecoregion - channel modification
Evans ditch							+		+	+			+	Small drainageway maintenance
Wolf ditch				+					+	+			+	HELP ecoregion - channel modification
Long Prairie creek				+					+	+			+	HELP ecoregion - channel modification
Kyle Prairie ditch				+					+	+			+	HELP ecoregion - channel modification
Greens ditch				+					+	+			+	HELP ecoregion - channel modification
Frisinger ditch				+					+	+			+	HELP ecoregion - channel modification
Prairie creek		*							*	*		*		
Blanchard river - at RMs 65.20, 62.43, 58.72, and 28.50		+						+	+	+		+		PWS intakes - Findlay (RMs 65.20, 62.43 and 58.72) and Ottawa (RM 28.50)
- headwaters to Hardin co. rd. 175 (RM 96.2)		+							+	+			+	
- all other segments		+							+	+		+		
Deer creek		*							*	*		*		
Bear creek		*							*	*		*		
Caton ditch		*							*	*		*		
Cranberry creek		+							+	+		*		
Pike run		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Lammer ditch		*							*	*		*		
Mack ditch		*							*	*		*		
Tawa run (Blanchard river RM 22.84)							+		*	*			+	Small drainageway maintenance
Omer Selhorst ditch (Tawa run RM 1.61)							+		*	*			+	Small drainageway maintenance
Riley creek		+							+	+		+		
Cranberry run		*							*	*		*		
Little Riley creek		+							+	+		+		
Marsh run		*							*	*		*		
May ditch		*							*	*		*		
Marsh run		*							*	*		*		
Little Riley creek		*							*	*		*		
Cummins ditch		*							*	*		*		
Binkley ditch		*							*	*		*		
Dutch run		*							*	*		*		
Bassinger ditch		*							*	*		*		
Dukes run		*							*	*		*		
Cartwright run		*							*	*		*		
Homer Green ditch		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Moffitt ditch		*							*	*		*		
Ottawa creek		+							+	+		*		
Tiderishi creek		*							*	*		*		
Burket ditch							+		+	+			+	Small drainageway maintenance
W.B. Moyer ditch (Ottawa creek RM 9.3)				+					+	+			+	HELP ecoregion - channel modification
Heininger (Hemminger) ditch							+		+	+			+	Small drainageway maintenance
Higbie-Redich ditch (Ottawa creek RM 14.4)				+					+	+			+	HELP ecoregion - channel modification
Oil ditch - headwaters to I-75 (RM 1.7)							+		+	+			+	Small drainageway maintenance
- I-75 to the mouth		+							+	+		*		
Eagle creek		+							+	+		*		
Buck run		+							+	+			+	
Flat branch		*							*	*		*		
Woodruff ditch		*							*	*		*		
Hydraulic ditch		*							*	*		*		
Lye creek		*							*	*		*		
Silver creek		*							*	*		*		
The outlet		*							*	*		*		
Brights ditch		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Stahl ditch		*							*	*		*		
Bacher ditch		*							*	*		*		
Potato run		+							+	+		*		
Rickenbach ditch		+							+	+			+	
Ripley run		*							*	*		*		
Forest Simpson ditch		+							+	+			+	
The outlet		*							*	*		*		
Shallow Run ditch		+							+	+			+	
Cessna creek		*							*	*		*		
Fourmile run		*							*	*		*		
Lapp ditch		*							*	*		*		
Ottawa river - at RM 43.45 (upstream of low head dam at Metzger rd.)		+						+	+	+		+		PWS intake - Lima
- at Roush rd. (RM 42.60)		+						+	+	+		+		PWS intake - Lima
- all other segments		+							+	+		+		
Plum creek		+							+	+		+		
Sycamore creek		*							*	*		*		
Sugar creek		*							*	*		*		
Rattlesnake creek		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Ford tributary (Sugar creek RM 18.8)		+							*	*			+	
Huber ditch		*							*	*		*		
Cotner ditch		*							*	*		*		
Leatherwood ditch		*							*	*		*		
Pike run				+					+	+		+		HELP ecoregion - channel modification
Honey run		*							*	*		*		
Dug run		*							*	*		*		
Kessler run		*							*	*		*		
Swalley ditch		*							*	*		*		
Little Ottawa river		+							+	+		+		
Zurmehly creek (Ottawa river RM 35.62)		+							+	+			+	
Lost creek		*							*	*		*		
Crosley ditch		*							*	*		*		
Hog creek - headwaters to Hardin-Allen county line (RM 5.6)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Grass creek		*							*	*		*		
No. 28 ditch		*							*	*		*		
Fitzhugh ditch		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Lord ditch		*							*	*		*		
Little Hog creek		+							+	+		+		
Mud run		*							*	*		*		
Welch run		*							*	*		*		
Big Run (Auglaize river RM 44.90)		+							+	+		+		
Jennings creek		*							*	*		*		
Flat fork		*							*	*		*		
West Jennings creek (Jennings creek RM 3.57)		+							+	+		+		
Miami and Erie canal (Jennings creek RM 4.6)				+					+	+		+		HELP ecoregion - channel modification
Prairie ditch		*							*	*		*		
Pigeon run (Auglaize river RM 55.51)		+							+	+		+		
Sixmile creek - headwaters to st. rte. 81 (RM 1.2)				+					+	+		+		HELP ecoregion - channel modification
- all other segments		+							+	+		+		
Buck run		*							*	*		*		
Twomile creek		+							+	+		+		
Pusheta creek		+							+	+		+		
Owl creek		*							*	*		*		
Unnamed tributary (Pusheta creek RM 2.87)		+							+	+		+		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Quaker creek		+							+	+		+		
Dry run		+							+	+		+		
Blackhoof creek		+							+	+		+		
Huffman creek		+							+	+		+		
Virginia creek		+							+	+		+		
Camp creek		*							*	*		*		
Wrestle creek		+							+	+		+		
Unnamed tributary (Auglaize river RM 99.78)		+							+	+		+		
Unnamed tributary (Auglaize river RM 108.90)		+							+	+		+		
Tiffin river - bordering Goll Woods preserve	o	+							+	+		+		
- at RM 47.54		+						o	+	+		+		PWS intake - Archbold
- all other segments		+							+	+		+		
Dowe ditch		*							*	*		*		
Webb run (Tiffin river RM 2.9)		+							+	+		+		
Tanby ditch		*							*	*		*		
Mattock ditch		*							*	*		*		
Buckskin creek		*							*	*		*		
Mud creek		+							+	+		+		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Lost creek		+							+	+		+		
Crooked creek		*							*	*		*		
Dry creek		*							*	*		*		
Lick creek		+							+	+		+		
Prairie creek		+							+	+		+		
Pigeon run (Prairie creek RM 11.0)				+					+	+		+		HELP ecoregion - channel modification
Black creek		*							*	*		*		
Little Lick creek		+							+	+		+		
Miller creek		+							+	+		+		
Dotty creek		*							*	*		*		
Brush creek - at RM 17.64		+						o	+	+		+		PWS intake - Archbold
- all other segments		+							+	+		+		
Owl creek		*							*	*		*		
Coon creek		+							+	+		+		
Beaver creek		+							+	+		+		
Lost creek		*							*	*		*		
Leatherwood creek		+							+	+			+	
Flat run		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Walnut run		+							+	+		+		
Bates creek		+							+	+		+		
Clear creek		+							+	+		+		
Mill creek		+							+	+		+		
West fork		*							*	*		*		
Bean creek		+							+	+		+		
Stag run		*							*	*		*		
Deer creek		+							+	+		+		
Spring brook		*							*	*		*		
Spring creek		*							*	*		*		
Iron creek		*							*	*		*		
Old Bean creek				+					+	+			+	HELP ecoregion - channel modification
Stevens ditch		*							*	*		*		
Snooks run		*							*	*		*		
Sulphur creek		*							*	*		*		
Platter creek		*							*	*		*		
Gordon creek				+					+	+		+		HELP ecoregion - channel modification
South fork				+					+	+		+		HELP ecoregion - channel modification

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
North fork				+					+	+		+		HELP ecoregion - channel modification
Middle fork				+					+	+			+	HELP ecoregion - channel modification
Mill creek				+					+	+			+	HELP ecoregion - channel modification
Marie DeLarme creek		*							*	*		*		
North branch		*							*	*		*		
Hook ditch		*							*	*		*		
Tustison creek		*							*	*		*		
South branch		*							*	*		*		
North creek		*							*	*		*		
South creek		*							*	*		*		
Worm ditch		*							*	*		*		
St. Joseph river		+							+	+		+		
Willow run		*							*	*		*		
Amaden ditch		*							*	*		*		
Greens ditch		*							*	*		*		
Big run		*							*	*		*		
Fish creek - state line (RM 5.6) to co. rte. 3 (RM 2.4)			+						+	+		+		
- all other segments		+							+	+		+		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Bluff run		*							*	*		*		
Ziegler ditch		*							*	*		*		
Bear creek - headwaters to RM 1.2				+					+	+		+		HELP ecoregion - channel modification
- all other segements		+							+	+		+		
Tamarack ditch		*							*	*		*		
Eagle creek		*							*	*		*		
North branch		*							*	*		*		
Nettle creek		*							*	*		*		
J. Lattaner ditch							+		*	*			+	Small drainageway maintenance
West branch		+							+	+		+		
East branch		*							*	*		*		
Clear fork		*							*	*		*		
Silver creek		+							+	+		+		
St. Marys river		+							+	+		+		
Prairie creek		*							*	*		*		
Duck creek		*							*	*		*		
Black creek				+					+	+		+		HELP ecoregion - channel modification
Little Black creek		*							*	*		*		

Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Sanift ditch		*							*	*		*		
Town run		*							*	*		*		
Ayre ditch		*							*	*		*		
Yankee run		*							*	*		*		
Dennison ditch		*							*	*		*		
Twelvemile creek		*							*	*		*		
Blierdofer ditch				+					+	+		+		ECBP ecoregion - channel modification
Green ditch (Blierdofer ditch RM 2.25)		*							*	*		*		
Waugh ditch (Blierdofer ditch RM 3.0) - headwaters to RM 1.8 (0.4 mile downstream of crossing with st. rte. 197)							+		+	+			+	Small drainageway maintenance
- RM 1.8 to the mouth				+					+	+			+	ECBP ecoregion - channel modification
Eightmile creek		*							*	*		*		
Hussey creek		*							*	*		*		
Sixmile creek		*							*	*		*		
Fourmile creek		*							*	*		*		
Unnamed tributary (Fourmile creek RM 3.72)							+		*	*			+	Small drainageway maintenance
Kopp creek		+							+	+			+	
Wierth ditch				+					+	+			+	ECBP ecoregion - channel modification

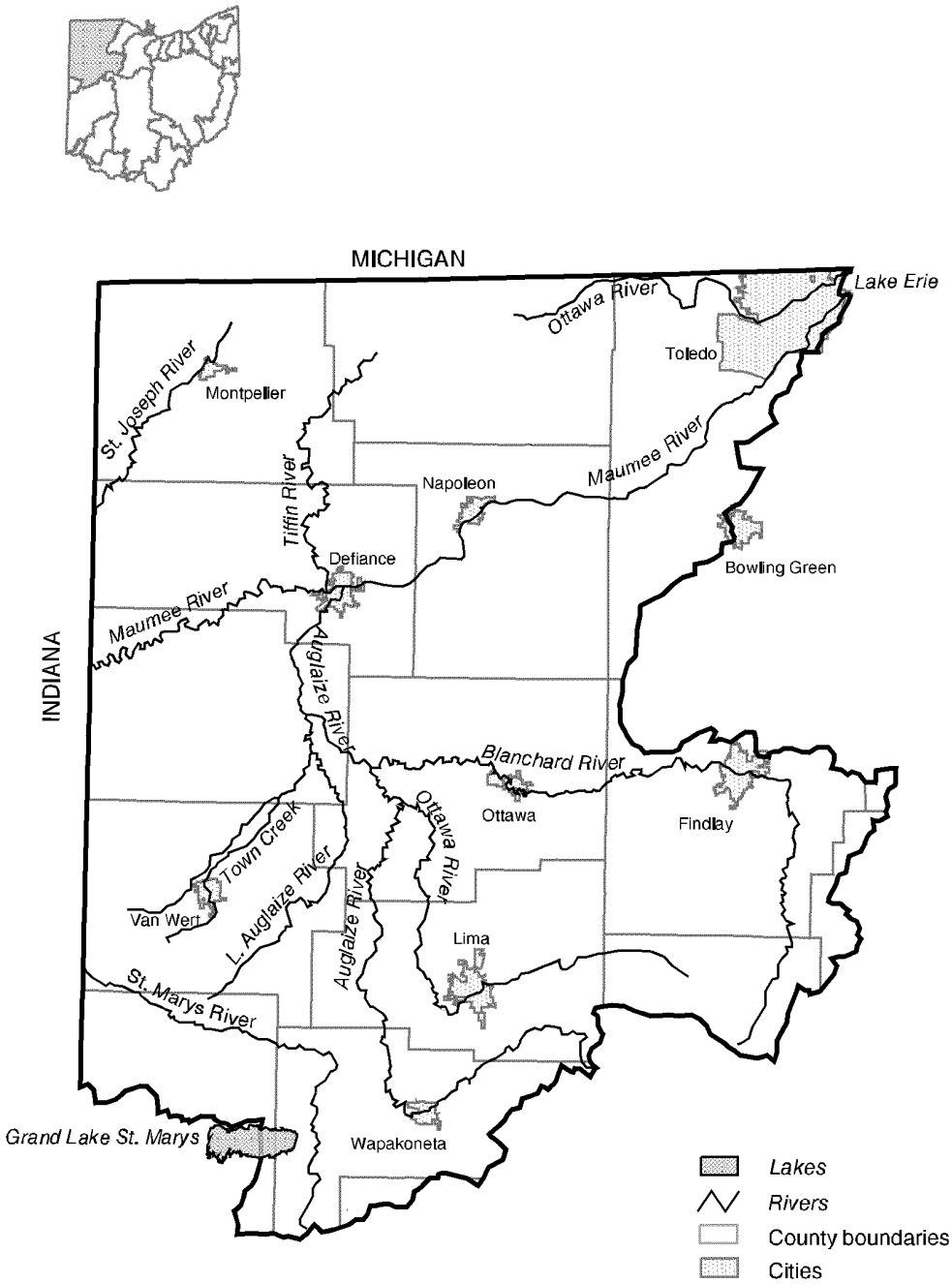
Table 11-1. Use designations for water bodies in the Maumee river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Unnamed tributary (Kopp creek RM 5.4)		*							*	*		*		
Clear creek		*							*	*		*		
Center branch		*							*	*		*		
Carter creek		*							*	*		*		
Muddy creek		*							*	*		*		
Little Chickasaw creek		*							*	*		*		
Chickasaw creek		*							*	*		*		
East fork		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Maumee river drainage basin.



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3745-1-12 **Sandusky river drainage basin.**

(A) The water bodies listed in table 12-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Sandusky river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 12-1. Use designations for water bodies in the Sandusky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Muddy creek		+							*	*		+		
Little Muddy creek		*							*	*		*		
Gries ditch		+							+	+			+	
North branch		+							*	*		*		
South branch		+							*	*		*		
Sandusky river - at RMs 18.02, 41.08, 82.9, 83.15 and 115.45		+						o	+	+		+		PWS intakes - Fremont (RM 18.02), Tiffin (RM 41.08), Upper Sandusky (RMs 82.9 and 83.15), and Bucyrus (RM 115.45)
- Fremont STP (RM 13.85) to Muskellunge creek (RM 9.37)		o							*	*		*		
- Ella st. dam (RM 42.1) to RM 19.0 (upstream from Fremont)		+							+	+		+		
- RM 45.0 to Ella st. dam (RM 42.1)				+					+	+		+		ECBP ecoregion - impounded
- headwaters to RM 45.0		+							+	+		+		
- all other segments		*							*	*		*		
Yellow slough		*							*	*		*		
Green creek - confluence with Beaver creek to st. rte. 20						*			*	*		*		
- all other segments		*							*	*		*		
Flag run		*							*	*		*		
Beaver creek - confluence with Westerhouse ditch (RM 4.73) to the mouth						*			*	*		*		

Table 12-1. Use designations for water bodies in the Sandusky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
- at RM 2.88						*		o	*	*		*		PWS intake - Clyde
- all other segments		*							*	*		*		
Owl creek		*							*	*		*		
Westerhouse ditch		*							*	*		*		
Albright ditch		*							*	*		*		
Noel ditch		*							*	*		*		
Emerson creek		*							*	*		*		
Royer ditch		*							*	*		*		
Bark creek		*							*	*		*		
Muskellunge creek		*							*	*		*		
Indian creek		*							*	*		*		
Wolf creek		*							*	*		*		
East branch		*							*	*		*		
Snuff creek		*							*	*		*		
East branch		*							*	*		*		
Middle branch		*							*	*		*		
John Smith ditch (East branch Wolf cr. RM 20.37)							+		*	*			+	Small drainageway maintenance
Michael Gruss ditch (John Smith ditch RM 3.97)							+		*	*			+	Small drainageway maintenance.

Table 12-1. Use designations for water bodies in the Sandusky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Sugar creek		*							*	*		*		
Spicer creek		*							*	*		*		
Morrison creek		*							*	*		*		
Willow creek		*							*	*		*		
Unnamed tributary (Willow creek RM 0.88)							o						o	Small drainageway maintenance.
Rock creek		+							+	+		+		
East branch		*							*	*		*		
Armstrong & Beighly ditch		*							*	*		*		
Carpenter ditch		*							*	*		*		
Gibson creek		*							*	*		*		
Bells run		*							*	*		*		
Honey creek - at RM 28.35		*						o	*	*		*		PWS intake - Attica
- co. rte. 19 (RM 1.1) to the mouth				+					+	+		+		HELP ecoregion - impounded
- all other segments		*							*	*		*		
Buckeye creek		+							+	+		+		
Silver creek		*							*	*		*		
Slee ditch (Silver creek RM 0.72)		+							+	+		+		
Eicholtz ditch		*							*	*		*		

Table 12-1. Use designations for water bodies in the Sandusky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Kagy ditch		*							*	*		*		
Bolinger ditch		*							*	*		*		
Hedden ditch		*							*	*		*		
Hooper ditch		*							*	*		*		
Schaaf ditch		*							*	*		*		
Brokenknife creek		*							*	*		*		
Kibler ditch (Brokenknife creek RM 5.27)							+		*	*			+	Small drainageway maintenance
Unnamed tributary (Brokenknife creek RM 5.50) - at RM 2.15								o						PWS intake - New Washington
Mile run		+							+	+		+		
Sycamore creek		+							+	+		+		
Greasy run		*							*	*		*		
Spring creek (Sycamore creeek RM 12.92)		+							+	+		+		
Taylor run		*							*	*		*		
Thorn run		*							*	*		*		
Tymochtee creek		+							+	+		+		
Spring run		*							*	*		*		
Poverty run		+							+	+		+		
No. 32 ditch		*							*	*		*		

Table 12-1. Use designations for water bodies in the Sandusky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Little Tymochtee creek		*							*	*		*		
Hart ditch		*							*	*		*		
Browns run		*							*	*		*		
Veith ditch		*							*	*		*		
Lick run		*							*	*		*		
Baughman run		*							*	*		*		
Blake ditch		*							*	*		*		
Perkins run		*							*	*		*		
Oak run		*							*	*		*		
Sugar run		*							*	*		*		
Warpole creek		*							*	*		*		
St. James run		*							*	*		*		
Unnamed tributary (Tymochtee creek RM 40.30)				+					+	+			+	HELP ecoregion - channel modification.
Little Tymochtee creek		*							*	*		*		
Reevhorn run		*							*	*		*		
Pawpaw run		*							*	*		*		
Pawpaw run		+							+	+		+		
Unnamed tributary (Pawpaw run RM 4.17)				+					+	+			+	HELP ecoregion - channel modification.

Table 12-1. Use designations for water bodies in the Sandusky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Carroll ditch				+					+	+			+	HELP ecoregion - channel modification.
Enoch creek		+							+	+		+		
Blood run		+							+	+		+		
Prairie run		+							+	+		+		
Thompson ditch				+					+	+			+	HELP ecoregion - channel modification.
Layton ditch		*							*	*		*		
Sugar run		+							+	+		+		
Negro run		+							+	+		+		
Spring branch		+							+	+		+		
Kiser run		*							*	*		*		
Porcupine creek		*							*	*		*		
Cranberry run		*							*	*		*		
Rock run		+							+	+		+		
Little Sandusky river		+							+	+		+		
Honey run		*							*	*		*		
Unnamed tributary (little Sandusky river RM 8.93)				+					+	+			+	HELP ecoregion - channel modification.
Broken Sword creek		+							+	+		+		
Indian run		*							*	*		*		

Table 12-1. Use designations for water bodies in the Sandusky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Brandywine creek		*							*	*		*		
Red run		*							*	*		*		
Grass run		*							*	*		*		
Gray Eye run		+							+	+		+		
West north Robinson run (Sandusky river RM 121.19)		+							+	+		+		
East north Robinson run (Sandusky river RM 122.09)		+							+	+		+		
Loss creek		+							+	+		+		
South fork		+							+	+		+		
Paramour creek		+							+	+		+		
Crestline STP tributary (Westerly creek / Paramour creek RM 1.92)		*							*	*		*		
Crestline tributary (West Crestline tributary / Paramour creek RM 2.88)		*							*	*		*		
PPG tributary (Paramour creek RM 5.13)		+							+	+			+	
Allen run		+							+	+		+		
South creek		*							*	*		*		
Raccoon creek - headwaters to U.S. rte. 6 (RM 3.1)		+							+	+			+	
- at RM 13.1		+						+	+	+			+	PWS intake - Clyde
- Clyde community park pond		+							+	+		+		
- RM 3.1 to mouth		+							+	+		+		

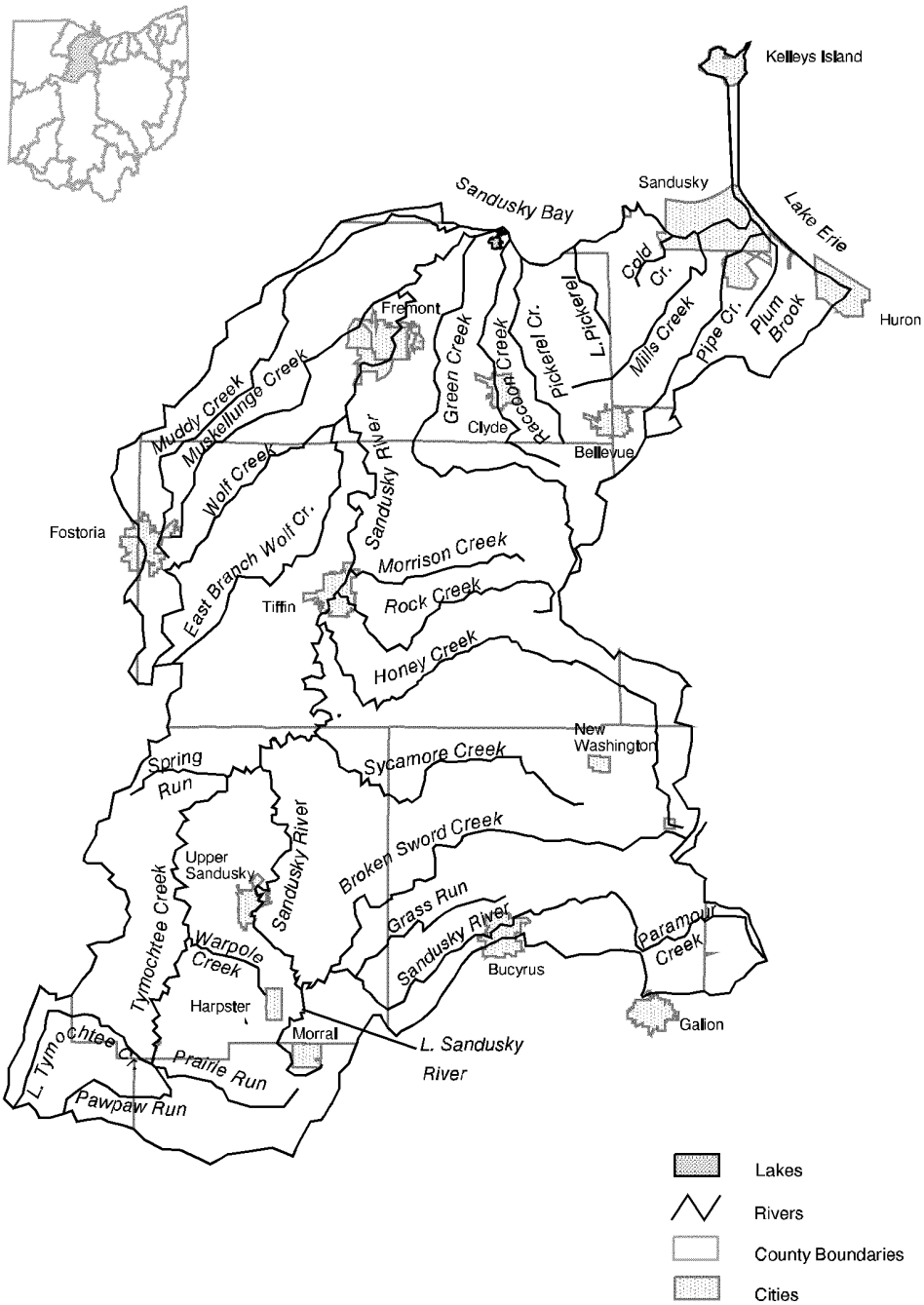
Table 12-1. Use designations for water bodies in the Sandusky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Little Raccoon creek		+							+	+			+	
Pickerel creek		+							+	+		*		
Strong creek		*							*	*		*		
Fuller creek		*							*	*		*		
Little Pickerel creek						**				*		*		
Cold creek and tributaries - Blue Hole to confluence with Lake Erie						*			*	*		*		
- all other segments		*							*	*		*		
Mills creek		*							*	*			*	
Caswell ditch		+							+	+			+	
Snyders ditch - at RMs 5.0 and 5.5				+				o	+	+			+	HELP ecoregion - channel modification; PWS intakes - Bellevue.
- all other segments				+					+	+			+	HELP ecoregion - channel modification.
Pipe creek		*							*	*		*		
Plum brook		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Sandusky river drainage basin.



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3745-1-13 **Central Ohio tributaries drainage basin.**

(A) The water bodies listed in table 13-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the central Ohio tributaries drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Duck creek		+							+	+		+		
Killwell run		*							*	*		*		
Burch's run		*							*	*		*		
Nigger run		*							*	*		*		
Sugar creek		*							*	*		*		
Reeds run		*							*	*		*		
Whipple run		*							*	*		*		
East fork Duck creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Pawpaw creek			+						+	+		+		
Middle fork Duck creek		+							+	+		+		
Otterslide run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Mare run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Camp run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Rocky run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Creighton run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Road fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Flag run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Schwab run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Elk fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Greasy run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
McBride run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Barnes run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
West fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Wolfpen run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
West fork Duck creek		+							+	+		+		
Goose hollow		*							*	*		*		
Buffalo run							o		*	*		*		Acid mine drainage.
Warren run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Elk run		*							*	*		*		
Salt run		+							+	+		+		
Otter run		*							*	*		*		
Dog run - at RM 1.35		*						o	*	*		*		
- all other segments		*							*	*		*		
Wolf run - at RM 0.7		*						o	*	*		*		
- all other segments		*							*	*		*		
Johnny Woods river		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Lick run		*							*	*		*		
Little Muskingum river	*		+						+	+		+		
Mill run		*							*	*		*		
Coal run		*							*	*		*		
Lick run		*							*	*		*		
Long run		*							*	*		*		
Eightmile creek		*							*	*		*		
Potpie run		*							*	*		*		
Cow run		*							*	*		*		
Moss run		*							*	*		*		
Baker run		*							*	*		*		
Fifteenmile creek		*							*	*		*		
Goss fork		*							*	*		*		
Deans fork		*							*	*		*		
Sycamore fork		*							*	*		*		
Bear run		*							*	*		*		
Hog run		*							*	*		*		
Archers fork		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Ward branch		*							*	*		*		
Coal run		*							*	*		*		
Cady run		*							*	*		*		
Jackson run		*							*	*		*		
Irish run		*							*	*		*		
Wingett run		*							*	*		*		
Haught run		*							*	*		*		
Sackett run		*							*	*		*		
Tice run		*							*	*		*		
Wilson run		*							*	*		*		
Clear fork		*							*	*		*		
Witten run			+						+	+		+		
Rias run		*							*	*		*		
Indian run		*							*	*		*		
Robinson run		*							*	*		*		
Death run		*							*	*		*		
Devoa run		*							*	*		*		
Oldcamp run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Straight fork		*							*	*		*		
Browns run		*							*	*		*		
Biglick run		*							*	*		*		
Pigeonroost run		*							*	*		*		
Rockcamp run		*							*	*		*		
Laurel run		*							*	*		*		
Witten fork		*							*	*		*		
Trail run		*							*	*		*		
Dogskin run		*							*	*		*		
Wildcat run		*							*	*		*		
Dismal creek		*							*	*		*		
Walnutcamp run		*							*	*		*		
Alum run		*							*	*		*		
Millers fork		*							*	*		*		
Woods run		*							*	*		*		
Coal run		*							*	*		*		
Haren run		*							*	*		*		
Buhrs run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Wolfpen run		*							*	*		*		
Town fork		*							*	*		*		
Rich fork		*							*	*		*		
Left prong		*							*	*		*		
Brister fork		*							*	*		*		
Cranenest fork		*							*	*		*		
Mutton run		*							*	*		*		
Sheets run		*							*	*		*		
Allen run		*							*	*		*		
Bells run		*							*	*		*		
Newell run		*							*	*		*		
Northup run		*							*	*		*		
Kerr run		*							*	*		*		
Bolivian run		*							*	*		*		
Danas run		*							*	*		*		
Reynolds run		*							*	*		*		
Davis run		*							*	*		*		
Reas run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Leith run			++							+		+		
Sheets run		*							*	*		*		
Collins run		*							*	*		*		
Mill creek		*							*	*		*		
Jims run		*							*	*		*		
Miller run		*							*	*		*		
Deadhorse run		*							*	*		*		
Parker run		*							*	*		*		
Barnes run		*							*	*		*		
Narrows run		*							*	*		*		
Patton run		*							*	*		*		
Pool run		*							*	*		*		
Havely run		*							*	*		*		
Texas creek		*							*	*		*		
Bares run		*							*	*		*		
Fisher run		*							*	*		*		
Ueltsch run		*							*	*		*		
Narrows run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Litman run		*							*	*		*		
Muhleman run		*							*	*		*		
Opossum creek		o							*	*		*		
Gilmore run		o							*	*		*		
Alum run		o							*	*		*		
Watkins fork		o							*	*		*		
Pine run		o							*	*		*		
Oliver run		o							*	*		*		
Wildcat run		o							*	*		*		
Bishop creek		*							*	*		*		
Sunfish creek - Paine run to Nigger run			+						+	+		+		
- at RM 25		+						+	+	+		+		
- all other segments		+							+	+		+		
Nigger run		*							*	*		*		
Paine run		*							*	*		*		
Ackerson run		*							*	*		*		
Pifiey ork		+						+++				*		
East fork		+							+	+			+	

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Standingstone run - RM 0.5 to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Death creek		*							*	*		*		
Baker fork		+							+	+		*		
Grassy creek		*							*	*		*		
Wheeler run		*							*	*		*		
Gardner run		*							*	*		*		
Stillhouse run		*							*	*		*		
Blair run		*							*	*		*		
Big run		++								+		*		
Captina creek - confluence with North and South forks to st. rte. 7 (RM 0.8)			+						+	+		+		
- st. rte. 7 to the mouth		+							+	+		+		
Cat run		+							+	+			+	
Moore run		*							*	*		*		
Peavine creek		*							*	*		*		
Rocky fork		*							*	*		*		
Anderson run		*							*	*		*		
Bend fork - headwaters to Joy fork (RM 4.0)		+							+	+		+		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
- Joy fork to the mouth			+						+	+		+		
Millers run		*							*	*		*		
Joy fork		*							*	*		*		
Packsaddle run		*							*	*		*		
Crabapple creek		*							*	*		*		
Piney creek		*							*	*		*		
Long run			+						+	+		+		
Casey run		*							*	*		*		
Berrys run		*							*	*		*		
Reeves hollow		*							*	*		*		
Mikes run		*							*	*		*		
South fork		+							+	+		*		
Brushy creek		*							*	*		*		
Flag run		*							*	*		*		
Cranenest creek		*							*	*		*		
Millers run		*							*	*		*		
Slope creek - at RM 1.85		*						o	*	*		*		
- all other segments		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
North fork - headwaters to Long run (RM 4.0)		+							+	+		+		
- Long run to the mouth			+						+	+		+		
Jakes run		*							*	*		*		
Long run		+							+	+		*		
Little Captina creek		*							*	*		*		
Pipe creek							+		+	+		*		Acid mine drainage
Big run - New Nacco mine #3 portal to confluence with Ohio river		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
- all other segments							+		+	+		*		Acid mine drainage
Wegee creek							+		*	*		*		Acid mine drainage
McMahon creek		+							+	+		+		
Brooks run		*							*	*		*		
Trough run		*							*	*		*		
Rock run		*							*	*		*		
Little McMahon creek - Chambers run (RM 5.8) to the mouth							+		+	+		+		Acid mine drainage
- at RM 6.6		*						+	*	*		*		
- all other segments		*							*	*		*		
Stillhouse run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Kings run							+		+	+			+	Acid mine drainage
Aults run							+		+	+			+	Acid mine drainage
Chambers run		*							*	*		*		
Williams creek		+							+	+		+		
Welsh run		*							*	*		*		
Porterfield run		*							*	*		*		
Hutchison run		*							*	*		*		
Neffs run		*							*	*		*		
Anderson run		*							*	*		*		
Brush run		*							*	*		*		
Roberts run		*							*	*		*		
Barkcamp creek		*							*	*		*		
Indian run		*							*	*		*		
Whisky run		*							*	*		*		
Moore run		*							*	*		*		
Wheeling creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Frazier run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Slaughterhouse run		*							*	*		*		
Flat run		*							*	*		*		
McMonies run		*							*	*		*		
Steep run		*							*	*		*		
Town run		+							+	+			+	
Fall run		*							*	*		*		
Jug run - at RM 3.18		*						o	*	*		*		
- all other segments		*							*	*		*		
Sloan run		*							*	*		*		
Cox run		*							*	*		*		
Patton run		*							*	*		*		
Pogue run		*							*	*		*		
Loves run		*							*	*		*		
McCracken run		*							*	*		*		
Crabapple creek - Campbell creek (RM 1.0) to the mouth				+					+	+		+		WAP ecoregion - mine affected
- all other segments		+							+	+		+		
Campbell creek		*							*	*		*		
Ross run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Glenns run		*							*	*		*		
Nixon run		*							*	*		*		
Patton run		*							*	*		*		
Buckeye run		*							*	*		*		
Patton run		*							*	*		*		
Deep run		*							*	*		*		
Short creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Williamson run		*							*	*		*		
Little Short creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Parkers run		*							*	*		*		
Coal run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Jug run		*							*	*		*		
Dry fork		*							*	*		*		
Piney fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Cabbage fork		*							*	*		*		
Henderson creek		*							*	*		*		
Thompson creek		*							*	*		*		
Little Piney fork		*							*	*		*		
Harrah run		*							*	*		*		
Long run		*							*	*		*		
Perrin run		*							*	*		*		
Goose run		*							*	*		*		
North fork		*							*	*		*		
Coal run		*							*	*		*		
Flag run		*							*	*		*		
Skelley creek		*							*	*		*		
Flag run		*							*	*		*		
Middle fork				+					+	+		+		WAP ecoregion - mine affected
Sally Buffalo creek (Middle fork RM 6.33)				+					+	+		+		WAP ecoregion - mine affected
South fork		*							*	*		*		
Little Rush run		*							*	*		*		
Rush run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Blues run		*							*	*		*		
Salt run		**								*		*		
Blockhouse Hollow run (Ohio river RM 905.3)							+			*			+	Irretrievable flow modification
Tarrs run		*							*	*		*		
Cross creek		+							+	+		+		
Dry fork - headwaters to unnamed tributary (RM 0.5)		+							+	+			+	
- unnamed tributary (RM 0.5) to the mouth							+		+	+			+	Acid mine drainage
Unnamed tributary (Dry fork RM 0.5)							+		+	+			+	Acid mine drainage
Wintersville "E" tributary (Dry fork RM 4.55)		+							+	+		+		
McIntyre creek		+							+	+		*		
Longs run						**				*		*		
Polecat hollow						**				*		*		
Slabcamp creek						**				*		*		
Slab run						**				*		*		
Little McIntyre creek						**				*		*		
Unnamed tributary (Cross creek RM 8.7)							+		+	+		+		Acid mine drainage
Barber Hollow run		+							+	+			+	
Cedar Lick run						**				*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Cedar Lick creek		+							+	+			+	
Clay Lick creek						**				*		*		
Salem creek		+							+	+		+		
Grassy run						**				*		*		
Lea branch						**				*		*		
North branch		+							+	+		+		
Wells run		*							*	*		*		
Permars run						++				+		+		
Wills creek	+	+							+	+		+		
Rush run		*							*	*		*		
Cedar creek		*							*	*		*		
North fork						++				+		+		
Island creek						++				+		+		
Little Island creek		*							*	*		*		
Hale run		*							*	*		*		
Shelley run		*							*	*		*		
Jeddo run						++				+		+		
Croxton run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Goose run						++				+		+		
Brimstone run		*							*	*		*		
Yellow creek		+							+	+		+		
Rocky run		*							*	*		*		
Hollow Rock run		+							+	+		+		
Tarburner run		*							*	*		*		
Carter run		*							*	*		*		
North fork		+							+	+		+		
Dry run		*							*	*		*		
Salt run		*						+	*	*		*		
Unnamed tributary (North fork RM 6.1)		+							+	+		+		
Salisbury run							+		+	+		+		Acid mine drainage
Randolph run							+		+	+		+		Acid mine drainage
Nancy run						++				+		+		
Roses run		*							*	*		*		
Riley run		+						+	+	+		*		
Brush creek		*							*	*		*		
Dennis run		*							*	*		*		

Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Roach run		*							*	*		*		
Lowery run		*							*	*		*		
Town fork		*							*	*		*		
Dry run		*							*	*		*		
Culp run		*							*	*		*		
Rippy run		*							*	*		*		
Long run		*							*	*		*		
Hildebrand run		*							*	*		*		
Unnamed tributary (Yellow creek RM 12.0)							+		+	+		+		Acid mine drainage
Roach run		*							*	*		*		
Ralston run		+							+	+		+		
Mathews run		*							*	*		*		
Upper North fork		+							+	+		+		
Hump run		*							*	*		*		
Burgett run		*							*	*		*		
Carroll run		*							*	*		*		
Hazel run		*							*	*		*		
Elkhorn creek			+						+	+		+		

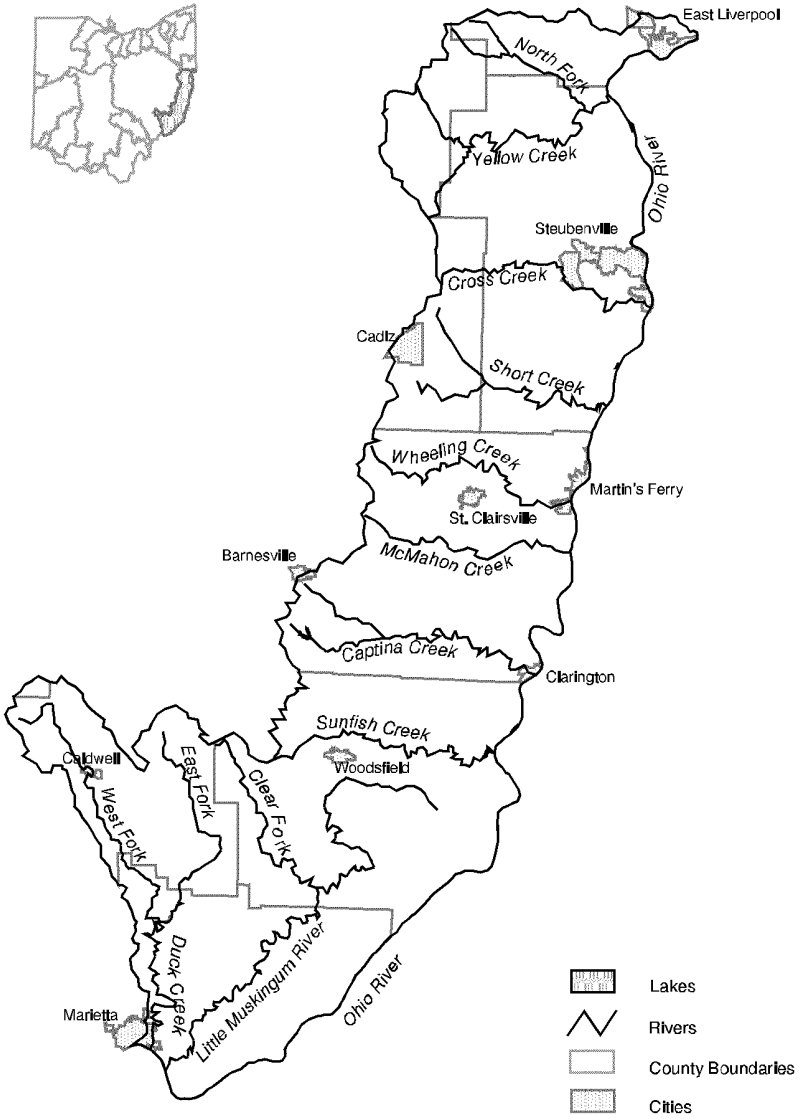
Table 13-1. Use designations for water bodies in the central Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Strawcamp run			+						+	+		+		
Center fork						++				+		+		
Trail run						++				+		+		
Frog run			*						*	*		*		
Wolf creek							+		+	+		+		Acid mine drainage
Cox creek		*							*	*		*		
Goose creek		*							*	*		*		
Elk fork		*							*	*		*		
Elk lick		*							*	*		*		
McQueen run		*							*	*		*		
Little Yellow creek		*							*	*		*		
Alder Lick run		*							*	*		*		
Wells run		*							*	*		*		
California hollow		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Central Ohio tributaries drainage basin.



Effective: 7/21/02

R.C. Section 119.032 rule review dates: 4/27/99, 9/19/01, 7/21/07

Promulgated under: R.C. Section 119.03
Rule authorized by: R.C. Section 6111.041
Rule amplifies: R.C. Section 6111.041
Prior effective dates: 4/4/85, 8/19/85, 5/6/93, 4/26/97, 7/31/99

3745-1-14 **Ashtabula river drainage basin.**

(A) The water bodies listed in table 14-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Ashtabula river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 14-1. Use designations for water bodies in the Ashtabula river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Arcola creek - U.S. rte. 20 (RM 4.3) to the mouth		+			o				+	+		+		
- all other segments		+							+	+		+		
Wheeler creek - estuary zone		*			o				*	*		*		
- all other segments		*							*	*		*		
Cowles creek - estuary zone (RM 0.8 - 0.0)		+			+				+	+		+		
- all other segments		+							+	+		+		
Indian creek		*							*	*		*		
Red brook		*							*	*		*		
Ashtabula river - st. rte. 11 (RM 5.8) to mouth		+			o					+		+		
- all other segments		+							+	+		+		
Strong brook							+			*		*		Small drainageway maintainance
Fields brook		+								+		+		
West brook							+			+			+	Small drainageway maintainance
Hubbard run		*							*	*		*		
Ashtabula creek		*							*	*		*		
West branch		+							+	+		+		
East branch		+							+	+		+		
Conneaut creek			+		o				+	+		+		

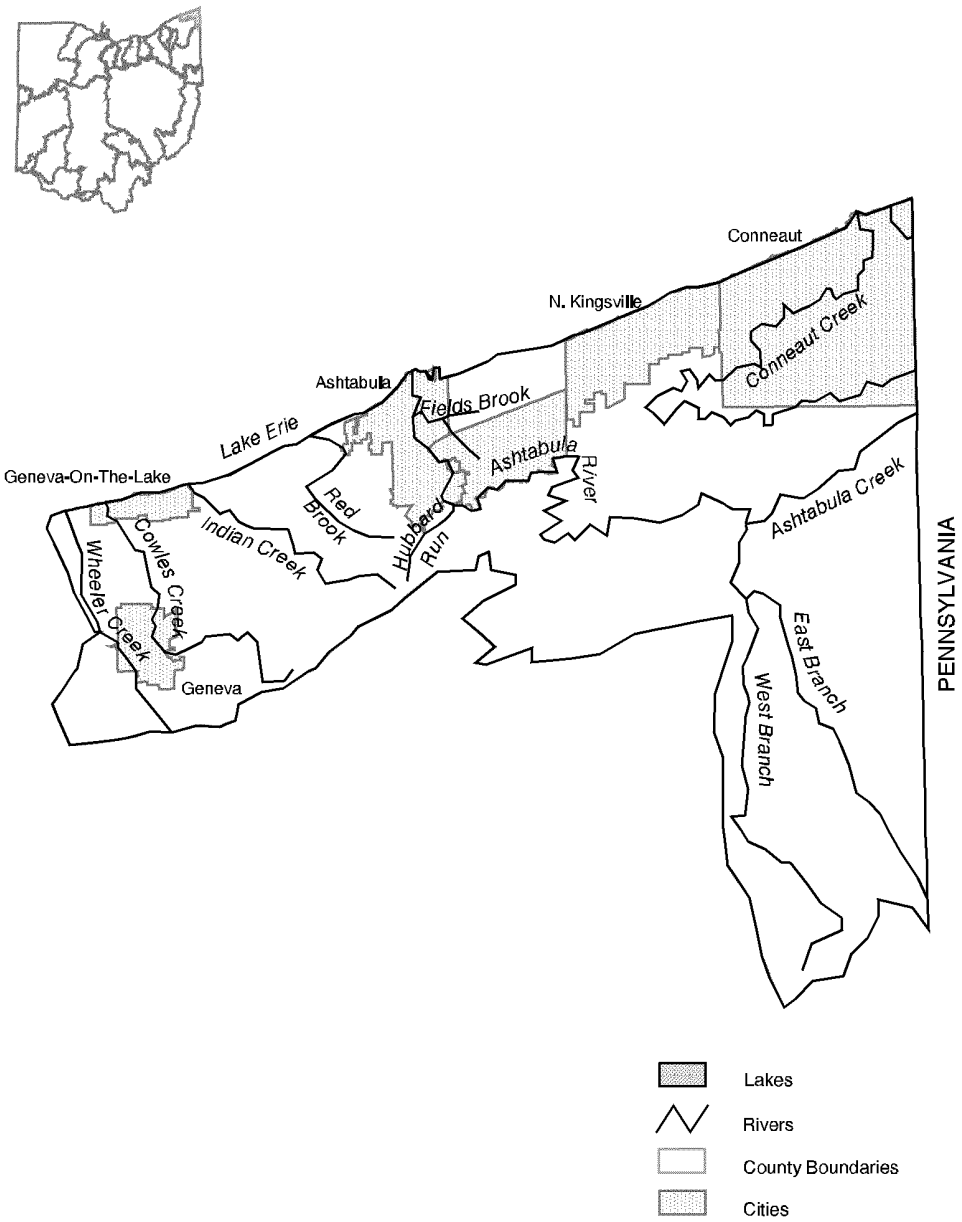
Table 14-1. Use designations for water bodies in the Ashtabula river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Smokey run (Conneaut creek RM 3.5)					o									
Turkey creek					o*				**			*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Ashtabula river drainage basin.



Effective: 7/21/2002

R.C. 119.032 review date: 7/23/2012

Promulgated under: R.C. 119.03
Rule authorized by: R.C. 6111.041
Rule amplifies: R.C. 6111.041
Prior effective dates: 4/4/1985, 8/19/1985, 4/21/1992, 9/23/1992, 7/31/1998

3745-1-15 **Little Beaver creek drainage basin.**

(A) The water bodies listed in table 15-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the little Beaver creek drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 15-1. Use designations for water bodies in the little Beaver creek drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Little Beaver creek			+						+	+		+		
Island run		*							*	*		*		
Bieler run			+			+			+	+		*		
North fork - Ohio-Pennsylvania state line (RM 7.75) to the mouth			+						+	+		+		
- headwaters to Ohio-Pennsylvania state line (RM 30.12)		+							+	+		+		
Pine run		*							*	*		*		
Brush run			+			+			+	+		*		
Bull creek - st. rte. 558 (RM 6.02) to the mouth			+			+			+	+		+		
- all other segments		+							+	+		+		
Leslie run - adjacent to st. rte. 170 (RM 1.9) to the mouth						+			+	+		+		
- all other segments		+							+	+		+		
Unnamed tributary							+*			*			+	
Little Bull creek			+			+			+	+		+		
Turkey run		+							+	+		+		
Stateline creek		+							*	*		+		
West fork		+							*	*			+	
East ork			+++							++				
Rough run						++				+		+		

Table 15-1. Use designations for water bodies in the little Beaver creek drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Longs run			+			+			+	+		+		
Middle fork - spillway at Lisbon (RM 12.5) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Turkeyfoot run			+			+			+	+		+		
Pine un			+++							+		+		
Elk un			+++							+		+		
Middle run						++				+		+		
Stone mill run - Cunningham rd. (RM 2.0) to the mouth						+			+	+		+		
- all other segments		*							+	+		+		
East branch		+							+	+		+		
Cherry Valley run		+							+	+		+		
Nease tributary		+							+	+		+		
West fork - Cold run (RM 19.1) to the mouth			+						+	+		+		
- all other segments		*							*	*		*		
Patterson		*							*	*		*		
Peters run						++				+		+		
Brush run		+							+	+		+		
McCormick run			+			+			+	+		+		

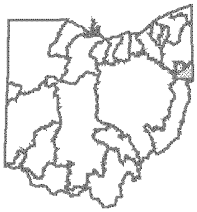
Table 15-1. Use designations for water bodies in the little Beaver creek drainage basin.

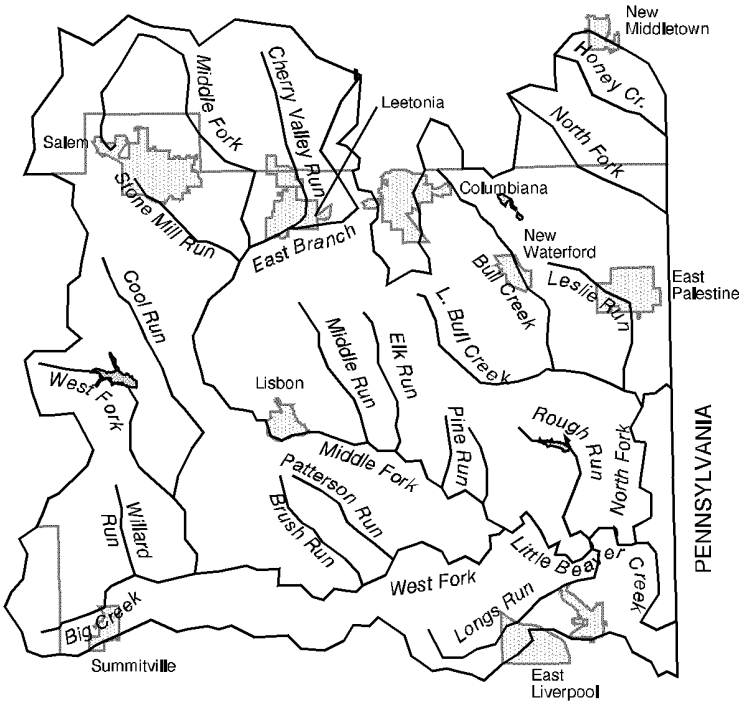
Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Brush creek		+							+	+		+		
Williard run		+							+	+		+		
Cold run - at RM 4.96			+					o	+	+		+		PWS intake - Salem
- all other segments			+						+	+		+		
Unnamed tributary (Cold run RM 4.97) - at RM 1.42								o						PWS intake - Salem

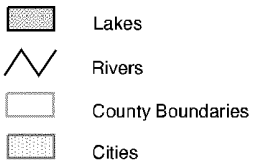
SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Little Beaver creek drainage basin.







Effective: 4/1/2007

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Promulgated Under: R.C. 119.03
Statutory Authority: R.C. 6111.041
Rule Amplifies: R.C. 6111.041
Prior Effective Dates: 4/4/1985, 7/28/1986, 4/21/1992, 7/21/2002

3745-1-16 **Southeast Ohio tributaries drainage basin.**

(A) The water bodies listed in table 16-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the southeast Ohio tributaries drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Munn run		*							*	*		*		
Little Scioto river	*	+							+	+		+		
Swauger Valley run		+							*	*		*		
Bonser run		+							*	*		*		
Plum fork		+							*	*		*		
Oven lick		+							*	*		*		
Dry run		+							*	*		*		
Frederick creek		+							*	*		*		
Skull creek		+							*	*		*		
Falls creek		+							*	*		*		
Rocky fork	*	+							+	+		+		
Long run		+							*	*		*		
Harrison Furnace creek		+							*	*		*		
Tattle creek		+							*	*		*		
Yankee run		+							*	*		*		
Sweet run		+							*	*		*		
Higgins run		+							*	*		*		
McConnel creek		+							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Bull run		+							*	*		*		
Blue run		+							*	*		*		
Back run		+							*	*		*		
Buck run		+							*	*		*		
Fallen Timber creek		+							*	*		*		
Hunting run		+							*	*		*		
Owl creek		+							*	*		*		
Sand run		+							*	*		*		
Laurel Lick run		+							*	*		*		
Blue Ash run		+							*	*		*		
Bear run	*	+							+	+		+		
Holland fork		+							*	*		*		
Bucklick creek		+							*	*		*		
Little Bucklick creek		+							*	*		*		
Tattle creek		+							*	*		*		
Scaffold lick		+							*	*		*		
Laurel fork		+							*	*		*		
Buckhorn creek		+							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Sugarcamp creek		+							*	*		*		
Jacko run		+							*	*		*		
Millstone run		+							*	*		*		
Glade run		+							*	*		*		
Dry run		+							*	*		*		
Polecat creek		+							*	*		*		
McDowell creek		+							*	*		*		
Brushy fork		+							*	*		*		
Pine creek	*	+							+	+		+		
Lick run		*							*	*		*		
Sugar creek		*							*	*		*		
North fork		*							*	*		*		
Duck creek		*							*	*		*		
Poplar fork		*							*	*		*		
Sperry fork		*							*	*		*		
Union branch	*	*							*	*		*		
Little Pine creek		*							*	*		*		
Darby creek	*	*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Cannons creek		*							*	*		*		
Cooney branch	*	*							*	*		*		
Bear run	*	*							*	*		*		
Turkeyfoot run		*							*	*		*		
Howard run	*	*							*	*		*		
Hales creek	*	*							*	*		*		
Brady run	*	*							*	*		*		
Jackson fork		*							*	*		*		
Youngs branch	*	*							*	*		*		
Brushy fork	*	*							*	*		*		
Olive creek	*	*							*	*		*		
Nigger creek	*	*							*	*		*		
Painter creek	*	*							*	*		*		
Patton run		*							*	*		*		
Ginat run		*							*	*		*		
Gervais run		*							*	*		*		
Big Thief creek (Ohio river mile 334.2)							+		+	+			+	Small drainageway maintainance
Winkler run (Ohio river mile 333.6)							+		+	+			+	Small drainageway maintainance

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Shilling tributary (Winkler run RM 2.15)							+		+	+			+	Small drainageway maintainance
Norman run		*							*	*		*		
Osburn run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Storms creek - headwaters to downstream boundary of Wayne national forest (RM 8.3)	*	+							++			+		
- all other segments		+							+	+		+		
Little Storms creek	*	+							*	*		*		
Hecla branch		+							*	*		*		
Paddle fork	*	+							*	*		*		
Ice creek		+							+	+		+		
Hog run		+							*	*		*		
Little Ice creek		+							*	*		*		
Sugar creek		+							*	*		*		
Turkey fork		+							*	*		*		
Ned fork		+							*	*		*		
Dog fork		+							*	*		*		
Lick creek		*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Salliday creek		*							*	*		*		
Buffalo creek		*							*	*		*		
Symmes creek	*	+							+	+		+		
Big creek		*							*	*		*		
McKinney creek		*							*	*		*		
Rankin creek		*							*	*		*		
Leatherwood creek		*							*	*		*		
Venisonham creek		*							*	*		*		
Dicks creek		*							*	*		*		
Yellow creek		*							*	*		*		
Sharps creek		*							*	*		*		
Elkins creek	*	*							*	*		*		
Aaron creek		*							*	*		*		
Long creek		*							*	*		*		
Buckeye creek		*							*	*		*		
Buck creek		*							*	*		*		
Johns creek	*	*							*	*		*		
Buckeye creek	*	*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Brushy Buckeye creek	*	*							*	*		*		
Slab ork	**								**			*		
Pigeon creek		*							*	*		*		
Buffalo creek	*	+							+	+		+		
Coulley fork	*	+							+	+		+		
Miller creek	*	*							*	*		*		
Little Buffalo creek	*	*							*	*		*		
Indian creek	*	*							*	*		*		
Little Buffalo creek	*	*							*	*		*		
Camp creek	*	*							*	*		*		
Trace creek	*	*							*	*		*		
Sand fork		*							*	*		*		
Peter Cave creek		*							*	*		*		
Wolf creek	*	*							*	*		*		
Black ork	**								**			*		
Dirtyface creek	*	*							*	*		*		
Clear ork	**								**			*		
Dicks creek		*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Lefthand fork	*	*							*	*		*		
Huntingcamp creek		*							*	*		*		
Cub run		*							*	*		*		
Mackley run		*							*	*		*		
Hewitt run	*	*							*	*		*		
Cherry fork	*	*							*	*		*		
Sugar run	*	*							*	*		*		
Indian Guyan creek		+							+	+		+		
Bent creek		*							*	*		*		
Bear creek		*							*	*		*		
Fourmile creek		*							*	*		*		
Fivemile creek		*							*	*		*		
Slate run		*							*	*		*		
Wolf creek		*							*	*		*		
Wagner branch		*							*	*		*		
Little Indian Guyan creek		*							*	*		*		
Spring branch		*							*	*		*		
Georges creek		*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Lanes branch		*							*	*		*		
Rocky fork		*							*	*		*		
Johns creek		*							*	*		*		
Drake fork		*							*	*		*		
Perigen creek		*							*	*		*		
Paddy creek		*							*	*		*		
Twomile creek		*							*	*		*		
Federal creek		*							*	*		*		
Clean fork		*							*	*		*		
Dirty fork		*							*	*		*		
Stillhouse branch		*							*	*		*		
Swan creek		*							*	*		*		
Little Swan creek		*							*	*		*		
Peters branch		*							*	*		*		
Hildebrand run		*							*	*		*		
Teens run		*							*	*		*		
Burrels run		*							*	*		*		
Raccoon creek - confluence of East and West branches (RM 111.9) to Sandy run							+		+	+		+		Acid mine drainage

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- Sandy run (RM 95.52) to the mouth		+							+	+		+		
Bear run		*							*	*		*		
Bullskin creek		+							+	+		+		
Little Bullskin creek		+							+	+		+		
Burnt run		*							*	*		*		
Rocklick creek		*							*	*		*		
Clear fork		+							+	+		+		
Claylick run		+							+	+		+		
Little Claylick run		*							*	*		*		
Fox branch		*							*	*		*		
Rocky fork		+							+	+		*		
Mud creek		*							*	*		*		
Fork creek		*							*	*		*		
Polecat run		*							*	*		*		
Big Beaver creek														
Little Beaver creek (Big Beaver creek RM 1.63)		+							+	+		+		
Ryan run		+							+	+		+		
Indian creek		*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Little Indian creek		+							+	+		+		
Plum run		+							+	+		*		
Barren creek		+							+	+		+		
Trace run		+							+	+		+		
Little Raccoon creek - Lake Rupert	+		*					+	*	*		*		
- at RM 30	+	+						+	+	+		*		
- all other segments	+	+							+	+		+		
Deer creek	*	*							*	*		*		
Keeton run		*							*	*		*		
Spring run		*							*	*		*		
Dickason run - headwaters to Dixon run (RM 1.3)		+							+	+		+		
- Dixon run (RM 1.3) to the mouth							+		+	+		+		Acid mine drainage
Kyger run							o		*	*		*		Acid mine drainage
Tarcamp run							+		*	*		*		Acid mine drainage
Goose run							+		+	+			+	Acid mine drainage
Greasy run							+		+	+			+	Acid mine drainage
Buffer run							+		+	+			+	Acid mine drainage
Flint run							+		+	+			+	Acid mine drainage

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Coal run		+							+	+			+	
Rich run							+		+	+		+		Acid mine drainage
Mulga run							+		*	*		*		Acid mine drainage
Meadow run		+							+	+		+		
Sand run		+							*	*		*		
Tripp run		*							*	*		*		
Sugar run		+							+	+		+		
Johnson run		*							*	*		*		
McConnel run	*		*						*	*		*		
Robinson run		+							+	+		+		
Sugar run		*							*	*		*		
Strongs run	*	+							+	+		+		
Williams run	*		*						*	*		*		
Opossum run		+							+	+		+		
Flatlick run		+							+	+		+		
Karr run							+		+	+			+	Acid mine drainage
Indiancamp run							+		+	+		+		Acid mine drainage
Rockcamp run							+		+	+		+		Acid mine drainage

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Pierce run	*						+		+	+		+		Acid mine drainage
Zinns run		+							+	+		+		
Elk fork - headwaters to Puncheon fork (RM 13.88)	+	+							+	+		+		
- Puncheon fork to the mouth		+							+	+		+		
Alman run		+							+	+		*		
Flat run		+							+	+		*		
Wolf run							+		+	+		*		Acid mine drainage
Puncheon fork		+							+	+		+		
Austin Powder tributary		+							+	+			+	
Brush fork							o		*	*		*		Acid mine drainage
Long run		+							+	+			+	
Flat run		+							+	+			+	
Russell run		+							+	+			+	
Merrit run		+							+	+			+	
Tedroe run		+							+	+			+	
Onion creek		+							+	+		+		
Laurel run		+							+	+		+		
Hewett fork							o		+	+		+		Acid mine drainage

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Rockcamp creek		+							+	+		+		
Coal run		+							+	+			+	
Pine run		+							+	+		+		
Grass run		+							+	+			+	
Carbondale creek							+		+	+		+		Acid mine drainage
Sandy run - headwaters to Lake Hope	*	*							*	*		*		
- all other segments		*							*	*		*		
Little Sandy run	*	*							*	*		*		
Wheelabout creek	*	+							+	+		+		
Brushy fork	*	+							+	+		+		
Dunkle creek		+							+	+		+		
Siverly creek		+							+	+		+		
Unnamed tributary (Raccoon creek RM 98.96)		+							+	+		+		
Rocky branch		*							*	*		*		
Twomile run		+							+	+		+		
East branch							+		+	+		+		Acid mine drainage
West branch		+							+	+		+		
Honey fork		+							+	+		+		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Claylick run		*							*	*		*		
Sardis run		*							*	*		*		
Long run		*							*	*		*		
Clark run		*							*	*		*		
Evans run		*							*	*		*		
Chickamauga creek		*							*	*		*		
Paint creek		*							*	*		*		
Little Chickamauga creek		*							*	*		*		
Mill creek		*							*	*		*		
George creek		*							*	*		*		
Campaign creek		+							+	+		+		
Little Campaign creek		*							*	*		*		
Flatfork run		*							*	*		*		
Little Whiteoak creek		*							*	*		*		
Whiteoak creek		*							*	*		*		
Wolf run		*							*	*		*		
Kyger creek - confluence with Jessie creek to the mouth							+		+	+		+		Acid mine drainage
- headwaters to confluence with Jessie creek		+							+	+		+		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Little Kyger creek							+		+	+		*		Acid mine drainage
Turkey run							+		+	+		*		Acid mine drainage
Stingy run							+		+	+		*		Acid mine drainage
Jessie creek							+		+	+		*		Acid mine drainage
Bell Lick run		+							*	*		*		
Stores run		*							*	*		*		
Silver run		*							*	*		*		
Leading creek	+	+							+	+		+		
Dirt creek		*							*	*		*		
Hysell run		*							*	*		*		
Bailey run		*							*	*		*		
Thomas fork		*							*	*		*		
Long hollow		*							*	*		*		
Little Leading creek		*							*	*		*		
Malloons run		*							*	*		*		
Parker run		*							*	*		*		
Muddy fork		*							*	*		*		
Dexter run		*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Mud fork		*							*	*		*		
Ogden run		*							*	*		*		
Sisson run		*							*	*		*		
Fivemile run		*							*	*		*		
Forest run		*							*	*		*		
Kerr run		*							*	*		*		
Jesse run		*							*	*		*		
Bowman run		*							*	*		*		
German fork		*							*	*		*		
Wolf run		*							*	*		*		
Dunham run		*							*	*		*		
Cabin creek		*							*	*		*		
Jennie Walls run		*							*	*		*		
Tupper run		*							*	*		*		
Johns run		*							*	*		*		
Mill run		**								*		*		
Tanner run		*							*	*		*		
Toms run		*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Oldtown creek		*							*	*		*		
Granny run		*							*	*		*		
Silver creek		*							*	*		*		
Savers run		*							*	*		*		
Groundhog creek		*							*	*		*		
Dry run		**								*		*		
Locks run		*							*	*		*		
Wells run		*							*	*		*		
Dewitt run		*							*	*		*		
Perry run		*							*	*		*		
Long run		*							*	*		*		
Shade river		+							+	+		+		
Spruce run		*							*	*		*		
Big run		*							*	*		*		
East branch	*		*						*	*		*		
Spicer creek		*							*	*		*		
Barney fork		*							*	*		*		
Lickskillet run		*							*	*		*		

Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Big run		*							*	*		*		
Joes creek		*							*	*		*		
Meigs creek		*							*	*		*		
Kappel hollow		*							*	*		*		
Guthrie creek		*							*	*		*		
Palk hollow		*							*	*		*		
Dog hollow		*							*	*		*		
Sugar run		*							*	*		*		
Horse Cave creek		*							*	*		*		
Straight Hollow run		*							*	*		*		
East Horse Cave creek		*							*	*		*		
Aumiller creek		*							*	*		*		
Middle branch	*		*						*	*		*		
Elk run		*							*	*		*		
Wolfpen run		*							*	*		*		
Pratts fork		*							*	*		*		
Long run		*							*	*		*		
Spring branch		*							*	*		*		

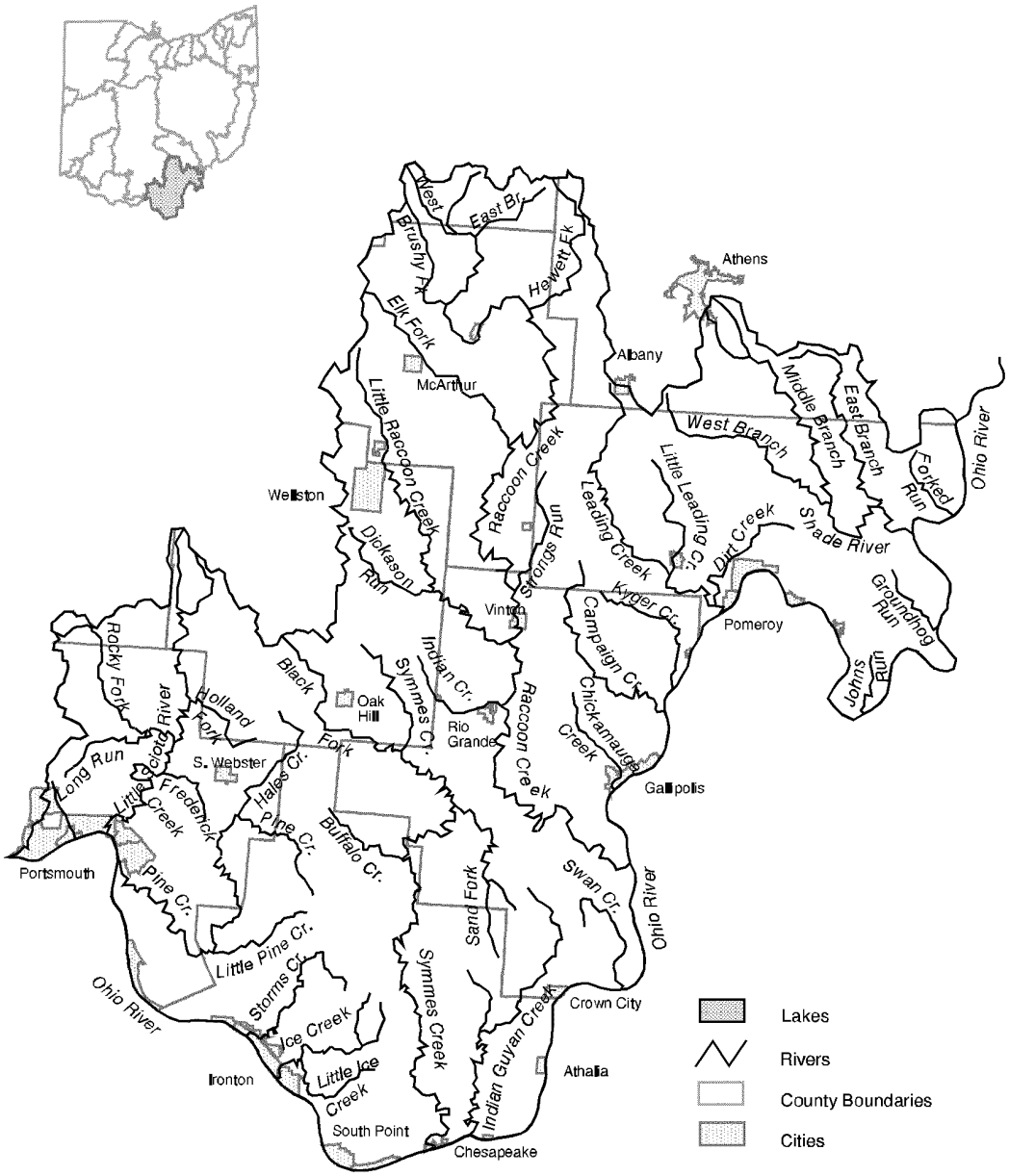
Table 16-1. Use designations for water bodies in the southeast Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
West branch		*							*	*		*		
Walker run		*							*	*		*		
Oliver run		*							*	*		*		
Kingsbury creek		*							*	*		*		
Peach fork		*							*	*		*		
Guyan run		*							*	*		*		
Forked run - headwaters to Forked run reservoir	*		*						*	*		*		
- all other segments		*							*	*		*		
Little Forked run		*							*	*		*		
Sugarcamp run		*							*	*		*		
Indian run		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Southeast Ohio tributaries drainage basin.



Effective: 7/21/2002

R.C. 119.032 review date: 7/23/2012

Promulgated under: R.C. 119.03
Rule authorized by: R.C. 6111.041
Rule amplifies: R.C. 6111.041
Prior effective dates: 4/4/1985, 8/19/1985, 9/20/1988, 4/21/1992, 7/31/1998

3745-1-17 **Southwest Ohio tributaries drainage basin.**

(A) The water bodies listed in table 17-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the southwest Ohio tributaries drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Fivemile creek		*							*	*		*		
Eightmile creek		*							*	*		*		
Ninemile creek		+							+	+		+		
Tenmile creek		+							+	+		+		
Pond run		*							*	*		*		
Twelvemile creek		+							+	+		+		
Fagin run		*							*	*		*		
Ferguson run		*							*	*		*		
Briggs run		*							*	*		*		
Little Indian creek		*							*	*		*		
Boat run		*							*	*		*		
Indian creek		+							+	+		+		
Dry run		*							*	*		*		
Colclaser run		*							*	*		*		
Sugar creek		*							*	*		*		
North fork		*							*	*		*		
Stony fork		*							*	*		*		
Bee run		*							*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Little Indian creek		*							*	*		*		
Ray run		**								*		*		
Maple creek		*							*	*		*		
Vinegar run		*							*	*		*		
Bear creek		+							+	+		+		
Crooked run - within Crooked run preserve	o	*							*	*		*		
- all other segments		*							*	*		*		
Patterson run		*							*	*		*		
Ryan run		*							*	*		*		
Bullskin creek - Clermont-Brown county line to the Ohio river	*	+							+	+		+		
- all other segments		+							+	+		+		
Big run		*							*	*		*		
Slickaway run		*							*	*		*		
East branch		*							*	*		*		
Middle branch		*							*	*		*		
West branch		*							*	*		*		
Painter fork		*							*	*		*		
Moon Hollow run		*							*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Miranda run		*							*	*		*		
Hog run		**								*		*		
Whiteoak creek	+		+						+	+		+		
Big run		*							*	*		*		
Lyon run		*							*	*		*		
Boat run		*							*	*		*		
Cochran run		*							*	*		*		
Ross run		*							*	*		*		
Opossum run		*							*	*		*		
Town run							+		+	+			+	Small drainageway maintenance
Walnut creek		*							*	*		*		
Indian run	*		*						*	*		*		
Unity creek	*		*						*	*		*		
Miranda run	*		*						*	*		*		
Shot Pouch run	*		*						*	*		*		
Sterling run - Grant lake wildlife area (RM 5.4 to 3.0)	o		*						*	*		*		
- at RM 6.47		+						o	+	+		+		
- all other segments		+							+	+		+		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Snapping Turtle run		+							+	+		+		
Plum creek - Grant lake wildlife area (RM 0.53 to 0.0)	o		*						*	*		*		
- all other segments			*						*	*		*		
Goose run		*							*	*		*		
East fork - Middle run (RM 2.0) to North fork (RM 0.0)	*	+							+	+		+		
- at RM 5.13		+						o	+	+		+		
- all other segments		+							+	+		+		
Turkeyhole run		*							*	*		*		
Browns run		*							*	*		*		
Middle run		*							*	*		*		
Slabcamp run		+							+	+		+		
Twin run		*							*	*		*		
Bells run		*							*	*		*		
Plum run		*							*	*		*		
Sugar run		*							*	*		*		
North fork	*	+							+	+		+		
Flat run	*		*						*	*		*		
Brush run	*		*						*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Yellow run	*		*						*	*		*		
Ruble run	*		*						*	*		*		
Indian run	*		*						*	*		*		
Little North fork	*		*						*	*		*		
Lick run	*		*						*	*		*		
Stony branch	*		*						*	*		*		
Barr run	*		*						*	*		*		
Straight creek	*	+							+	+		+		
Sink creek	*		*						*	*		*		
Rangle run	*		*						*	*		*		
Sheep run	*		*						*	*		*		
Campbell run	*		*						*	*		*		
Evans run	*		*						*	*		*		
Brady run	*		*						*	*		*		
Washburn run	*		*						*	*		*		
Bull run	*		*						*	*		*		
Scott run	*		*						*	*		*		
Camp run	*		*						*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Myers run	*		*						*	*		*		
Rocky run	*		*						*	*		*		
Honey run	*		*						*	*		*		
West fork	*		*						*	*		*		
Buck run	*		*						*	*		*		
Sycamore run - at RM 0.97			*					o	*	*		*		
- all other segments			*						*	*		*		
Levanna branch	*		*						*	*		*		
Cornick run	*		*						*	*		*		
Myers run	*		*						*	*		*		
Redoak creek	*	+							+	+		+		
West fork	*		*						*	*		*		
Sutherland run	*		*						*	*		*		
Eagle creek - headwaters to Indian lick	*	+							+	+		+		
- all other segments		+							+	+		+		
Baylor run	*		*						*	*		*		
Beetle creek	*		*						*	*		*		
Lafferty run	*		*						*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Indian lick	*		*						*	*		*		
Brushy fork	*		*						*	*		*		
Suck run	*		*						*	*		*		
Wild Duck branch	*		*						*	*		*		
East fork	*	+							+	+		+		
Town branch	*		*						*	*		*		
Washburn run	*		*						*	*		*		
Ada run	*		*						*	*		*		
Hills fork	*		*						*	*		*		
Lick run	*		*						*	*		*		
Gordon run	*		*						*	*		*		
Hannah run	*		*						*	*		*		
West fork	*	+							+	+		+		
Honey creek (West fork RM 2.34)		+							+	+			+	
Unnamed tributary (West fork RM 7.05)		+							+	+		+		
Rattlesnake creek		*							*	*		*		
Northwest fork		*							*	*		*		
Threemile creek	*	+							+	+		+		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Slickaway run	*		*						*	*		*		
Big run	*		*						*	*		*		
Dry run	*		*						*	*		*		
Ellis run	*		*						*	*		*		
Morley run	*		*						*	*		*		
Fishing Gut creek		+							+	+		+		
Little Threemile creek		*							*	*		*		
Lickskillet branch		*							*	*		*		
Buzzardroost creek		*							*	*		*		
Elk run		**								*		*		
McClelland run		*							*	*		*		
Bradford run		*							*	*		*		
Isaacs creek		*							*	*		*		
Island creek		*							*	*		*		
Lindsey creek		*							*	*		*		
Ellison run		*							*	*		*		
Donaldson run		*							*	*		*		
Cummings creek		*							*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Lower Sister creek		*							*	*		*		
Upper Sister creek		*							*	*		*		
Spring run		*							*	*		*		
Ohio Brush creek - headwaters to Beasley fork rd. (RM 6.3)	+		+						+	+		+		
- all other segments	+	+							+	+		+		
Asher run	*		*						*	*		*		
Waggoner run	*		*						*	*		*		
Mackenzie run	*		*						*	*		*		
Black run	*		*						*	*		*		
Beasley fork		*							*	*		*		
Moore run	*		*						*	*		*		
Soldiers run	*		*						*	*		*		
Easter run	*		*						*	*		*		
Cedar run	*		*						*	*		*		
Semple creek	*		*						*	*		*		
Lick creek	*		*						*	*		*		
Treber run	*		*						*	*		*		
Cave run	*		*						*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Louise tributary	*		*						*	*		*		
Bundle run	*		*						*	*		*		
West fork	*		*						*	*		*		
Spoon river	*		*						*	*		*		
Georges creek	*		*						*	*		*		
Big run	*		*						*	*		*		
Cherry fork		*							*	*		*		
Grace run		*							*	*		*		
Martins run		*							*	*		*		
Gregg run		*							*	*		*		
Buck run		*							*	*		*		
Little West fork		*							*	*		*		
Elk fork		*							*	*		*		
Turkey run		*							*	*		*		
Shimer run		*							*	*		*		
Little East fork		*							*	*		*		
Wolf creek		*							*	*		*		
Crooked creek		*							*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Weasel run		*							*	*		*		
Baker fork		*							*	*		*		
Middle fork		*							*	*		*		
Cow run		*							*	*		*		
Setty branch		*							*	*		*		
Cox branch		*							*	*		*		
Straight creek		*							*	*		*		
Muddy fork		*							*	*		*		
Kerr run		*							*	*		*		
Flat run		*							*	*		*		
Elm run		*							*	*		*		
Elk run		*							*	*		*		
Bee run		*							*	*		*		
Rock lick		*							*	*		*		
Lost fork		*							*	*		*		
Alex run		*							*	*		*		
Smoky run		*							*	*		*		
Stout run		*							*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Cattail run		*							*	*		*		
Russell fork		*							*	*		*		
Tracey run		*							*	*		*		
Puntenney run		*							*	*		*		
Southdown fork		*							*	*		*		
Pine fork		*							*	*		*		
Black Walnut fork		*							*	*		*		
Long Lick run		*							*	*		*		
Wikoff run		*							*	*		*		
Sulphur creek		*							*	*		*		
Little Sulphur creek		*							*	*		*		
Gilpen run		*							*	*		*		
McCall run		*							*	*		*		
Rock run		*							*	*		*		
Lower Twin creek		+							+	+		+		
Sugarcamp run		*							*	*		*		
Vastine run		*							*	*		*		
Upper Twin creek		*							*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Boland run		*							*	*		*		
Dry run		*							*	*		*		
Tucker run		*							*	*		*		
East fork		*							*	*		*		
Jake run		*							*	*		*		
Bald Knob run		*							*	*		*		
Brushy fork		*							*	*		*		
Horner branch		*							*	*		*		
Moore run		*							*	*		*		
Spencer run		*							*	*		*		
McAtee run		*							*	*		*		
Old Pond run		*							*	*		*		
Mundy run		*							*	*		*		
Pond run		*							*	*		*		
East fork		*							*	*		*		
Middle fork		*							*	*		*		
Grass Lick run		*							*	*		*		
McBridge run		*							*	*		*		

Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Gabe run		*							*	*		*		
Brushy fork		*							*	*		*		
Nace run		*							*	*		*		
Turkey creek - headwaters to Friendship (RM 4.0)	*		+						+	+		+		
- all other segments		*							+	+		+		
Brouse run		*							*	*		*		
Vaughters run		*							*	*		*		
Stony run		*							*	*		*		
Lower lick		*							*	*		*		
Upper lick		*							*	*		*		
Worley run		*							*	*		*		
Rabbit run		*							*	*		*		
Odell creek	*					*			*	*		*		
Pond Lick run	*					*			*	*		*		
Rock lick	*					*			*	*		*		
Brush fork	*					*			*	*		*		
Wes run	*					*			*	*		*		
Barbara run	*					*			*	*		*		

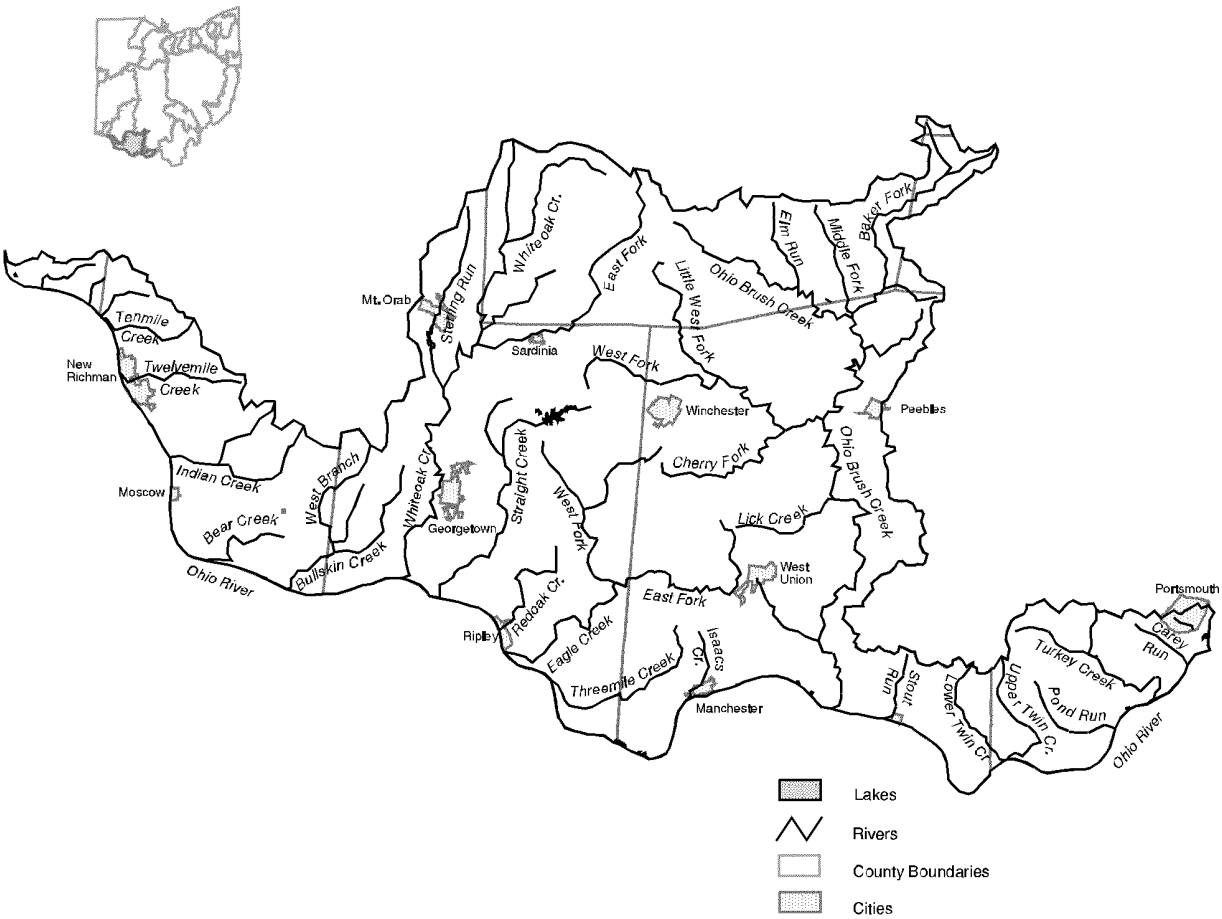
Table 17-1. Use designations for water bodies in the southwest Ohio tributaries drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Buck lick (formerly Steep gut)	*					*			*	*		*		
Harber fork	*					*			*	*		*		
Mackletree run	*					*			*	*		*		
Plummer fork	*					*			*	*		*		
Lampblack run	*					*			*	*		*		
Old Lade run	*					*			*	*		*		
Scantling run	*					*			*	*		*		
Rock lick	*					*			*	*		*		
Wolfden run	*					*			*	*		*		
Carey run		*							*	*		*		
Bellamy run		*							*	*		*		
Slab run (formerly Cox run)		*							*	*		*		
Lousy run		*							*	*		*		
Hyggen run		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Southwest Ohio tributaries drainage basin.



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3745-1-18 **Little Miami river drainage basin.**

(A) The water bodies listed in table 18-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the little Miami river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Little Miami river - RM 3.0 (downstream of Beechmont ave.) to the mouth	+	+							+	+		+		
- headwaters to North fork (RM 91.64)	+	+							+	+		+		
- all other segments	+		+						+	+		+		
Cluff creek (Clough creek)		*							*	*		*		
McCullough run		*							*	*		*		
Duck creek - downstream Red Bank road (RM 2.4) to the mouth		+							*	*		+		
- confluence of East fork and West fork to Red Bank road							+		*	*			+	Small drainageway maintenance
East fork							+		*	*			+	Small drainageway maintenance
West fork							+		*	*			+	Small drainageway maintenance
Dry run		*							*	*		*		
East fork - RM 75 to W.H. Harsha lake	+		+					+	+	+		*		
- headwaters to RM 75		+						+	+	+		*		
- all other segments	+		+					+	+	+		+		
Hall run		+							+	+		*		
Wolfpen run		+							+	+		*		
Salt run		+							+	+		*		
Sugarcamp run		+							+	+		*		
Shayler run		+							+	+		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Unnamed tributary (Shayler run RM 4.4)		+							*	*		+		
Dry run		+							+	+		*		
Stonelick creek	+	+						+	+	+		+		
Lick fork		+							+	+		*		
Brushy fork		+							+	+		*		
Rocky run		+							+	+		*		
Paterson run		+							+	+		*		
Moores fork		+							+	+		*		
Greenbush creek		+							+	+		*		
Hunter creek		+							+	+		*		
Backbone creek		+							+	+		*		
Lucy run		+							+	+		*		
Fourmile run		+							+	+		*		
Back run		+							+	+		*		
Ulrey run		+							+	+		*		
Slabcamp run		+							+	+		*		
Cloverlick creek - at RM 3.23		+						o	+	+		*		
- all other segments		+							+	+		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Barnes run		+							+	+		*		
Poplar creek		+							+	+		*		
Sugartree creek		+							+	+		*		
Town run		+							+	+		*		
Guest run		+							+	+		*		
Trible run		+							+	+		*		
Light run		+							+	+		*		
Snow run		+							+	+		*		
Polecat run		+							+	+		*		
Cabin run		+							+	+		*		
Kain run		+							+	+		*		
Todd run		+							+	+		*		
Indian Camp run		+							+	+		*		
Crane run		+							+	+		*		
Fourmile creek		+							+	+		*		
Pleasant run		+							+	+		*		
Fivemile creek		+							+	+		*		
East fork		+							+	+		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Sixmile creek		+							+	+		*		
Howard run		+							+	+		*		
Grassy fork		+							+	+		*		
Glady run		+							+	+		*		
Saltlick creek		+							+	+		*		
Indian creek		+							+	+		*		
Little Indian creek		+							+	+		*		
Solomon run		+						+	+	+		*		
Murray run		+							+	+		*		
Sycamore creek		+							+	+		*		
Unnamed tributary (Sycamore creek RM 1.13)							+		*	*			+	Irretrievable flow modification
West ork		+						+++				*		
Dodson creek			+						+	+		*		
Anthony run		+							+	+		*		
South fork		+							+	+		*		
Turtle creek		+							+	+		*		
Horner run		*							*	*		*		
Sycamore creek		+							+	+		+		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
North branch		*							*	*		*		
Polk run		+							+	+		+		
O'Bannon creek		+							+	+		+		
Grog run		*							*	*		*		
Stony run		+							+	+		+		
Indiancamp creek		*							*	*		*		
Ertel run		*							*	*		*		
Salt run		*							*	*		*		
Hen run		*							*	*		*		
Simpson creek		+							+	+		+		
Bear run		*							*	*		*		
Union run		*							*	*		*		
Muddy creek		+							+	+		+		
Turtle creek		+							+	+		+		
Dry run		+							+	+			+	
Little Muddy creek		*							*	*			+	
Bigfoot run		*							*	*		*		
Halls creek			*						*	*		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Todd fork		+							+	+		+		
First creek		*							*	*		*		
Martin run		*							*	*		*		
Second creek		*							*	*		*		
Lick run	*		*						*	*		*		
Sugar run		*							*	*		*		
East fork (little East fork)		+							+	+		+		
Stony hollow		*							*	*		*		
Sewell run		*							*	*		*		
Cowan creek - Cowan lake (RM 6.3) to the mouth	*	+							+	+		+		
- at RM 11.6		+						o	+	+		+		
- all other segments		+							+	+		+		
Wilson creek		*							*	*		*		
Indian run		+							+	+			+	
Lytle creek		+							+	+		+		
Little creek		*							*	*		*		
Moore branch		*							*	*		*		
Dutch creek			*						*	*		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Dry run		*							*	*		*		
Stony run		*							*	*		*		
Cowen run		*							*	*		*		
Randall run		*							*	*		*		
Olive branch	*	+							+	+		*		
Caesar creek - headwaters to South branch (RM 23.78)		+							+	+		+		
- South branch to Anderson fork			+						+	+		+		
- Anderson fork to the mouth	*		+						+	+		+		
Flat fork	*	+							+	+		+		
Jonahs run	*	+							+	+		+		
Trace run	*	+							+	+		+		
Turkey run	*	*							*	*		*		
Buck run	*	+							+	+		+		
Anderson fork - Grog run to the mouth	*		+						+	+		+		
- all other segments	*	+							+	+		+		
Painters creek		+							+	+		+		
Grog run		*							*	*		*		
Love run		*							*	*		*		

Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Grassy run		*							*	*		*		
South branch - Paintersville-New Jaspar rd. (RM 4.0) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
North branch		+							+	+		+		
Newman run			+						+	+		+		
Mill run		+							+	+		+		
Unnamed tributary (Little Miami river RM 60.50)			+						+	+		+		
Unnamed tributary (Little Miami river RM 62.01)		+							+	+		+		
Glady run - Hedges rd. (RM 4.0) to the mouth		+							+	+		+		
- all other segments		+							+	+			+	
Glady run swale		+							*	*			+	
Sugar creek - within Sugar creek reserve	o	+							+	+		+		
- all other segments		+							+	+		+		
Little Sugar creek		+							+	+		+		
Unnamed tributary (Little Miami river RM 69.85)		+							+	+		+		
Beaver creek		+							+	+		+		
Little Beaver creek		+							+	+		+		
Unnamed tributary (RM 6.1)		+							+	+			+	

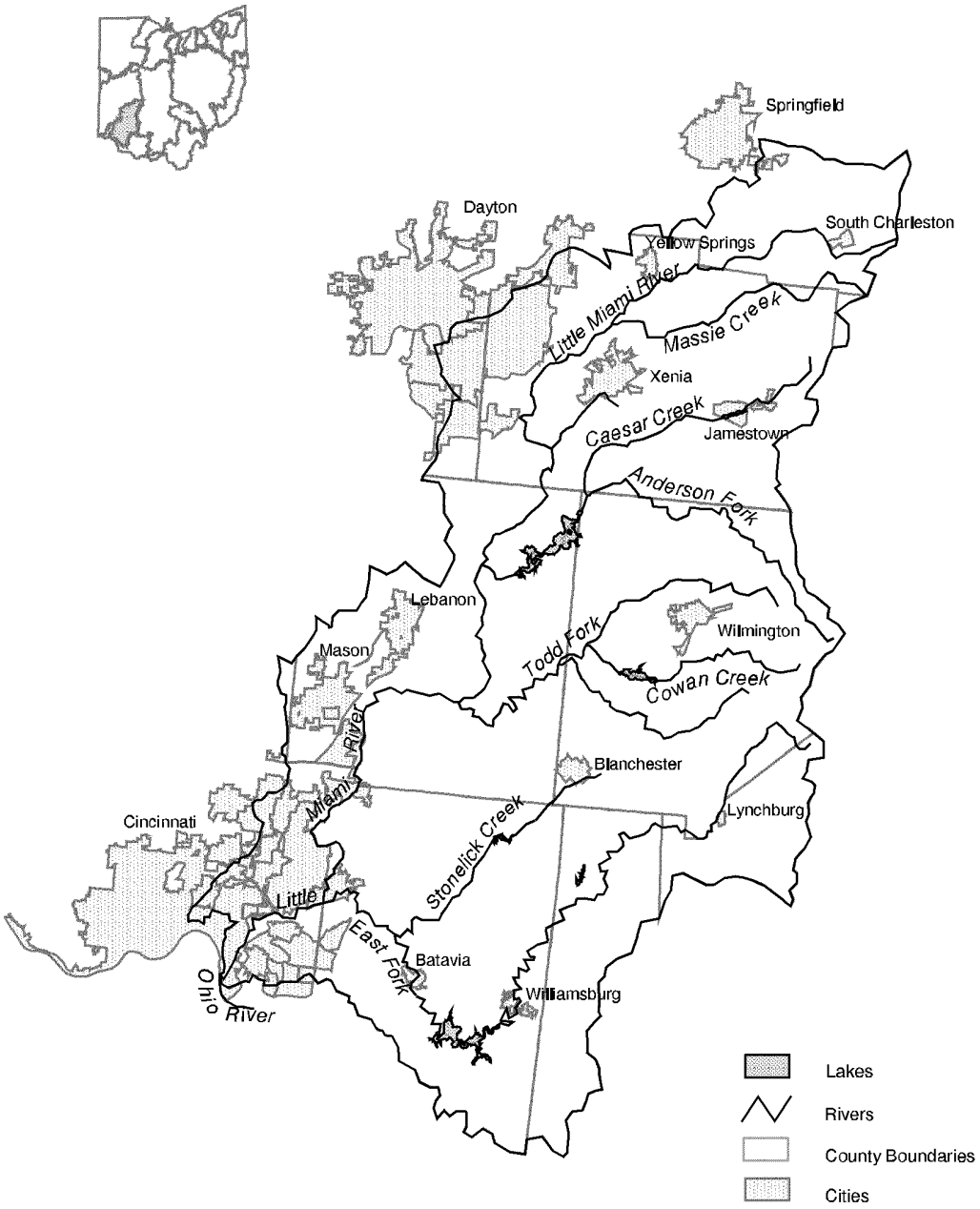
Table 18-1. Use designations for water bodies in the little Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Shawnee creek		+							+	+		+		
Ludlow creek		+							+	+		+		
Massie creek		+						+	+	+		+		
Oldtown creek	*	+							+	+		+		
Clark run			+						+	+		+		
Unnamed tributary (Massie creek RM 5.3)			+						+	+		+		
North fork		+							+	+		+		
South fork		+							+	+		+		
Conner branch						++				+		+		
Jacoby branch			+						+	+		+		
Yellow Springs creek	*		+						+	+		+		
North fork	*	+							+	+		+		
Goose creek		+							+	+		+		
Lisbon fork		+							+	+		+		
Gilroy ditch		+							+	+			+	

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Little Miami river drainage basin.



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3745-1-19 **Huron river drainage basin.**

(A) The water bodies listed in table 19-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Huron river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 19-1. Use designations for water bodies in the Huron river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Sawmill creek		*							*	*		*		
Huron river - East branch/West branch confluence to Lake Erie		+			+				+	+		+		
Mud creek		*							*	*		*		
Village creek		+							+	+		+		
Rattlesnake creek		+							+	+		+		
West branch (Rattlesnake creek RM 0.28)		+							+	+		+		
East branch		+							+	+		+		
Norwalk creek - at RMs 0.11 and 4.02		+						o	+	+		+		PWS intake - Norwalk
- all other segments		+							+	+		+		
Unnamed tributary (Norwalk creek RM 0.38)		+							+	+		+		
Cole creek		+							+	+		+		
Unnamed tributary (Cole creek RM 2.46)		+							+	+		+		
Unnamed tributary (East branch RM 19.98)		+							+	+		+		
West branch - at RMs 8.52 and 33.8		+						o	+	+		+		PWS intakes - Monroeville (RM 8.52) and Willard (RM 33.8)
- all other segments		+							+	+		+		
Clayton ditch (West branch RM 0.4) - Higbee rd. (RM 2.85) to the mouth		+							+	+		+		
Seymour creek		+							+	+		+		

Table 19-1. Use designations for water bodies in the Huron river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Megginson creek		+							+	+		+		
Frink run - at RM 4.83		+						o	+	+		+		PWS intake - Bellevue
- all other segments		+							+	+		+		
Haas ditch		*							*	*		*		
Schoeffel ditch		*							*	*		*		
Slate run		+							+	+		+		
Mud run (East branch)		+							+	+		+		
Mud run (West branch)		+							+	+		+		
Shriner run		*							*	*		*		
Holiday tributary (West branch RM 23.09)		+							+	+		+		
Unnamed tributary (Holiday tributary RM 2.8)		+							+	+		+		
Jacobs creek		+							+	+		+		
Walnut creek (West branch RM 33.05)		+							+	+		+		
Marsh run		+							+	+		+		
Unnamed tributary (West branch RM 41.50)		+							+	+		+		
Old Woman creek - estuary	o	+							+	+		+		
- within boundaries of Old Woman preserve	o	+										+		
- all other segments		+							+	+		+		

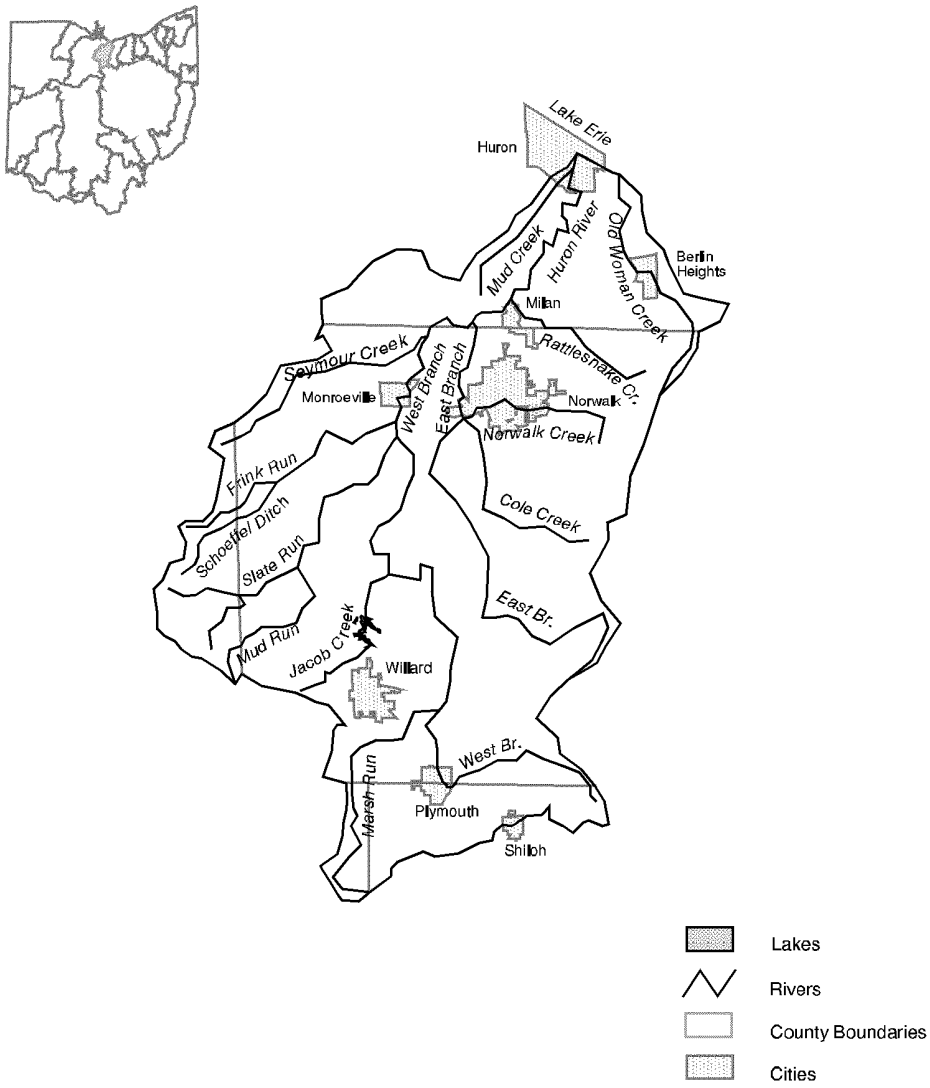
Table 19-1. Use designations for water bodies in the Huron river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Unnamed tributary (Old Woman creek RM 3.70)		+							+	+		+		
Unnamed tributary (Old Woman creek RM 8.82)		+							+	+		+		
Cranberry creek		*							*	*		*		
Chappel creek		+							+	+		+		
Sugar creek		+							+	+		+		
Darby creek		*							*	*		*		
Sherod creek		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Huron river drainage basin.



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Rule Amplifies: R.C. 6111.041
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3745-1-20 **Rocky river drainage basin.**

(A) The water bodies listed in table 20-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Rocky river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 20-1. Use designations for water bodies in the Rocky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Porter creek		*							*	*		*		
Cahoon creek		*							*	*		*		
Rocky river - st. rte. 10 (RM 6.4) to the mouth	+	+			+				+	+		+		
- confluence of East and West branches (RM 12.1) to st. rte. 10	+	+							+	+		+		
Abram creek		+							+	+		+		
East branch - upstream boundaries of Rocky river reservation (RM 15.15) to West branch	+	+							++			+		
- at RM 5.06	+	+						o	+	+		+		PWS intake - Berea
- within the boundaries of Hinckley reservation	+	+							+	+	+			
- headwaters to Hinckley reservation	+	+							+	+		+		
- all other segments		+							+	+		+		
Baldwin creek - at RM 0.48	+	+						o	+	+		+		PWS intake - Berea
- all other segments	+	+							+	+		+		
Big brook		*							*	*		*		
North Royalton "A" tributary		+							+	+		+		
Healy creek		+							+	+		+		
West branch		+						+	+	+		+		PWS intake - Medina (formerly)
Plum creek		+							+	+		+		
Strongsville "A" tributary		+							+	+		+		

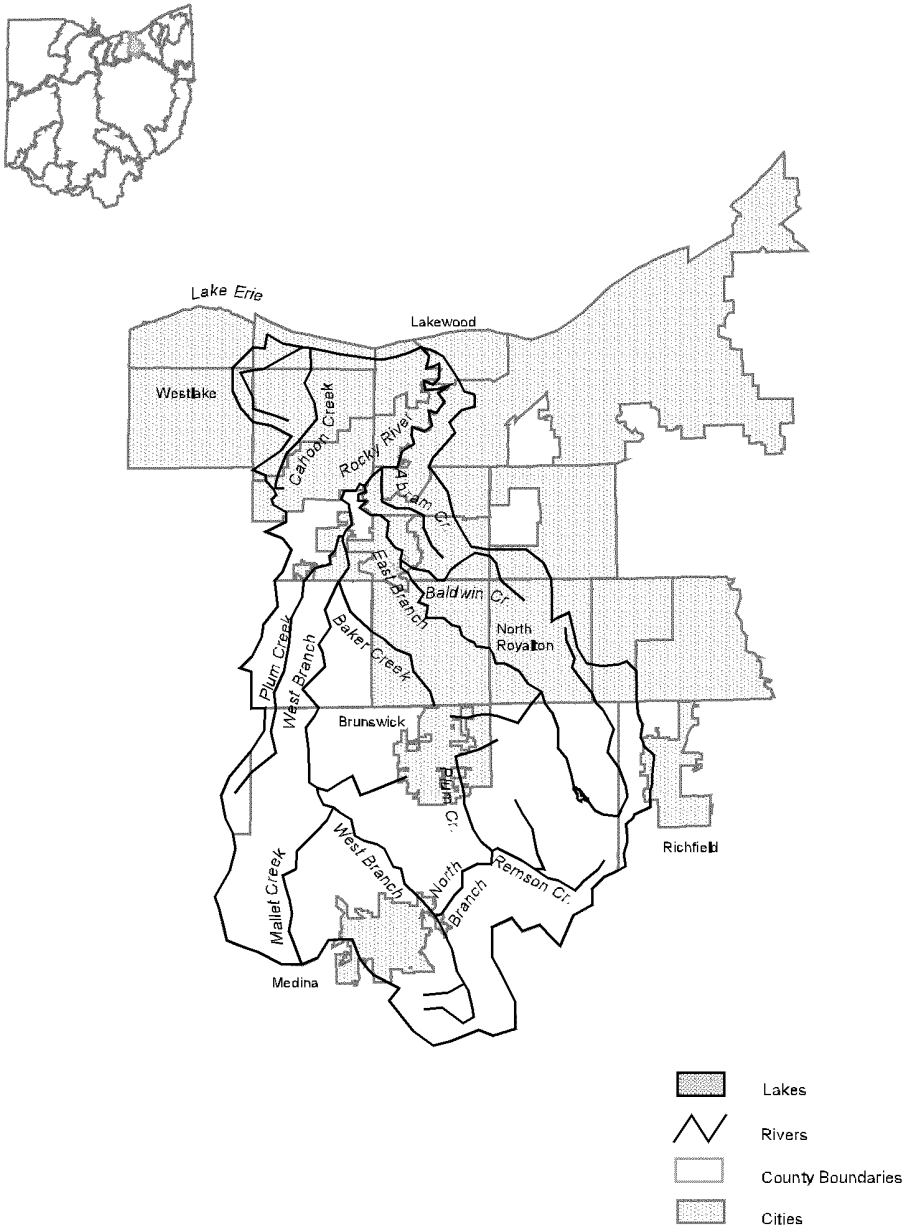
Table 20-1. Use designations for water bodies in the Rocky river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Baker creek		+							+	+		+		
Cossett creek		+							+	+		+		
Mallet creek		+							+	+		+		
North branch		+							+	+		+		
Plum creek		+							+	+		+		
Remson creek		*							*	*		*		
Granger ditch		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Rocky river drainage basin.



Effective: 4/23/2008

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Promulgated Under: R.C. 119.03
Statutory Authority: R.C. 6111.041
Rule Amplifies: R.C. 6111.041
Prior Effective Dates: 4/4/1985, 8/19/1985, 3/29/2001, 7/21/2002

3745-1-21 **Great Miami river drainage basin.**

(A) The water bodies listed in table 21-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Great Miami river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Great Miami river - CSX RR bridge (RM 84.5) to the Troy dam (RM 107.0)			+						+	+		+		
- at RMs 86.6, 90.3, 118.5 and 130.2			+					+	+	+		+		PWS intakes - Dayton (RMs 86.6 and 90.3), Piqua (RM 118.5), and Sidney (RM 130.2)
- RM 108.0 to downstream of Piqua dam (RM 114.0)			+						+	+		+		
- st. rte. 66 (RM 116.7) to the Sidney water works dam (RM 130.2)			+						+	+		+		
- Pasco-Montra rd. (RM 134.8) to the Quincy dam (RM 143.4)			+						+	+		+		
- all other segments		+							+	+		+		
Doublelick run		*							*	*		*		
Whitewater river			+						+	+		+		
Sand run		*							*	*		*		
Dry fork - Ohio-Indiana state line (RM 20.66) to RM 19.6			*						*	*		*		
- RM 19.6 to Atherton rd. (RM 10.2)			+						+	+		+		
- Atherton rd. to the mouth		+							+	+		+		
- within Miami Whitewater forest boundaries	*	+							+	+		+		
Lee creek		*							*	*		*		
Howard creek		*							*	*		*		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Kiata creek		+							+	+			+	
Sater run		*							*	*		*		
Phillips creek		*							*	*		*		
Jamison creek		*							*	*		*		
East fork - headwaters to Little creek (RM 41.7)		+							+	+			+	
- Little creek to state line		+							+	+		+		
Elkhorn creek		*							*	*		*		
Mud creek		*							*	*		*		
Horn ditch		*							*	*		*		
Rocky fork		*							*	*		*		
Little creek		*							*	*		*		
Brinley fork		*							*	*		*		
Jocqueway creek		*							*	*		*		
Dry run		*							*	*		*		
Jordan creek		*							*	*		*		
Unnamed tributary (Great Miami river RM 13.23)		+							+	+		+		
Taylor creek		+							+	+		+		
Wessleman creek		+							+	+			+	

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Briarly creek		+							+	+			+	
Steele creek		+							+	+			+	
Paddy's run		+							+	+		+		
Bluerock creek		+							+	+		+		
Owl creek		*							*	*		*		
Dunlap run		*							*	*		*		
Dry run		*							*	*		*		
Indian creek	*	+							+	+		+		
Lick run		+							+	+		+		
Salmon run	*	+							+	+		+		
Reserve run		+							+	+		+		
Little Indian creek		+							+	+		+		
Banklick creek		*							*	*		*		
Pleasant run		*							*	*		*		
Crawford run		*							*	*		*		
Two Mile creek		*							*	*		*		
Shaffer creek		*							*	*		*		
Fourmile creek - headwaters to confluence with Acton lake	*	+							+	+		+		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- Darrtown rd. (RM 13.0) to Sevenmile ave. (RM 0.4)			+						+	+		+		
- all other segments		+							+	+		+		
Sevenmile creek - Paint creek (RM 15.2) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Ninemile creek		*							*	*		*		
Big Cave run		+							+	+		+		
Rush run		+							+	+		+		
Paint creek	*	+							+	+		+		
Opossum run		*							*	*		*		
Sugar run		*							*	*		*		
Beasley run		+							+	+		+		
Pottenger run		+							+	+		+		
Rocky run		+							+	+		+		
Periwinkle run		+							+	+		+		
Becketts run		*							*	*		*		
Stony run		+							+	+		+		
Darrs run		+							+	+		+		
Collins creek		+							+	+		+		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Bull run		*							*	*		*		
Harkers run		+							+	+		+		
Elams run (Tolland creek) (Fourmile creek RM 18.80)		+							+	+		+		
Spring run (Fourmile creek RM 20.19)		*							*	*		*		
Morning Sun tributary north (Fourmile creek RM 23.57)		+							+	+		+		
Morning Sun tributary south (Morning Sun tributary north RM 0.25)		+							+	+		+		
Little Fourmile creek	*	+							+	+		+		
Fleisch run		+							+	+		+		
East fork	*	+							+	+		+		
Dixon branch (Harris run)	*	+							+	+		+		
Brentwood tributary		*							*	*		*		
Greencrest tributary		*							*	*		*		
Gregory creek		*							*	*		*		
Coldwater creek		*							*	*		*		
Dicks creek - Cincinnati-Dayton rd. (RM 5.4) to Yankee rd. (RM 2.4)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Monroe ditch (Dicks creek RM 2.65) - headwaters to the Middletown corporate boundary (RM 0.8)		+							+	+		+		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
North branch - headwaters to Breiel blvd. (RM 1.0)		+							+	+		+		
- Breiel blvd. to mouth				+					+	+		+		ECBP ecoregion - channel modification
Shaker creek		+							+	+		+		
Millers creek		+							+	+		+		
Elk creek			++							+		+		
Browns run		*							*	*		*		
Twin creek			+						+	+		+		
Little Twin creek			+						+	+		+		
Reigle ditch		+							+	+		+		
Toms run		+							+	+		+		
Unnamed tributary (Toms run RM 5.34)		+							+	+		+		
Wysong run		*							*	*		*		
Unnamed tributary (Twin Creek RM 18.29)		+							+	+		+		
Aukerman creek		+							+	+		+		
Unnamed tributary (Aukerman creek RM 2.88)		+							+	+		+		
Bantas fork			+						+	+		+		
Goose creek - downstream Winnerline rd. (RM 3.0) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Lowry run		*							*	*		*		
Lesley run		+							+	+		+		
Coffman run		*							*	*		*		
Price creek - Brennersville Pyrmont rd. (RM 2.88) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Jims run		*							*	*		*		
Swamp creek - downstream Sonora rd. (RM 4.0) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Unnamed tributary (Swamp creek RM 6.45)		+							+	+		+		
Millers fork - headwaters to Otterbein Ithica rd. (RM 9.65)		+							+	+		+		
- Otterbein Ithica rd. to the mouth			+						+	+		+		
Lick run		*							*	*		*		
Dry fork		+							+	+		+		
Maple swamp ditch - unnamed tributary at RM 1.71 to the mouth		+							+	+		+		
Clear creek		*							*	*		*		
Gander run		*							*	*		*		
Goose creek		*							*	*		*		
Dry run		*							*	*		*		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Crains run		*							*	*		*		
Mound overflow creek (Great Miami river RM 65.08)				+					+	+			+	ECBP ecoregion - impounded
Bear creek		+							+	+		+		
Little Bear creek		*							*	*		*		
Garber run		*							*	*		*		
Diehl run		*							*	*		*		
Lick run		*							*	*		*		
Spring run		*							*	*		*		
Owl creek							+		+	+			+	Small drainageway maintenance
Opossum creek	*	*							*	*		*		
Holes creek		+							+	+		+		
Wolf creek		+							+	+		+		
Dry run		+							+	+		+		
North branch		*							*	*		*		
Razor run		*							*	*		*		
Poplar run		*							*	*		*		
Mad river - headwaters to Buck creek (RM 26.15)						+			+	+		+		
- at RMs 5.2 and 5.6		+						+	+	+		+		PWS intakes - Dayton

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- Buck creek to the mouth		+							+	+		+		
Hebble run				+						+		+		ECBP ecoregion - channel modification
Mud run		+							+	+		+		
Clear creek		+							+	+		+		
Unnamed tributary (Mud run RM 9.8)		+							+	+		+		
Mud creek		+							+	+		+		
Dry Lick run		+							+	+		+		
Smith ditch		*							*	*		*		
Rubsam ditch (Mad river RM 13.33)						*			*	*		*		
Medway creek (Mad river RM 14.29)						+			*	*		+		
Jackson creek		+							+	+		+		
Donnels creek		+							+	+		+		
East fork		+							+	+		+		
Rock run		+							+	+		+		
Miller creek		+							+	+		+		
Mill creek		+							+	+		+		
Buck creek - park boundaries between C.J. Brown reservoir and the mouth	+	+							++			+		
- headwaters to C.J. Brown reservoir						+			+	+		+		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- all other segments		+							+	+		+		
Beaver creek		+							+	+		+		
Sinking creek		+							+	+		+		
East fork						++				+		+		
Dugan ditch						++				+		+		
Pandy creek	*	+							+	+		+		
Dry run	*	+							+	+		+		
Moore run		+							+	+		+		
Kenton creek		+							+	+		*		
Chapman creek						++				+		+		
Panther creek	*					*			*	*		*		
Deer creek	*	+							+	+		+		
Blacksnake creek	*	+							+	+		+		
Storms creek	*					+			+	+		+		
Cedar run						++				+		+		
East branch						+*				*		+		
West branch						+*				*		+		
Cedar bog	*					*			*	*		*		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Bogles run	*					*			*	*		*		
Stony creek	*					*			+	+		+		
Bull branch	*					*			*	*		*		
Nettle creek - RM 8.2 to the mouth						+			+	+			+	
- all other segments		+							+	+			+	
Anderson creek						++				+		+		
Russell creek	*	+							+	+		+		
Harban creek	*					+			+	+		+		
Hog creek	*	+							+	+		+		
Owens creek	*	+							+	+		+		
St. Paris tributary (Nettle creek RM 8.8)		+							+	+			+	
Dugan run		+							+	+		+		
Muddy creek						++				++				
Spring run	*	+							+	+		+		
Kings creek						++				+		+		
Unnamed tributary (Kings creek RM 0.46)						+			+	+		+		
Unnamed tributary (Kings creek RM 4.97)														
Unnamed tributary (unnamed tributary RM 3.18)						+			+	+		+		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Glady creek	*					+			+	+		+		
Mac-a-cheek ditch						++				+		+		
West Liberty tributary (Mad river RM 51.06)						+			+	+			+	
Mac-o-chee creek						++				+		+		
Hefflefinger ditch (Mad river RM 52.23)						+			+	+		+		
Peters ditch (Mad river RM 58.82)						+			+	+		+		
Sugar creek						++				+		+		
Stillwater river - at RM 18			+					+	+	+		+		PWS intake - West Milton (formerly)
- Steffen rd. (RM 52.36) to the mouth			+						+	+		+		
- Woodington run (RM 59.13) to Steffen rd.		+							+	+		+		
- headwaters to Woodington run				+					+	+		+		ECBP ecoregion - channel modification
Unnamed tributary (Stillwater river RM 6.4)		+							+	+			+	
Pigeye creek		+							+	+		+		
Mill creek		+							+	+		+		
Brush creek		+							+	+		+		
Unnamed tributaries			*						*	*		*		
Jones run		+							+	+		+		
Ludlow creek - headwaters to Darke county line (RM 8.0)				+					+	+		+		ECBP ecoregion - channel modification

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- all other segments		+							+	+		+		
Brush creek - RM 0.5 to the mouth	*	+							+	+		+		
- all other segments		+							+	+		+		
Shank ditch		*							*	*		*		
Hog run		+							+	+		+		
Baker ditch							+		+	+		+		Small drainageway maintenance
Feitshams ditch							+		+	+		+		Small drainageway maintenance
Browns ditch							+		+	+		+		Small drainageway maintenance
Unnamed tributary (Ludlow creek RM 11.8)				+					+	+		+		ECBP ecoregion - channel modification
Rocky run		*							*	*		*		
Opossum run			+						+	+		+		
Canyon run		*							*	*		*		
Painter creek - headwaters to Darke county line (RM 5.5)				+					+	+		+		ECBP ecoregion - channel modification
- Darke county line to the mouth		+							+	+		+		
Little Painter creek				+					+	+		+		ECBP ecoregion - channel modification
Heller ditch				+					+	+		+		ECBP ecoregion - channel modification
Greenville creek - at RM 22.3		+						+	+	+		+		PWS intake - Greenville
- Bridge creek (RM 17.8) to Wildcat rd. (RM 24.6)		+							+	+		+		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
- all other segments			+						+	+		+		
McQuay ditch		+							+	+		+		
Poplar ditch		+							+	+		+		
Bolton run		+							+	+		+		
Dividing branch		+							+	+		+		
Bridge creek		+							+	+		+		
Mud creek - at RM 0.88		+						+	+	+		+		PWS intake - Greenville
- all other segments		+							+	+		+		
Bitch run		+							+	+		+		
Lake Branch ditch		+							+	+		+		
Prairie outlet		+							+	+		+		
West branch		+							+	+		+		
Spring branch		+							+	+		+		
Kraut creek		+							+	+		+		
North fork		+							+	+		+		
Dismal creek		+							+	+		+		
Elson ditch		*							*	*		*		
Unnamed tributary (Stillwater river RM 32.6)		+							+	+		+		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Harris run - headwaters to Darke county line (RM 5.2)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Ballinger run - headwaters to Darke county line (RM 1.7)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Unnamed tributary (Harris run RM 8.05)		+							+	+		+		
Trotters creek		+							+	+		+		
Sigmon ditch		+							+	+		+		
Orr ditch		+							+	+		+		
Bennett ditch		+							+	+		+		
Apple ditch		+							+	+		+		
Rudy ditch		+							+	+		+		
Unnamed tributary (Stillwater river RM 38.3)		+							+	+		+		
Swamp creek - headwaters to Pittsenbanger rd. (RM 6.5)				+					+	+		+		ECBP ecoregion - channel modification
- Pittsenbanger road to the mouth		+							+	+		+		
Indian creek - headwaters to Conover (RM 1.93)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Unnamed tributary (Swamp creek RM 3.54)				+					+	+		+		ECBP ecoregion - channel modification
Grassy Fork creek				+					+	+		+		ECBP ecoregion - channel modification

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Unnamed tributary (Stillwater river RM 51.0)		+							+	+		+		
Unnamed tributary (Unnamed tributary RM 2.5)		+							+	+		+		
Boyd creek				+					+	+		+		ECBP ecoregion - channel modification
Unnamed tributary (Boyd creek RM 2.46)				+					+	+		+		ECBP ecoregion - channel modification
Unnamed tributary (Boyd creek RM 2.67)				+					+	+		+		ECBP ecoregion - channel modification
Unnamed tributary (Stillwater river RM 54.45)				+					+	+		+		ECBP ecoregion - channel modification
Unnamed tributary (Stillwater river RM 57.2)				+					+	+		+		ECBP ecoregion - channel modification
North fork				+					+	+		+		ECBP ecoregion - channel modification
Sycamore ditch (North fork RM 0.67)				+					+	+		+		ECBP ecoregion - channel modification
Woodington run		+							+	+		+		
Unnamed tributary (Stillwater river RM 60.2)				+					+	+		+		ECBP ecoregion - channel modification
South fork		+							+	+		+		
Unnamed tributary (South fork RM 0.94)				+					+	+		+		ECBP ecoregion - channel modification
Unnamed tributary (Stillwater river RM 64.9)				+					+	+		+		ECBP ecoregion - channel modification
Poplar creek		*							*	*		*		
North creek - headwaters to Dixie road (RM 2.0)							+		+	+			+	Small drainageway maintenance
- Dixie road to mouth (Great Miami river RM 95.8)		+							+	+			+	
Deer Cliff run		+							+	+			+	

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Inland tributary							+		+	+			+	Small drainageway maintenance
Cox Airport tributary							+		+	+			+	Small drainageway maintenance
Honey creek			+						+	+		+		
Indian creek		*							*	*		*		
Dry creek		*							*	*		*		
West fork		*							*	*		*		
East fork		*							*	*		*		
Lost creek			+						+	+		+		
East branch			*						*	*		*		
Boone creek (Great Miami river RM 103.87)														
Peters creek														
North branch		+							+	+		+		
B.F. Goodrich ditch							+		+	+			+	Small drainageway maintenance
Spring creek			+						+	+		+		
Garbry creek		*							*	*		*		
Rush creek		*							*	*		*		
Shawnee creek		*							*	*		*		
McKee branch		*							*	*		*		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
McIntire run		*							*	*		*		
Levering run		*							*	*		*		
Patterson run		*							*	*		*		
Loramie creek - Lockington dam to the mouth	*	+							+	+		+		
- all other segments		+							+	+		+		
Mill creek		*							*	*		*		
Fox creek		*							*	*		*		
Turtle creek		*							*	*		*		
East Turtle creek		*							*	*		*		
Kiser ditch		*							*	*		*		
Ninemile creek - headwaters to co. rte. 14 (RM 4.2)				+					+	+		+		ECBP ecoregion - channel modification
- all other segments		+							+	+		+		
Painter creek		*							*	*		*		
East Painter creek		*							*	*		*		
Mile creek		*							*	*		*		
Honsapple ditch		*							*	*		*		
Keppler ditch		*							*	*		*		
Clay creek (Applegate ditch)				+					*	*		*		ECBP ecoregion - channel modification

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Hulls creek (Fridley ditch)		*							*	*		*		
Mill branch		*							*	*		*		
Brush creek		*							*	*		*		
Tawawa creek - at RM 0.14		+						+	+	+		*		PWS intake - Sidney
- all other segments		+							+	+		*		
Mosquito creek		*							*	*		*		
Leatherwood creek		*							*	*		*		
Plum creek		*							*	*		*		
Manning run		*							*	*		*		
Line run		*							*	*		*		
Counts run		*							*	*		*		
Turkeyfoot creek		*							*	*		*		
Little Turkeyfoot creek		*							*	*		*		
Indian creek		*							*	*		*		
Little Indian creek		*							*	*		*		
Speece & Lovett ditch		*							*	*		*		
Stony creek		+							+	+		+		
Lee creek		*							*	*		*		

Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Graves creek		*							*	*		*		
McKee creek			+						+	+		+		
Bokengehalas creek		+							+	+		+		
Bluejacket creek		+							+	+		+		
Possum run		+							+	+		+		
Rum creek		*							*	*		*		
Hodge ditch		*							*	*		*		
Howell ditch		*							*	*		*		
Shroyer ditch		*							*	*		*		
Indian creek		*							*	*		*		
Brandywine creek		*							*	*		*		
Muchinippi creek		+							+	+		+		
Calico creek		*							*	*		*		
Little Muchinippi creek		*							*	*		*		
Wolf creek		*							*	*		*		
Baughman ditch		*							*	*		*		
Jackson Center creek		*							*	*		*		
Willow creek		*							*	*		*		

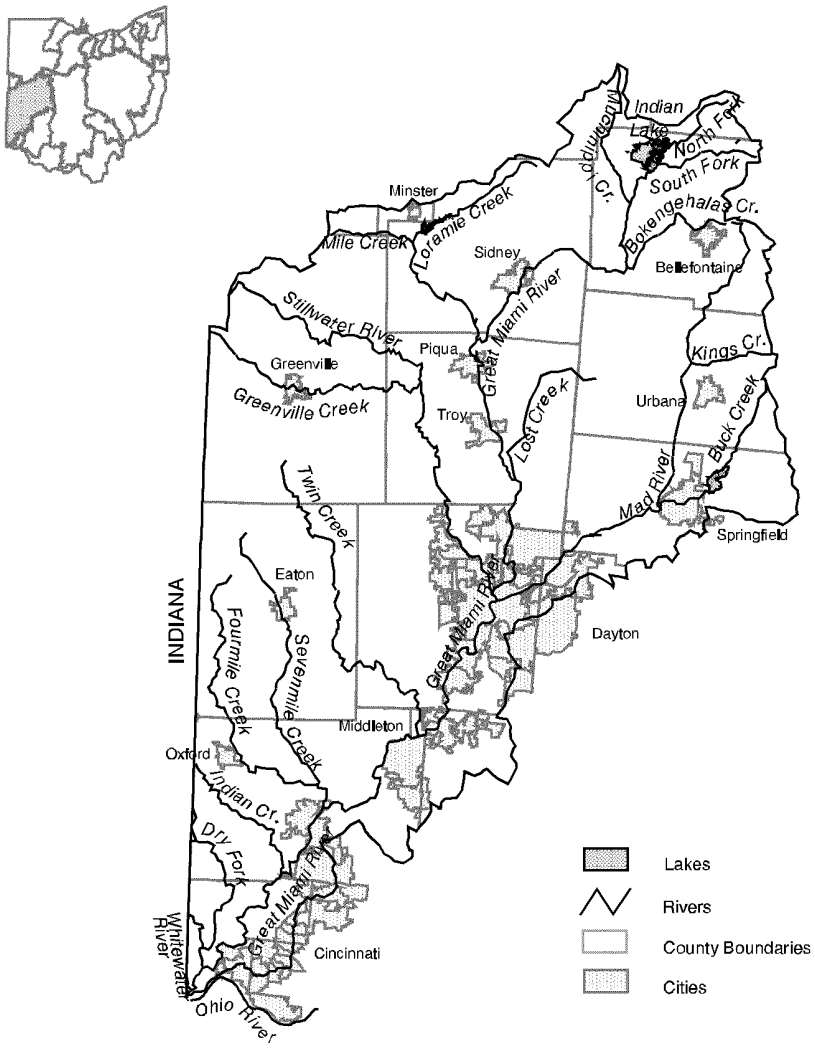
Table 21-1. Use designations for water bodies in the Great Miami river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Cherokee Mans run		+							+	+		+		
South fork Great Miami river		+							+	+		+		
New Richland tributary			+						+	+		+		
Slow ditch (Liggitt ditch)		+							+	+			+	
Belle Center tributary		+							+	+			+	
North fork Great Miami river		+							+	+		+		
Blackhawk run		+							+	+		+		
Van Horn creek		+							+	+		+		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Great Miami river drainage basin.



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3745-1-22 **Chagrin river drainage basin.**

(A) The water bodies listed in table 22-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Chagrin river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 22-1. Use designations for water bodies in the Chagrin river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Chagrin river - Chagrin falls (RM 29.65) to the mouth		+			+				+	+		+		
- at RM 4.9		+						+	+	+		+		PWS intake - Willoughby (formerly)
- all other segments		+							+	+		+		
Corporation creek (Chagrin river RM 0.27)		+			+				+	+		+		
Ward creek (Chagrin river RM 1.0)		+			+				+	+		+		
East branch and tributaries not identified below						+			+	+		+		
Quarry creek (East branch RM 1.85)			+			+			+	+		+		
Stoney brook (East branch RM 3.57)						+			+	+		+		
Pierson creek (East branch RM 6.73)			+			+			+	+		+		
Baldwin creek (East branch RM 7.06)						+			+	+		+		
Unnamed tributary (East branch RM 10.13)			+			+			+	+		+		
Mt. Glen tributary (unnamed tributary RM 0.87)						+			+	+		+		
Stebbins gulch (East branch RM 10.60)						+			+	+		+		
Harris creek (East branch RM 14.62)						+			+	+		+		
Unnamed tributary (East branch RM 14.80)						+			+	+		+		
Unnamed tributary (East branch RM 15.35)			+			+			+	+		+		
Unnamed tributary (East branch RM 16.20)			+			+			+	+		+		
Gully brook (Chagrin river RM 5.54)		+			o				+	+		+		

Table 22-1. Use designations for water bodies in the Chagrin river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Caves creek (Chagrin river RM 11.52)						+			+	+		+		
Unnamed tributary (Chagrin river RM 14.88)		+							+	+		+		
Unnamed tributary (Chagrin river RM 15.42)						+			+	+		+		
Pepper-Luce creek (Chagrin river RM 22.81)		+							+	+		+		
Unnamed tributary (Pepper-Luce creek RM 2.17)		+							+	+		+		
Griswold creek	*					+			+	+		+		
Willey creek	*					+			+	+		+		
Sulphur springs brook (Chagrin river RM 26.68)						+			+	+		+		
Aurora branch - headwaters to Smith creek (RM 8.98)		+							+	+		+		
- Smith creek to McFarland creek (RM 3.73)						+			+	+		+		
- McFarland creek to RM 0.38		+							+	+		+		
- RM 0.38 to the mouth		+			o				+	+		+		
McFarland creek	*		+						+	+		+		
North Branch						++				+		+		
Linton creek						++				+		+		
Smith creek (Aurora branch RM 8.98)						+			+	+		+		
Unnamed tributary (Smith creek RM 2.70)						+			+	+		+		
Sunny lake tributary (Aurora branch RM 14.61)		+							+	+		+		

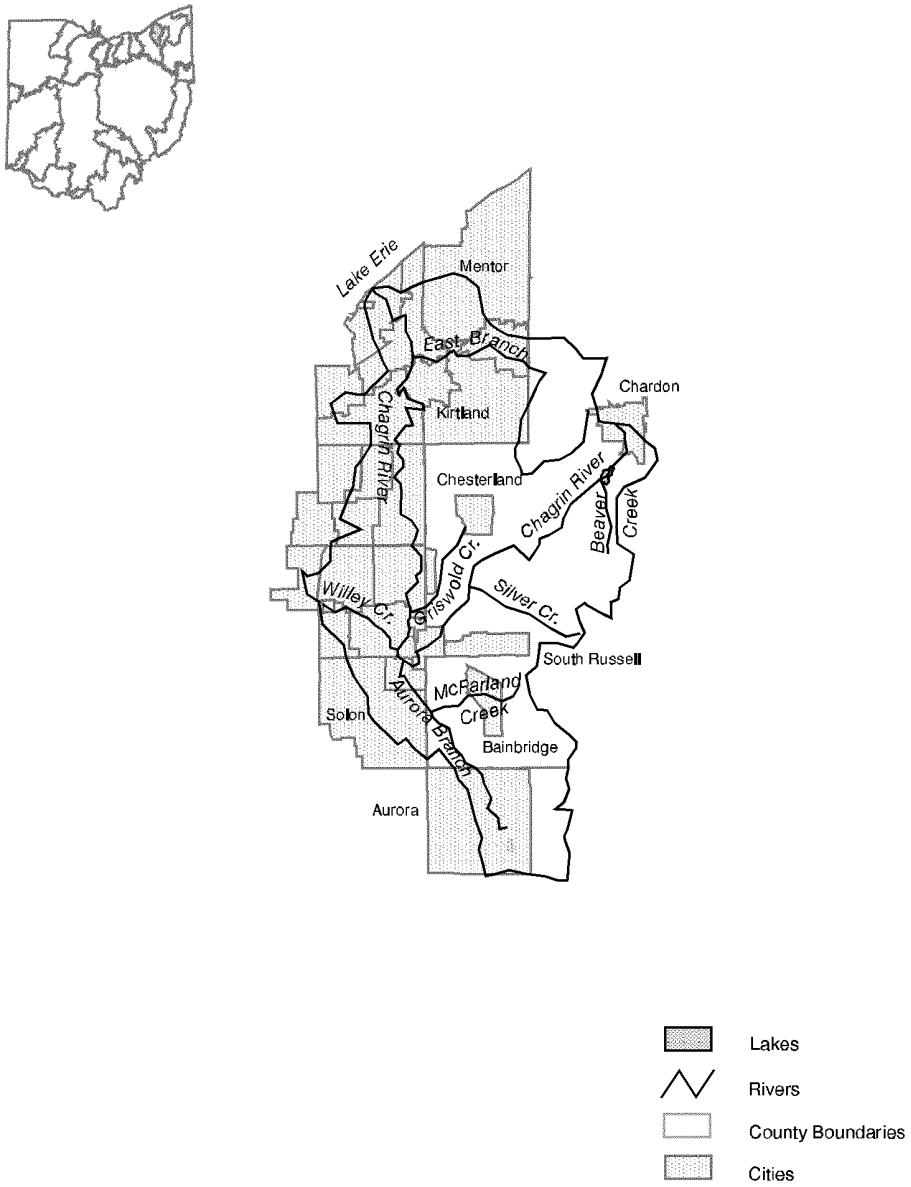
Table 22-1. Use designations for water bodies in the Chagrin river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Silver creek	*					+			+	+		+		
Affelder tributary (Silver creek RM 2.23)						+			+	+		+		
South branch (Silver creek RM 2.62)		+							+	+		+		
Pebble brook (Silver creek RM 3.50)						o			o	o		o		
Hrabak tributary (Silver creek RM 4.54)						o			o	o		o		
Pettibone tributary (Silver creek RM 4.58)						+			+	+		+		
Marsh hawk run (Chagrin river RM 38.32)		+							+	+		+		
Leech tributary (Chagrin river RM 41.53)						+			+	+		+		
Dewdale creek (Chagrin river RM 42.55)						+			+	+		+		
Unnamed tributary (Dewdale creek RM 0.31)						o			o	o		o		
Unnamed tributary (Dewdale creek RM 0.5)						o			o	o		o		
Ecklund tributary (Chagrin river RM 46.20)						+			+	+		+		
Beaver creek - U.S. rte. 322 (RM 1.26) to the mouth	*	o							+	+		+		
- all other segments	*					+			+	+		+		
Spring brook (Chagrin river RM 47.65)						+			+	+		+		
Woodie brook (Chagrin river RM 48.30)						+			+	+		+		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Chagrin river drainage basin.



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3745-1-23 **Portage river drainage basin.**

(A) The water bodies listed in table 23-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Portage river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 23-1. Use designations for water bodies in the Portage river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Otter creek - headwaters to 0.2 miles downstream of E. Broadway (RM 7.0)							+		*	*		*		Small drainageway maintainance
- RM 7.0 to mouth				+					*	*		*		HELP ecoregion - channel modification
Driftmeyer ditch							+		+	+			+	Small drainageway maintainance
Amlosch ditch							+		+	+			+	Small drainageway maintainance
Cedar creek		*							*	*		*		
Williams ditch (Cedar creek RM 0.5)							+		+	+			+	Small drainageway maintainance
Wolf creek (Williams ditch RM 4.0)		*							*	*		*		
Dry creek		*							*	*		*		
Little Cedar creek		*							*	*		*		
Crane creek		*							*	*		*		
Ayers creek		*							*	*		*		
Little Crane creek		*							*	*		*		
Henry creek		*							*	*		*		
Two Root creek		*							*	*		*		
Turtle creek		*							*	*		*		
North branch		*							*	*		*		
South branch		*							*	*		*		
Toussaint river		+							+	+		+		

Table 23-1. Use designations for water bodies in the Portage river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Rushaw creek		*							*	*		*		
Toussaint creek		+							+	+		+		
Packer creek		+							+	+		+		
Lacarpe creek - headwaters to Tettau rd. (RM 2.6)							+		*	*			+	Small drainageway maintainance
- Tettau rd. to the mouth		*							*	*		*		
Portage river		+							+	+		+		
Little Portage river		+							+	+		+		
Ninemile creek		*							*	*		*		
Lacarpe creek		*							*	*		*		
Wolf creek		*							*	*		*		
Sugar creek		+							+	+		+		
South branch		+							+	+		+		
Middle branch		+							+	+		+		
Bull creek		+							+	+		+		
Rocky ford - at RMs 10.66 and 11.10		+						+	+	+		+		PWS intakes - North Baltimore
- all other segments		+							+	+		+		
Fenburg tributary 1							+		+	+			+	Small drainageway maintainance
Fenburg tributary 2							+		+	+			+	Small drainageway maintainance

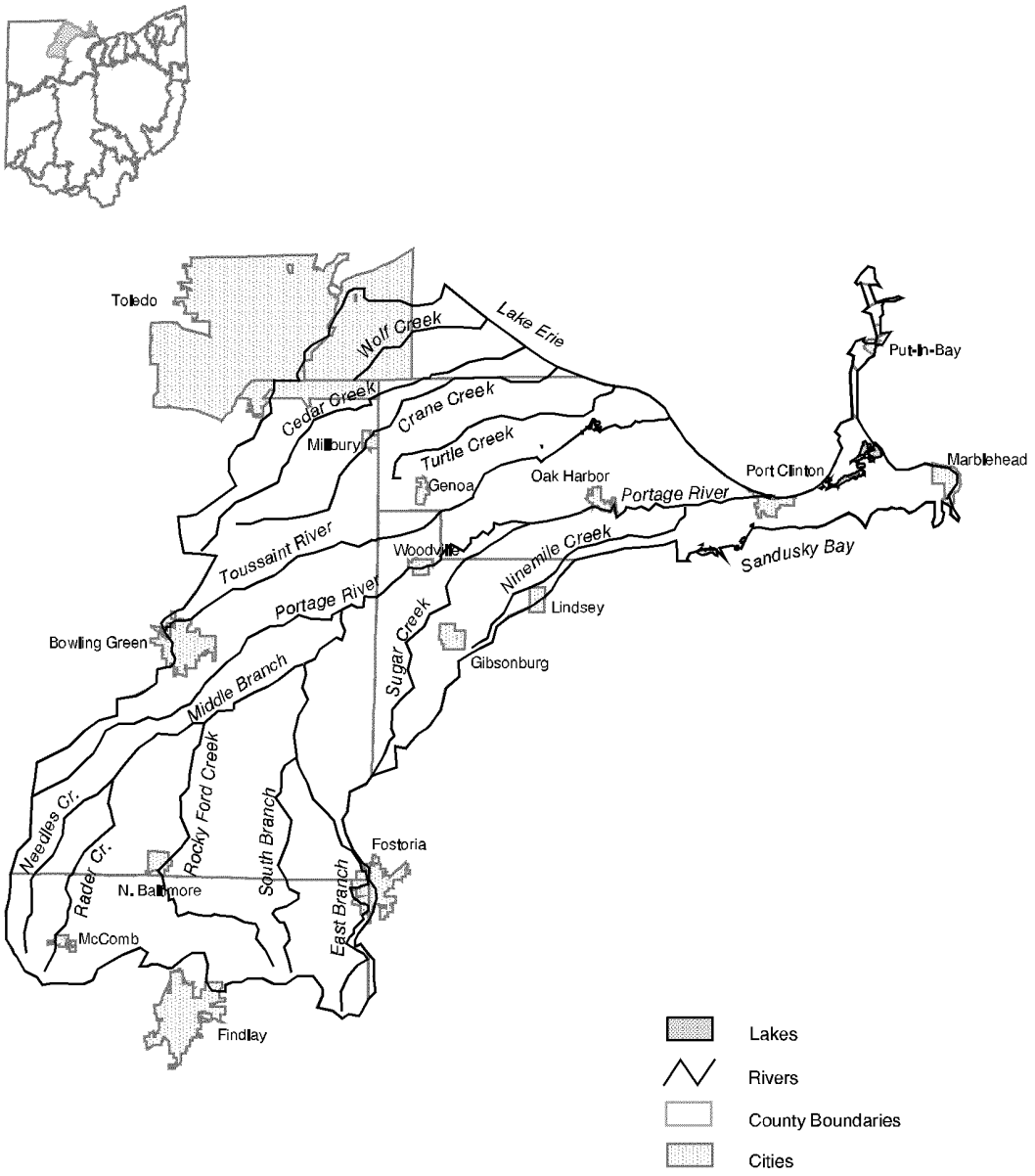
Table 23-1. Use designations for water bodies in the Portage river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Needles creek		+							+	+		+		
Rader creek - at RM 13.57								o						PWS intake - McComb
East branch - at RMs 13.84 and 16.15		+						o	+	+		+		PWS intakes - Fostoria
- all other segments		+							+	+		+		
North branch		+							+	+		+		
Poe ditch							+		+	+			+	Small drainageway maintainance

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Portage river drainage basin.



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3745-1-24 **Muskingum river drainage basin.**

(A) The water bodies listed in table 24-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Muskingum river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Swan run		*							*	*		*		
Dunfee run		*							*	*		*		
Sawyer run		*							*	*		*		
Little Hocking river		+							+	+		+		
West branch		*							*	*		*		
Laurel run		*							*	*		*		
Gilbert run		*							*	*		*		
Burnett run		*							*	*		*		
Falls creek		*							*	*		*		
Little West branch		*							*	*		*		
Mill branch		*							*	*		*		
East branch		*							*	*		*		
Tupper creek		*							*	*		*		
Davis creek		*							*	*		*		
Congress run		*							*	*		*		
Crooked creek		*							*	*		*		
Mile run		*							*	*		*		
Dodge run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Muskingum river - confluence of Walhonding and Tuscarawas rivers to rte. 83 bridge		o							*	*		*		
- all other segments		*							*	*		*		
Indian run		*							*	*		*		
Tupper creek		*							*	*		*		
Devol run		*							*	*		*		
Bucks run		*							*	*		*		
Russet run		*							*	*		*		
Rainbow creek		*							*	*		*		
March run		*							*	*		*		
Bear creek		*							*	*		*		
Cat creek		*							*	*		*		
Right branch		*							*	*		*		
Bear run		*							*	*		*		
Mason run		*							*	*		*		
Big run		*							*	*		*		
Straight run		*							*	*		*		
Little Cold run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Cushing run and tributaries		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Congress run		*							*	*		*		
Culver run		*							*	*		*		
Sugar run		*							*	*		*		
Wolf creek	*		*						*	*		*		
Hayward run	*		*						*	*		*		
Duck creek	*		*						*	*		*		
Bosman run	*		*						*	*		*		
Flint run	*		*						*	*		*		
South branch	*		*						*	*		*		
Painter run	*		*						*	*		*		
Southwest fork	*		*						*	*		*		
South fork	*		*						*	*		*		
Browns run	*		*						*	*		*		
Turkeyhen run	*		*						*	*		*		
Horse run	*		*						*	*		*		
Halfway run	*		*						*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Chainey run	*		*						*	*		*		
West branch	*		*						*	*		*		
Lucas run	*		*						*	*		*		
Whitewater creek	*		*						*	*		*		
Laurel run	*		*						*	*		*		
Coal run	*		*						*	*		*		
Shrader run	*		*						*	*		*		
North branch	*		*						*	*		*		
Buckeye run	*		*						*	*		*		
Mile run	*		*						*	*		*		
Aldridge run	*		*						*	*		*		
Scott run	*		*						*	*		*		
Lick run	*		*						*	*		*		
McPherson run	*		*						*	*		*		
Goshen creek	*		*						*	*		*		
Browns run	*		*						*	*		*		
Little Wolf creek	*		*						*	*		*		
Chaneyville run	*		*						*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Buck run	*		*						*	*		*		
Pleasant run	*		*						*	*		*		
Hedgehog creek	*		*						*	*		*		
Kickapoo creek	*		*						*	*		*		
Peeper run	*		*						*	*		*		
Thompson run		*							*	*		*		
Sherman run		*							*	*		*		
Olive Green creek	*		*						*	*		*		
Cow run	*		*						*	*		*		
Elk run	*		*						*	*		*		
Little Olive Green creek	*		*						*	*		*		
Scott run	*		*						*	*		*		
Allen run	*		*						*	*		*		
Stony creek	*		*						*	*		*		
Reasoners run	*		*						*	*		*		
Keith fork	*		*						*	*		*		
Limestone run	*		*						*	*		*		
Sharon fork	*		*						*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Dinner fork	*		*						*	*		*		
Andrews run		*							*	*		*		
Meigs creek		*							*	*		*		
Onion run		*							*	*		*		
Luck run		*							*	*		*		
Perry run		*							*	*		*		
Fourmile run		*							*	*		*		
Little Fourmile run		*							*	*		*		
Dyes fork		*							*	*		*		
Horse run		*							*	*		*		
Brannons fork		*							*	*		*		
Sugartree run		*							*	*		*		
Jewett run		*							*	*		*		
Blanchard run		*							*	*		*		
Tyson run		*							*	*		*		
Mans fork		*							*	*		*		
Bear run		*							*	*		*		
Guyst fork		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Marshall creek		*							*	*		*		
Starrett creek		*							*	*		*		
Olney run		*							*	*		*		
Cabin run		*							*	*		*		
Madison run		*							*	*		*		
Mill run		*							*	*		*		
Turkey run		*							*	*		*		
Bald Eagle run	*		*						*	*		*		
Simpson run		*							*	*		*		
Dry run		*							*	*		*		
Hooks run		*							*	*		*		
Manns run		*							*	*		*		
Sherwood run		*							*	*		*		
Doudna run		*							*	*		*		
Slemmons creek		*							*	*		*		
Millers run		*							*	*		*		
Salt run		*							*	*		*		
Oilspring run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
North branch		*							*	*		*		
Moores run		*							*	*		*		
Island run		*							*	*		*		
South branch		*							*	*		*		
Big Bottom run		*							*	*		*		
Cedar run		*							*	*		*		
Crow run		*							*	*		*		
Bluerock creek		*							*	*		*		
Little Bluerock creek		*							*	*		*		
Back run		*							*	*		*		
Fox run		*							*	*		*		
Dry Riffle run		*							*	*		*		
Duncan run		*							*	*		*		
Little Duncan run		*							*	*		*		
Salt creek		*							*	*		*		
Manns fork - at RM 6.77		*						o	*	*		*		
- all other segments		*							*	*		*		
Kent run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Boggs creek		*							*	*		*		
Indian run		*							*	*		*		
Buffalo fork		*							*	*		*		
Williams fork		*							*	*		*		
Lepage run		*							*	*		*		
White Eyes creek		*							*	*		*		
Pleasant run		*							*	*		*		
Little Salt creek		*							*	*		*		
Frog run		*							*	*		*		
Georges run		*							*	*		*		
Prairie fork		*							*	*		*		
Brush creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Baughman run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Turkey run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Goose run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Moxahala creek							o		*	*		*		Acid mine drainage.
Shawnee run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Jonathan creek - confluence with Turkey run to confluence with Moxahala creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
- headwaters to confluence with Turkey run	*		*						*	*		*		
Thompson run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Hibbs run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Kent run - at RM 1.3	+	+						o	*	*		*		
- all other segments	+	+							*	*		*		
Salt run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Buckeye fork							o		*	*		*		Acid mine drainage.

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Bush creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Twomile run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Butcherknife creek							o		*	*		*		Acid mine drainage.
Turkey run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Painter run	*		*						*	*		*		
Valley run	*		*						*	*		*		
Berry run	*		*						*	*		*		
Morrison run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Porter run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Elk run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Riders run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Burley run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Snake run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Black fork - headwaters to south Morgan county line (RM 2.8)		+							*	*		*		
- at RM 4.69		+						o	*	*		*		
- RM 2.8 to mouth		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Dry run - at RM 2.23		*L						o	*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
- all other segments		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Ogg creek - headwaters to former Jones lake outlet (RM 1.4)		+							+	+		+		
- RM 1.4 to mouth							+		+	+		+		Acid mine drainage.
McLuney creek							o		*	*		*		Acid mine drainage.
Bear creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids, pH, iron and zinc criteria.
Chaps run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Licking river - Dillon lake (RM 12.7 to 6.2)	+		+						+	+		+		
- Blackhand gorge state nature preserve (RM 23.9 to 19.0)	+	+							+	+		+		
- all other segments		+							+	+		+		
Timber run		+							+	+		*		
Unnamed tributary (Timber run RM 5.02)						+			+	+			+	
Joes run		+							+	+		*		
Bartlett run		+							+	+		+		
Unnamed tributary (Barlett run RM 2.76)		+							+	+			+	
Big run		+							+	+		+		
Unnamed tributary (Big run RM 1.30)						+			+	+			+	
Unnamed tributary (Big run RM 2.63)						+			+	+			+	
Poverty run		+							+	+		*		
Stump run		+							+	+		*		
Brushy fork		+							+	+		*		
Rocky fork - East branch to mouth			+						+	+		+		
- all other segments		+							+	+		+		
Lost run		+							+	+		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Wilkins run		+							+	+		*		
Smokyrow run		+							+	+		*		
Painter run		+							+	+		*		
Long run		+							+	+		*		
Claylick creek		+							+	+		*		
Little Claylick creek		+							+	+		*		
Bowling Green run		+							+	+		*		
Equality run		+							+	+		*		
Shawnee run		+							+	+		*		
Quarry run		*							*	*		*		
South fork		+							+	+		+		
Raccoon creek		+							+	+		+		
Salt run		+							+	+		*		
Lobdell creek - Crouse-Willison rd. (RM 10.3) to the mouth		+							+	+		+		
- unnamed tributary (Lobdell creek RM 13.79) to Crouse-Willison rd.				+					+	+			+	EOLP ecoregion - channel modification
- headwaters to RM 13.79							+		+	+			+	Small drainageway maintenance
Unnamed tributary (Lobdell creek RM 13.79)							+		+	+			+	Small drainageway maintenance
Moots run		+							+	+		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Simpson run		+							+	+		*		
Pet run		+							+	+		*		
Kiber run		+							+	+		*		
Unnamed tributary (Raccoon creek RM 27.39) - headwaters to Hartford township line (RM 2.2)							+		+	+			+	Small drainageway maintenance
- all other segments		+							+	+		+		
Dutch fork		+							+	+		*		
Swamp run		*							*	*		*		
Hog run		*							*	*		*		
Quarry run		*							*	*		*		
Ramp creek		+							+	+		+		
Beaver run		+							+	+		*		
Wastewier run		+							+	+		*		
Bell run		+							+	+		*		
Muddy fork		+							+	+		*		
Mile run		*							*	*		*		
North fork - at RM 3		+						+	+	+		+		
- all other segments		+							+	+		+		
Log Pond run		+							+	+		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Dry run		+							+	+		*		
Simonds run		*							*	*		*		
Brushy fork		*							*	*		*		
Cat run		*							*	*		*		
Griffin run		*							*	*		*		
Clear fork		+							+	+		*		
Cranetown run		*							*	*		*		
Dog Hollow run		+							+	+		*		
Lake fork		+							+	+		*		
Sugar creek		*							*	*		*		
Sycamore creek		+							+	+		+		
Tuma run		+							+	+		*		
Vance creek		+							+	+		+		
Chambers creek		*							*	*		*		
Goose run		*							*	*		*		
Otter fork		+							+	+		+		
Bowl run		+							+	+			+	
Unnamed tributary (Otter fork RM 11.72)							+		+	+			+	Small drainageway maintenance

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Webster run		+							+	+		*		
Ford creek		+							+	+		*		
Mill run		*							*	*		*		
Blount run		*							*	*		*		
Blunt run		*							*	*		*		
Shawnee run		*							*	*		*		
Beech run		*							*	*		*		
Symmes creek		*							*	*		*		
North branch		*							*	*		*		
South branch		*							*	*		*		
Wakatomika creek - headwaters to Front Royal rd. (RM 41.2)			+			+			+	+		+		
- Front Royal rd. to the mouth			+						+	+		+		
Little Wakatomika creek - headwaters to st. rte. 60 (RM 9.5)						+			+	+		+		
- st. rte. 60 to the mouth		+							+	+		+		
Mill fork		+							+	+		+		
Moscow brook - headwaters to twp. rte. 70 off co. rd. 297 (RM 2.63)						+			+	+		+		
- twp. rte. 70 off co. rd. 297 to the mouth		+							+	+		+		
Sand fork - headwaters to unnamed tributary at RM 4.65						+			+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- unnamed tributary at RM 4.65 to the mouth		+							+	+		+		
Opossum run		*							*	*		*		
Dickinson run		+							+	+		+		
Steffee run		*							*	*		*		
Black run		+							+	+		+		
Fivemile run - headwaters to twp. rd. 4 (RM 2.08)		+							+	+		+		
- twp. rd. 4 to the mouth			+						+	+		+		
Nickel Valley run			+						+	+		+		
Brushy fork - headwaters to RM 3.7		+							+	+		+		
- RM 3.7 to the mouth			+						+	+		+		
Priest run						++				+		+		
Pleasant Valley run (Priest run RM 1.62)		+							+	+		+		
Winding fork - headwaters to upstream st. rte. 79 (RM 4.1)			+			+			+	+		+		
- RM 4.1 to the mouth			+						+	+		+		
Oxley run		*							*	*		*		
Jug run			+			+			+	+		+		
Unnamed tributary (Jug run RM 1.69)			+			+			+	+		+		
Anderson run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Harrod run			+						+	+		+		
Pumpkin run		*							*	*		*		
Unnamed tributary (Wakatomika creek RM 40.93)			+			+			+	+		+		
Wills creek - at RM 66.7		+						o	+	+		+		
- all other segments		+							+	+		+		
Big run		*							*	*		*		
Brelsford run		*							*	*		*		
White Eyes creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Brush run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Bacon run		*							*	*		*		
Bone run		*							*	*		*		
Center creek		*							*	*		*		
Twomile run		*							*	*		*		
Birds run		*							*	*		*		
Johnson fork		*							*	*		*		
Postboy creek		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Indian Camp run		*							*	*		*		
Dry run		*							*	*		*		
Wolf run		*							*	*		*		
Brush run		*							*	*		*		
Salt fork		+							+	+		+		
Sugartree fork		+							+	+		+		
Rocky fork		+							+	+		+		
Yellow Water creek		+							+	+		+		
Clear fork		+							+	+		+		
Turkey run		+							+	+		+		
Beeham run		+							+	+		+		
Brushy fork		+							+	+		+		
Christian creek		+							+	+		+		
Coon run		+							+	+		+		
Sarchett run		*							*	*		*		
Crooked creek		+							+	+		*		
Jackson run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Peters creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Bobs run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
North Crooked creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Fox creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Dare run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Leatherwood creek - at RM 22.36		+						o	+	+		*		
- all other segments		+							+	+		*		
Mud run		*							*	*		*		
Hawkins run		*							*	*		*		
Infirmary run		*							*	*		*		
Shannon run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Chapman run		+							+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Trail run		*							*	*		*		
Seneca fork		*							*	*		*		
Soggy run		*							*	*		*		
Opossum run		*							*	*		*		
Crooked creek		*							*	*		*		
Mud run		*							*	*		*		
Depue run		*							*	*		*		
Beaver creek		*							*	*		*		
Yoker creek		*							*	*		*		
Glady run		*							*	*		*		
South fork		*							*	*		*		
North fork		*							*	*		*		
Mud run		*							*	*		*		
Bishop run		*							*	*		*		
Paynes fork		*							*	*		*		
Rock creek		*							*	*		*		
Buffalo fork		+							*	*		*		
Crane run		+							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Yoker creek		+							*	*		*		
Mannon run		+							*	*		*		
Flat run		+							*	*		*		
McKee run		+							*	*		*		
Bee run		+							*	*		*		
Sims run		+							*	*		*		
Cumberland tributary							+		+	+			+	Small drainageway maintenance
Collins fork		+							*	*		*		
Miller creek		+							*	*		*		
Mays fork		+							*	*		*		
Rannells creek		+							*	*		*		
Buffalo creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
North fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
South fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Little Buffalo creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Robinson run		*							*	*		*		
North creek							+		+	+			+	Small drainageway maintenance
West creek							+		+	+			+	Small drainageway maintenance
Tuscarawas river - State st. in Barberton (RM 112.9) to Chippewa creek (RM 103.2)				+					+	+		+		EOLP ecoregion - channel modification
- Stillwater creek (RM 47.0) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Unnamed tributary (Tuscarawas river mile 3.78)		+							+	+		+		
Morgan run		+							+	+		+		
White Eyes creek		+							+	+		+		
East fork		+							+	+		+		
West fork		+							+	+		+		
Evans creek		+							+	+		+		
Davis run		*							*	*		*		
Hoffman run		*							*	*		*		
Sweigert run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Blue Ridge run		+							+	+		+		
Rodney run		*							*	*		*		
Buckhorn creek		+							+	+		+		
Lick run		*							*	*		*		
West fork		*							*	*		*		
Indiancamp creek		*							*	*		*		
Dunlap creek		+							+	+		+		
Browning run		+							+	+		+		
Stocker run		*							*	*		*		
Frys creek		+							+	+		+		
Johnson run		*							*	*		*		
Mud run		+							+	+		+		
Stillwater creek - headwaters to confluence with Brushy fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
- Uhrichsville dam (RM 5.2) to mouth		+							+	+		+		
- at RM 7.05		*						o	*	*		*		
- all other segments		*							*	*		*		
Little Stillwater creek - confluence with Plum run to Dennison		+							+	+		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
- all other segments		*							*	*		*		
Wolf run		*							*	*		*		
Irish run		*							*	*		*		
Plum run		*							*	*		*		
Willis run		*							*	*		*		
Beaverdam run		*							*	*		*		
Edgington run		*							*	*		*		
Beaverdam run		*							*	*		*		
Leiper run		*							*	*		*		
Clear fork		*							*	*		*		
Standingstone fork		*							*	*		*		
Laurel creek		*							*	*		*		
Crooked creek		*							*	*		*		
Watson creek		*							*	*		*		
Fallen Timber creek		*							*	*		*		
Phillips fork		*							*	*		*		
Weaver run		*							*	*		*		
Hitchcock run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Brushy fork		*							*	*		*		
Hefling run		*							*	*		*		
Long run		*							*	*		*		
Colman run		*							*	*		*		
Huff run		*							*	*		*		
McFadden run		*							*	*		*		
Elk run		*							*	*		*		
South fork		*							*	*		*		
Atkinson creek		*							*	*		*		
Craborchard creek		*							*	*		*		
Skull fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Millers fork		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Piedmont reservoir tributaries		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Boggs fork - Holloway to confluence with Stillwater creek		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- all other segments		*							*	*		*		
Plum run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Trail run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Rush run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Jockey Hollow run		*							*	*		*		
Indian run		*							*	*		*		
Sixmile run		*							*	*		*		
Lick run		*							*	*		*		
Robinson run		*							*	*		*		
Buttermilk creek		*							*	*		*		
Coal run		*							*	*		*		
Spencer creek		*							*	*		*		
Pike run		*							*	*		*		
Pone run		*							*	*		*		
Beaverdam creek		+							+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Oldtown creek		+							+	+		+		
Stone creek		*							*	*		*		
Crooked creek		+							+	+		+		
Unnamed tributary (Stone creek RM 6.0)		+							+	+		+		
Sugar creek - Beach city dam to mouth		+							+	+		+		
- all other segments		+							+	+		+		
Brandywine creek		+							+	+		+		
Goettge run		+							+	+		+		
Broad run		+							+	+		+		
Turkeyfoot run		+							+	+		+		
Cherry run		+							+	+		+		
South fork - headwaters to co. rte. 73 (RM 11.2)				+					+	+		+		EOLP ecoregion - channel modification
- all other segments		+							+	+		+		
Unnamed tributary (South fork RM 1.0)		+							+	+		+		
Walnut creek - headwaters to Indian Trail creek (RM 0.82)				+					+	+		+		EOLP ecoregion - channel modification
- all other segments		+							+	+		+		
Indian Trail creek		+							+	+		+		
Unnamed tributary (Indian Trail creek RM 6.08) - headwaters to RM 0.9							+		+	+			+	Small drainageway maintenance

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- all other segments		+							+	+			+	
Unnamed tributary (Walnut creek RM 3.92)		+							+	+		+		
Goose creek		+							+	+		+		
Unnamed tributary (South fork RM 11.3)		+							+	+		+		
East branch - co. rte. 52 (RM 5.04) to the mouth				+					+	+			+	EOLP ecoregion - channel modification
- all other segments		+							+	+		+		
Unnamed tributary (East branch RM 2.07)		+							+	+			+	
Pleasant Valley creek		+							+	+			+	
Unnamed tributary (East branch RM 3.6)		+							+	+			+	
Unnamed tributary (South fork RM 14.1)		+							+	+		+		
Unnamed tributary (South fork RM 15.83)		+							+	+		+		
Troyer Valley creek		+							+	+		+		
Brush run		+							+	+		+		
Unnamed tributary (Brush run RM 1.54)							+		+	+			+	Acid mine drainage
Bean creek		*							*	*		*		
Elm run		+							+	+		+		
Middle fork		+							+	+		+		
Unnamed tributary (Middle fork RM 3.25)		+							+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Misers run		+							+	+		+		
Unnamed tributary (Middle fork RM 6.0)		+							+	+		+		
Crabapple creek		+							+	+		+		
North fork		+							+	+		+		
Little Sugar creek		+							+	+		+		
Unnamed tributary (Little Sugar creek RM 0.5)		+							+	+		+		
Conotton creek		+							+	+		*		
Huff run		*							*	*		*		
Beggar run		*							*	*		*		
Dog run		*							*	*		*		
Indian fork - at RMs 3.0 and 3.7		*						o	*	*		*		
- all other segments		*							*	*		*		
Elliot run		*							*	*		*		
Dellroy creek		*							*	*		*		
Messer run		*							*	*		*		
Pleasant Valley run		*							*	*		*		
Cold Spring run		*							*	*		*		
Town creek		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
Gant creek		*							*	*		*		
Thompson run		*							*	*		*		
Holmes run		*							*	*		*		
McGuire creek		*							*	*		*		
North fork		*							*	*		*		
Bear Hole run		*							*	*		*		
Scott run		*							*	*		*		
Dining fork		*							*	*		*		
Kirby run		*							*	*		*		
Irish creek		+							+	+		*		
Lick fork		*							*	*		*		
Snow creek		*							*	*		*		
Unnamed tributary		*							*	*		*		
Jefferson creek		+							+	+		*		
Small Middle run		+							+	+		+		
Middle run		+							+	+		+		
Wolf run		*							*	*		*		
Sandy creek		+							+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Bear run		*							*	*		*		
Sulphur run		*							*	*		*		
Limestone creek		*							*	*		*		
Nimishillen creek - Canton city limits to confluence with Sandy creek		+							+	+		+		
- all other segments		+							+	+		+		
Sherrick run - headwaters to Osnaburg ditch (RM 5.2)							+		+	+			+	Small drainageway maintenance
- RM 5.2 to mouth		+							+	+			+	
Osnaburg ditch				+					+	+			+	EOLP ecoregion - channel modification
Hurford run - headwaters (RM 4.95) to and including confluence with Domer ditch (RM 1.71)							+		+	+			+	Small drainageway maintenance
- downstream edge of confluence with Domer ditch (RM 1.71) to Harrison ave. (RM 0.8)				+					+	+		+		EOLP ecoregion - channel modification
- Harrison ave. (RM 0.8) to mouth (RM 0.0)		+							+	+		+		
Domer ditch		+							+	+			+	
West branch		+							+	+		+		
McDowell ditch - headwaters to Zimber ditch (RM 2.3)				+					+	+			+	EOLP ecoregion - channel modification
- RM 2.3 to mouth				+						+			+	EOLP ecoregion - channel modification
Zimber ditch - headwaters to Rettig Ditch (RM 1.2)		+							+	+			+	

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- RM 1.2 to North Canton ditch (RM 0.8)				+					+	+			+	EOLP ecoregion - channel modification
- RM 0.8 to mouth				+						+			+	EOLP ecoregion - channel modification
North Canton ditch (Hoover ditch)							+			+			+	Small drainageway maintenance
Middle branch		+							+	+		+		
Swartz ditch				+					+	+			+	EOLP ecoregion - channel modification
Guiley ditch (Hartville ditch)				+					+	+			+	EOLP ecoregion - channel modification
East branch - Louisville (RM 6.0) to Middle Branch (RM 0.0)		+								+		+		
- all other segments		+							+	+		+		
Keims run							+			+			+	Small drainageway maintenance
Unnamed tributary (East branch RM 4.67)		+							+	+		+		
Indian run		*							*	*		*		
Little Sandy creek		*							*	*		*		
Black run		*							*	*		*		
Middle run		*							*	*		*		
Armstrong run		*							*	*		*		
Pipe run		*							*	*		*		
Hugle run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Still fork		+							+	+		+		
Muddy fork		*							*	*		*		
Wholebark run		*							*	*		*		
Pumpkin run		*							*	*		*		
Reeds run		*							*	*		*		
Pipes fork		*							*	*		*		
Friday creek		*							*	*		*		
Middle branch		*							*	*		*		
Conser run		*							*	*		*		
Unnamed tributary (Tuscarawas river mile 77.96)		+							+	+		+		
Sherman creek (Tuscarawas river mile 79.58)		+							+	+		+		
Fohl creek (Tuscarawas river mile 83.74)		+							+	+		+		
Wolf creek		*							*	*		*		
Camp creek		*							*	*		*		
Pigeon run		+							+	+		+		
Sippo creek		*							*	*		*		
West Scippo creek (Tuscarawas river mile 91.18)		+							+	+		+		
Newman creek		+							+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Orrville ditch (Newark creek)		*							*	*		*		
Unnamed tributary (Orrville ditch RM 0.52)		+							+	+		+		
Mudbrook creek		*							*	*		*		
Fox run		*							*	*		*		
Nimisila creek		+							+	+		+		
Chippewa creek - Chippewa lake outlet (RM 20.4) to mouth				+					+	+		+		EOLP ecoregion - channel modification
- all other segments		+							+	+		+		
Silver creek		+							+	+		*		
Red run		+							+	+		*		
Marshallville tributary (Red run RM 0.66)		+							+	+		*		
Mill creek		*							*	*		*		
River Styx - Medina county rd. 16 (RM 3.9) to mouth				+					+	+		+		EOLP ecoregion - channel modification
- all other segments		+							+	+		*		
Holmes brook		+							+	+		*		
Blockers creek		+							+	+		+		
Little Chippewa creek		+							+	+			+	
Unnamed trib. (Little Chippewa creek RM 6.3)		*							*	*		*		
Tommy run		+							+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Hubbard creek		+							+	+		+		
Chippewa ditch		*							*	*		*		
McCabe creek		+							+	+		+		
The inlet		*							*	*		*		
Pancake creek		*							*	*		*		
Wolf creek - Akron Wadsworth rd. (RM 4.58) to mouth				+					+	+		+		EOLP ecoregion - channel modification
- at RM 5.12		+						o	+	+		+		
- all other segments		+							+	+		+		
Hudson run - Columbia lake outlet (RM 0.4) to the mouth				+					+	+		+		EOLP ecoregion - channel modification
- all other segments		+							+	+		+		
Unnamed tributary (Hudson run RM 3.02)		+							+	+		+		
Van Hyning run		+							+	+		*		
Pigeon creek - Jacoby rd. (RM 5.2) to mouth				+					+	+		*		EOLP ecoregion - channel modification
- all other segments		+							+	+		*		
Shocalog run		*							*	*		*		
Polysar tributary							o		*	*			o	Small drainageway maintenance
Unnamed tributary (Wolf creek RM 9.96)		+							+	+		+		
Unnamed tributary (Wolf creek RM 10.97)		+							+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Metzgers ditch		+							+	+			+	
Walhonding river			+						+	+		+		
Mill creek			+						+	+		+		
Spoon creek		+							+	+		+		
Turkey run			+						+	+		+		
Little Mill creek			+						+	+		+		
Beards run		*L							*	*		*		Acid mine drainage. Varied criteria year around: exempt from the WWH total dissolved solids criterion.
Crooked run		*							*	*		*		
Killbuck creek - wetland area (RM 47.1 - 38.0)	+	+							+	+		+		
- all other segments		+							+	+		+		
Bucklew run			+						+	+		+		
Hoagland run		*							*	*		*		
Doughty creek		+							+	+		+		
Bucks run		*							*	*		*		
Military run		*							*	*		*		
Mullet run		*							*	*		*		
Big run			+						+	+		+		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Laurel creek		*							*	*		*		
Lepley run		*							*	*		*		
Wolf creek		+							+	+		+		
Black creek		*							*	*		*		
Shrimplin run		*							*	*		*		
Hardy run		*							*	*		*		
Sand run		*							*	*		*		
Upper Sand run		*							*	*		*		
Sapps run		*							*	*		*		
Uhl run		*							*	*		*		
Bear run		*							*	*		*		
Corns run		*							*	*		*		
Honey run		*							*	*		*		
Colliers run		*							*	*		*		
Martins creek		+							+	+		+		
Paint creek			+						+	+		+		
Coffee run		*							*	*		*		
Salt creek		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
North branch		+							+	+		+		
Tea run		*							*	*		*		
Rush run		*							*	*		*		
Savage run		*							*	*		*		
Shreve creek		+							+	+			+	
Apple creek		+							+	+			+	
Little Apple creek		+							+	+			+	
Clear creek		*							*	*		*		
Little Killbuck creek		+							+	+		+		
Rathburn run		*							*	*		*		
Cedar run		*							*	*		*		
Shade creek		+							+	+		+		
Little Killbuck creek		*							*	*		*		
Repp run		*							*	*		*		
Camel creek		+							+	+		+		
Killbuck ditch (Killbuck creek RM 71.7)							+		+	+			+	Small drainageway maintenance
Simmons run		*							*	*		*		
Flint run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Beaver run			+						+	+		+		
Darling run		*							*	*		*		
Mohawk creek		*							*	*		*		
Dutch run		*							*	*		*		
Honey run		*							*	*		*		
Laurel run		*							*	*		*		
Kokosing river - North branch (RM 29.7) to the mouth			+						+	+		+		
- all other segments		+							+	+		+		
Singer run		*							*	*		*		
Brush run		*							*	*		*		
Honey run		*							*	*		*		
Jelloway creek			+						+	+		+		
Little Jelloway creek			+						+	+		+		
East branch			+						+	+		+		
Sapps run		*							*	*		*		
Dowd creek		*							*	*		*		
Shadley Valley creek		*							*	*		*		
Ireland creek		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Barney run		*							*	*		*		
Schenck creek			+						+	+		+		
Coleman branch		*							*	*		*		
Little Schenck creek		*							*	*		*		
Mud run		*							*	*		*		
Indianfield run		*							*	*		*		
Big run		*							*	*		*		
Elliott run		*							*	*		*		
Wolf run		*							*	*		*		
Center run		*							*	*		*		
Dry creek		*							*	*		*		
Dry run		*							*	*		*		
Armstrong run		*							*	*		*		
North branch		+							+	+		+		
Job run		*							*	*		*		
East branch		*							*	*		*		
Isaacs run		*							*	*		*		
Markley run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Toby run		*							*	*		*		
Lost run		*							*	*		*		
Granny creek		*							*	*		*		
Mile creek		*							*	*		*		
South branch		*							*	*		*		
Sylvester run		*							*	*		*		
Mohican river		*							*	*		*		
Flat run		*							*	*		*		
Negro run		*							*	*		*		
Sigafoos run		*							*	*		*		
Lake fork		*							*	*		*		
Plum run		*							*	*		*		
Unnamed stream		*							*	*		*		
Crab run		*							*	*		*		
Muddy fork		+							+	+		+		
Fox run		*							*	*		*		
Redhaw creek		+							+	+		+		
Wolf run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Jerome fork		+							+	+		+		
Glenn run		*							*	*		*		
Oldtown run		*							*	*		*		
Quaker Springs run		*							*	*		*		
Scott run		*							*	*		*		
Newell run		*							*	*		*		
Kakotawa creek		*							*	*		*		
Lang creek		+							+	+		+		
Jamison creek		+							+	+		+		
Unnamed tributary (RM 0.2)							+		+	+			+	
Town run		+							+	+		+		
Orange creek		*							*	*		*		
Leidigh Mill creek		*							*	*		*		
Ball Alley run		*							*	*		*		
Black fork - Charles Mill reservoir to confluence with Mohican river	*	*							**			*		
- at RMs 50.82, 53.88 and 54		+						+	+	+		+		
- all other segments		+							+	+		+		
Big run		*							*	*		*		

Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Honey creek		*							*	*		*		
Rocky fork		+							+	+		+		
Fleming Falls creek		+							*	*		+		
Unnamed tributary (Fleming Falls creek RM 2.7)		+							*	*			+	
Touby run		+							+	+		*		
Seymour run		*							*	*		*		
Whetstone creek		*							*	*		*		
Brubaker creek		*							*	*		*		
Friends creek		*							*	*		*		
Shipp creek		*							*	*		*		
Leatherwood creek		*							*	*		*		
Bear run		*							*	*		*		
Marsh run		*							*	*		*		
Tuby run		+							+	+			+	
Clear fork - Clear fork reservoir (RM 30.5) to the mouth	*	+							+	+		+		
- at RM 30.6		*						o	*	*		*		
- all other segments		*							*	*		*		
Pine run	*	+							+	+		+		

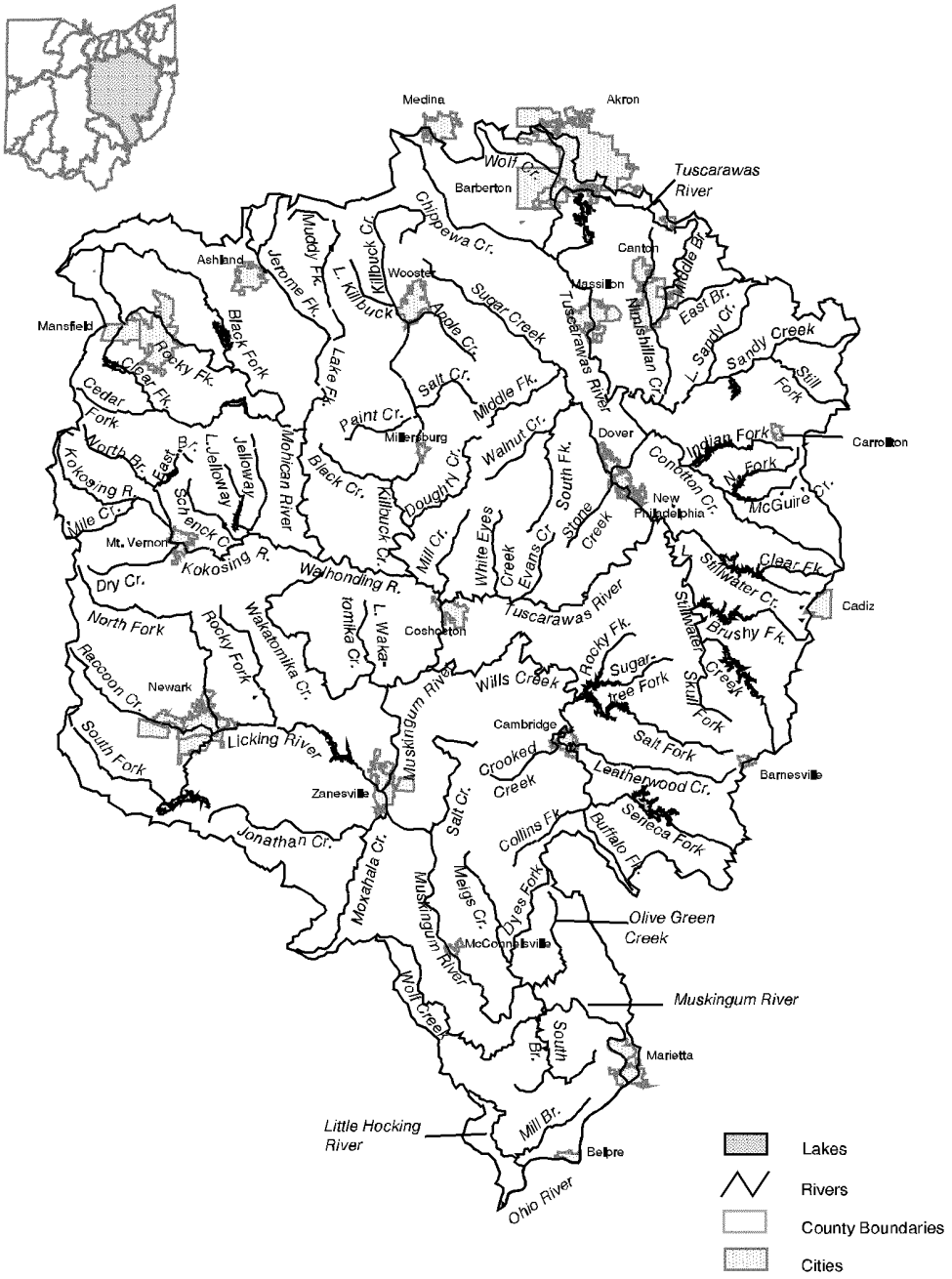
Table 24-1. Use designations for water bodies in the Muskingum river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Horsetail run		*							*	*		*		
Switzer creek		*							*	*		*		
Opossum run		+							+	+		+		
Slater run		*							*	*		*		
Babble brook		*							*	*		*		
Smoky run		*							*	*		*		
Pleasant Valley run		*							*	*		*		
Honey creek		*							*	*		*		
Robinson run		*							*	*		*		
Cedar fork		+							+	+		+		
Steel run		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Muskingum river drainage basin.



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3745-1-25 **Mahoning river drainage basin.**

(A) The water bodies listed in table 25-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Mahoning river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 25-1. Use designations for water bodies in the Mahoning river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Mahoning river - at RMs 56.47, 69.18, 83.55, and 91.50		*						o	*	*		*		PWS intakes - Newton Falls (RM 56.47), Mahoning valley sanitary district (emergency intake, RM 69.18), Alliance (emergency intake, RM 83.55) and Sebring (RM 91.50)
- all other segments		*							*	*		*		
Hickory creek (formerly Hickory run)		*							*	*		*		
Coffee run		*							*	*		*		
Grays run		*							*	*		*		
Hines run						++				+		+		
Godward run		*							*	*		*		
Yellow creek - at RMs 2.0 and 8.40		+						o	+	+		+		PWS intakes - Campbell (RM 2.0) and Struthers (RM 8.40)
- all other segments		+							+	+		+		
Burgess run - at RM 2.0		*						o	*	*		*		PWS intake - Struthers
- all other segments		*							*	*		*		
Pine Hollow creek		*							*	*		*		
Dry run - at RM 2.86		+						o	+	+		+		PWS intake - Campbell
- all other segments		+							+	+		+		
Crab creek		*							*	*		*		

Table 25-1. Use designations for water bodies in the Mahoning river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Kimmel brook		*							*	*		*		
Mill creek - Mill creek park (RM 9.5) to the mouth	*	+							+	+		+		
- all other segments		+							+	+		+		
Bears Den run		+							+	+		+		
Ax Factory run		+							+	+		+		
Andersons run		+							+	+		+		
Cranberry run		*							*	*		*		
Indian run		+							+	+		+		
Saw Mill run		*							*	*		*		
Turkey creek		*							*	*		*		
Fourmile run		*							*	*		*		
Little Squaw creek (Mahoning river RM 23.55)		+							+	+		+		
Squaw creek		*							*	*		*		
Meander creek - at RM 2.96		+						o	+	+		+		PWS intake - Mahoning valley sanitary district
- all other segments		+							+	+		+		
Morrison run		*							*	*		*		
Sawmill creek		*							*	*		*		
West branch		*							*	*		*		

Table 25-1. Use designations for water bodies in the Mahoning river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Mosquito creek - at RM 12.49		+						o	+	+		+		PWS intake - Warren
- all other segments		+							+	+		+		
Spring run		*							*	*		*		
Big run		*							*	*		*		
Confusion run		*							*	*		*		
Walnut creek		*							*	*		*		
Mud creek		*							*	*		*		
Smith run		*							*	*		*		
Mud creek		*							*	*		*		
Red run							o			*			o	Small drainageway maintenance
Duck creek		*							*	*		*		
Little Duck creek		*							*	*		*		
East branch		*							*	*		*		
Chocolate run		*							*	*		*		
Eagle creek	+	+							+	+		+		
Tinker creek	*	*							*	*		*		
Nelson ditch	*	*							*	*		*		
South fork		+							+	+		+		

Table 25-1. Use designations for water bodies in the Mahoning river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Unnamed tributary (South fork RM 6.34)		+							+	+		+		
Sand creek	*	+							+	+		+		
Unnamed tributary (Sand creek RM 2.22)		+							+	+		+		
Unnamed tributary (Sand creek RM 3.25)		+							+	+		+		
Unnamed tributary (Sand creek RM 4.84)		+							+	+		+		
Camp creek	*	*							*	*		*		
Silver creek	+					+			+	+		+		
Hiram tributary		+							+	+			+	
Black creek	*	*							*	*		*		
West branch - at RM 13.25		+						o	+	+		+		PWS intake - West branch tower state park
- all other segments		+							+	+		+		
Unnamed tributary (West branch RM 0.01) - RM 3.8 to the mouth		+							+	+		+		
Unnamed tributary (West branch RM 9.63)														
Unnamed tributary (unnamed tributary RM 0.74)		+							+	+		+		
Silver creek		*							*	*		*		
Hinkley creek		+							+	+		+		
Bixon creek		*							*	*		*		
Barrel run		*							*	*		*		

Table 25-1. Use designations for water bodies in the Mahoning river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Harmon brook		*							*	*		*		
Kale creek		*							*	*		*		
Charley Run creek		*							*	*		*		
Mill creek		*							*	*		*		
Turkey Broth creek		*							*	*		*		
Island creek		*							*	*		*		
Willow creek		*							*	*		*		
Deer creek - at RM 0.54		*						o	*	*		*		PWS intake - Alliance
- all other segments		*							*	*		*		
Beech creek		*							*	*		*		
Little Beech creek		*							*	*		*		
Fish creek		*							*	*		*		
Beaver run		*							*	*		*		
Shenango river - at RM 68.40		+						o	+	+		+		PWS intake - Pymatuning state park
- all other segments		+							+	+		+		
Deer creek		*							*	*		*		
Little Yankee creek		+							+	+		+		
Little Deer creek		+							+	+		+		

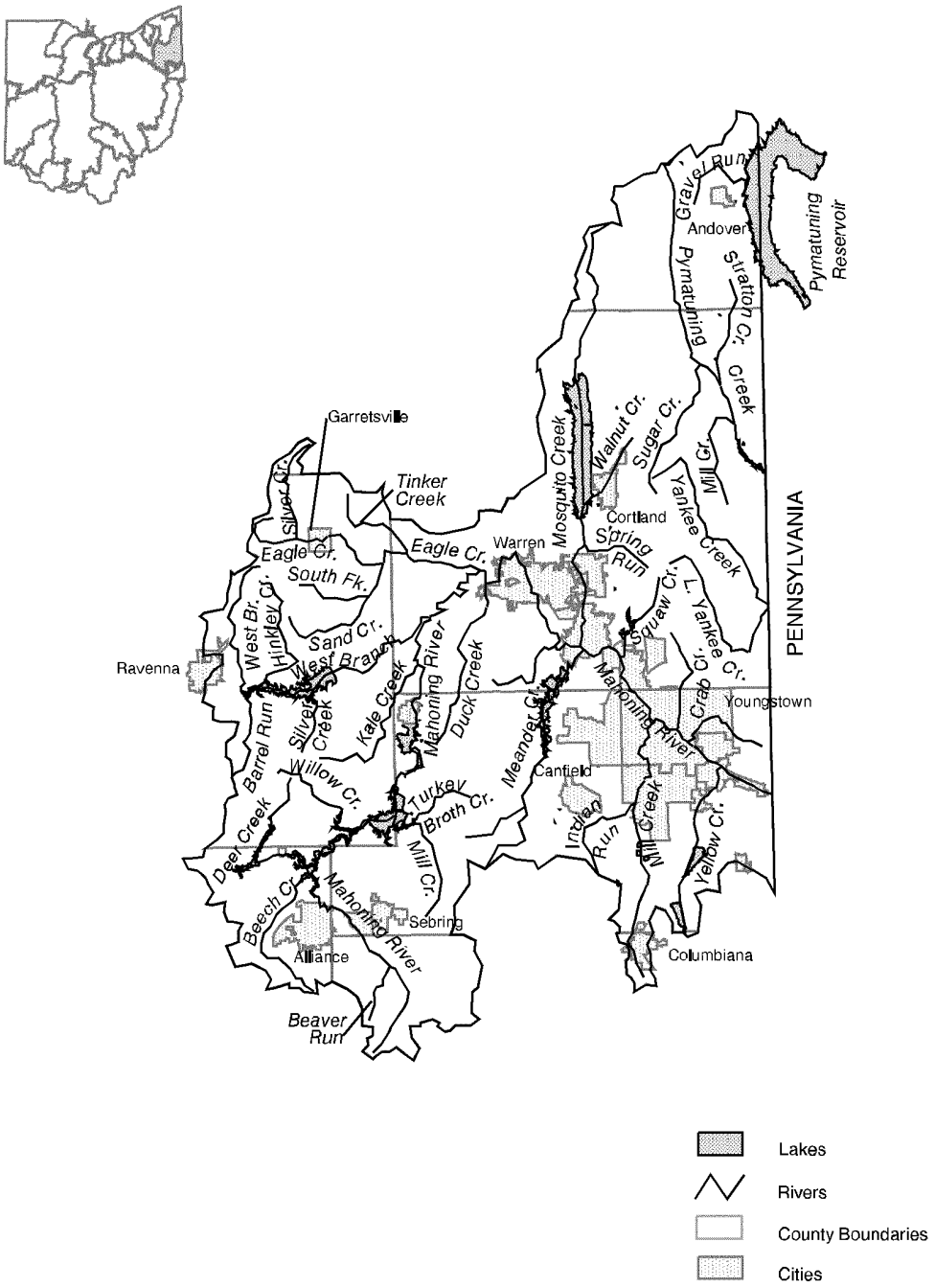
Table 25-1. Use designations for water bodies in the Mahoning river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Yankee creek		+							+	+		+		
South branch		*							*	*		*		
Pymatuning creek		+							+	+		+		
Mill creek		*							*	*		*		
Stratton creek		*							*	*		*		
Maple creek		*							*	*		*		
Sugar creek		+							+	+		+		
Berry creek		*							*	*		*		
Clear creek		*							*	*		*		
McMichael creek		*							*	*		*		
Black creek		*							*	*		*		
Gravel run		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Mahoning river drainage basin.



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3745-1-26 **Cuyahoga river drainage basin.**

(A) The water bodies listed in table 26-2 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Cuyahoga river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout table 26-2 of this rule:

* Designated use based on the 1978 water quality standards;

\+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the stream segment is designated limited warmwater habitat.

(E) The following uses, criteria and conditions shall apply to the Cuyahoga river ship channel.

(1) The Cuyahoga river ship channel is a unique segment of the Cuyahoga river. It is a federally maintained navigation channel which originates at the Newburgh and South Shore railroad bridge (river mile 5.6) and empties into the Cleveland harbor portion of Lake Erie. The maintenance of the channel is important to commerce and the economic well being of the Cleveland area. The channel averages two hundred seventy feet in width, is maintained at a uniform depth of twenty-three feet and is vertically sheet piled along the vast majority of its length. The physical configuration of the channel results in a ten-day time of travel for a mass of water entering the ship channel at critical low flow conditions.

Modeling projections of water quality in the channel have shown that levels of oxygen demanding materials found in natural waters are sufficient to depress dissolved oxygen below the warmwater habitat criteria. The modeling simulations also indicate that the existing loads of oxygen demanding materials could maintain the warmwater habitat

dissolved oxygen criteria if the river depth was decreased to twelve feet. However, this would preclude the use of the channel for commercial navigation.

The physical habitat of the channel and the prevailing background dissolved oxygen regime are insufficient to support any resemblance of the warmwater habitat aquatic life use designation. A use attainability analysis has been conducted and indicates the extant fauna is substantially degraded and the potential for recovery of the fauna to the level characteristic of other Lake Erie river mouths is precluded by irretrievable human induced conditions. However, the ship channel is used by fish as a migratory route in the spring months. This seasonal and stream flow related use shall be recognized and protected through this rule.

Full body contact recreational uses such as rowing, sculling and jet skiing do occur in the ship channel. The ship channel is also used as an industrial water supply but has no potential to support agricultural or public water supply uses.

(2) Use designations for the Cuyahoga river ship channel are as follows:

(a) Aquatic life;

(i) During the months of June through January, and during the remaining months of the year whenever the river flow is less than seven hundred and three cubic feet per second at the United States geological survey gage at Independence (#04208000), the aquatic life use shall be limited resource water - navigation maintenance as defined in rule 3745-1-07 of the Administrative Code.

(ii) During the months of February through May whenever the river flow equals or exceeds seven hundred and three cubic feet per second at the United States geological survey gage at Independence (#04208000), the aquatic life use shall be fish passage. The fish passage use is defined as those rivers or other water bodies 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 but are capable of supporting the passage of warmwater fish during migratory periods.

(b) Industrial water supply as defined in rule 3745-1-07 of the Administrative Code; and

(c) Primary contact recreation as defined in rule 3745-1-07 of the Administrative Code.

(3) The criteria and other provisions to protect the designated uses of the ship channel

shall be those set forth in rules 3745-1-01 to 3745-1-07 of the Administrative Code with the following exceptions:

(a) The limited resource water dissolved oxygen criterion shall be 1.5 mg/l minimum. No dissolved oxygen average criteria apply.

(b) The fish passage criteria shall be the same as the warmwater habitat criteria in rule 3745-1-07 of the Administrative Code, with the exception that the biological criteria do not apply.

(4) Pursuant to United States environmental protection agency regulations ("40 CFR Part 130.7"), the director shall utilize the phased total maximum daily load approach as a means of progressing toward attainment of the dissolved oxygen criteria established in paragraph (E)(3) of this rule. The phased total maximum daily load approach is generally recognized by the United States environmental protection agency as an appropriate methodology for achieving a total load reduction compatible with achieving water quality criteria ("Guidance for Water Quality-based Decisions and the TMDL Process, EPA 440/4-91-001"). In this instance the concept must consider the expectation of dissolved oxygen enhancement through means other than additional point and nonpoint source load reductions. Based on the background presented in paragraph (E)(1) of this rule and extensive data collection and analysis, the following total maximum daily load components shall be established for oxygen demanding substances.

(a) The wasteloads for point sources shall be those presented in table 26-1 of this rule. Loads for permit 3PA00002 may be established after the steps in paragraphs (E)(4)(b), (E)(4)(c) and (E)(4)(d) of this rule are completed.

(b) The total maximum daily load shall include a component for expected dissolved oxygen enhancement through such means as, but not limited to, off channel re-aeration, sediment remediation and flow augmentation.

(c) An evaluation of the site-specific technical and cost feasibility aspects of implementing off channel re-aeration shall be the first scheduled phase of the Cuyahoga river ship channel total maximum daily load. This evaluation shall be completed no later than two years after the adoption of this rule.

(d) Implementation of off channel re-aeration or other dissolved oxygen enhancement measures, and any wasteload allocation for permit 3PA00002 for oxygen demanding substances, shall occur only after these components of the total maximum daily load are incorporated into this rule.

(5) These standards reflect the desire for restoring and maintaining multiple uses of the ship channel expressed by the Cuyahoga river remedial action plan coordinating

committee. All parties, private and public, who contribute to the dissolved oxygen problem may share a responsibility in the study and attainment of these standards. The dissolved oxygen criteria established in paragraph (E)(3) of this rule are intended to be the minimum planning targets for the remedial action planning process to use in evaluating beneficial use restoration. The remedial action planning process should consider innovative means of achieving this target such as off channel re-aeration, sediment remediation and flow augmentation, either alone or in combination with additional point and nonpoint source controls. As with all standards, it will be appropriate to periodically re-assess the dissolved oxygen criteria based upon information collected as part of the feasibility study conducted pursuant to paragraph (E)(4)(c) of this rule or any other studies.

(6) These standards shall be reviewed, and revised if appropriate, every three years. Pursuant to Section 118 of the act (the "Great Lakes Critical Programs Act of 1990") the director shall continue to develop the Cuyahoga river remedial action plan - stage two report in conjunction with the Cuyahoga river remedial action plan coordinating committee. Studies undertaken as part of the remedial action plan and the feasibility study conducted pursuant to paragraph (E)(4)(c) of this rule shall be important components of the standards review process.

Table 26-1. Cuyahoga river ship channel point source loads of oxygen demanding substances.

Facility - permit number	Outfall	Ammonia average/maximum		$CBOD_5$ average/maximum		D.O.
NEORSD - 3PF00003	001[a,g]	2.0 mg/l 1324 kg/d	3.0 mg/l 1986 kg/d	10 mg/l 6619 kg/d	15 mg/l 9928 kg/d	5 mg/l
NEORSD - 3PF00003	001[b,g]	5.0 mg/l 3309 kg/d	7.5 mg/l 4964 kg/d	16 mg/l 10,590 kg/d	24 mg/l 15,885 kg/d	5 mg/l
NEORSD - 3PF00003	001[c,g]	8.0 mg/l 5295 kg/d	12 mg/l 7942 kg/d	16 mg/l 10,590 kg/d	24 mg/l 15,885 kg/d	5 mg/l
NEORSD - 3PA00002	all[d]	*	*	*	*	--
Zaclon - 3IE00005	004/601	34 mg/l 36.9 kg/d	55 mg/l 59.7 kg/d	45 mg/l[e] 48.9 kg/d	120 mg/l[e] 130 kg/d	--
LTV - 3ID00003	005/604[f]	21 kg/d	63 kg/d	--	--	--
LTV - 3ID00003	014/605[f]	9 kg/d	27 kg/d	--	--	--
LTV - 3ID00003	009/606	158 kg/d	317 kg/d	--	--	--
LTV - 3ID00003	027/621[f]	18.8 kg/d	56.3 kg/d	--	--	--

[a] Applies during the months of May through October.
[b] Applies during the months of March, April and November.
[c] Applies during the months of December, January and February.
[d] Applies to all outfalls to the Cuyahoga river and its tributaries.
* Monitoring program required for the combined sewer overflows.
[e] BOD_5 values.
[f] A variance to these load limits is allowable unless the pending 301(g) variance request is denied. If the 301(g) variance request is denied, the established implementation schedule will apply.
[g] Loads calculated based upon design flow of 175 million gallons per day and are applicable to normal dry weather operation. Load values are not intended to restrict facility operation during wet weather flows when efforts are made to capture and treat combined sewer overflows.

Table 26-2. Use designations for water bodies in the Cuyahoga river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Cuyahoga river - entirety of ship channel (Newburgh and South Shore (N&SS) railroad bridge (RM 5.6) to the mouth, including the old river channel)														See paragraph (E) of this rule.
- Lake Rockwell (Cuyahoga river RM 62.0 to RM 57.97)	+		+					+						PWS intake - Akron
- all other segments		+							+	+		+		
Burk branch (Burke brook) - uncovered segment adjacent to I-77							+		+	+			+	Channel modification
Big creek - within boundaries of Cleveland metro park	*	+							+	+		+		
- all other segments		+							+	+		+		
Ford branch (Big creek RM 4.4)							+		+	+			+	Small drainageway maintenance
West creek (Cuyahoga river RM 11.05)		+							+	+		+		
Mill creek		+							+	+		+		
Unnamed tributary (Cuyahoga river RM 14.33)		+							+	+		+		
Unnamed tributary (Cuyahoga river RM 15.11)		+							+	+		+		
Unnamed tributary (Cuyahoga river RM 16.24)		+							+	+		+		
Sagamore creek (Cuyahoga river RM 18.08) - Dunham rd. (RM 2.3) to the mouth						+			+	+		+		
- all other segments		+							+	+		+		
Tinkers creek - Richmond rd. (RM 8.75) to the mouth	o	+							+	+		+		
- within boundaries of the J. Arthur Herrick nature preserve (RM 29.3 to 28.9)	o	+							++			+		

Table 26-2. Use designations for water bodies in the Cuyahoga river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- all other segments		+							+	+		+		
Wood creek (Tinkers creek RM 2.44)		+							+	+		+		
Deerlick run (Tinkers creek RM 3.7) - RM 0.37 to the mouth	+	+							+	+		+		
- all other segments	+						+		+	+		+		High gradient
Southwest branch (Deerlick run RM 0.40)	+						+		+	+		+		High gradient
South branch (Deerlick run RM 0.46) - Egbert rd. (RM 0.45) to the mouth	+						+		+	+		+		High gradient
- all other segments							+		+	+		+		High gradient
North branch (Deerlick run RM 0.46)	+						+		+	+		+		High gradient
Hukill tributary (North branch RM 0.50)							+		+	+		+		High gradient
Ferro tributary (North branch RM 0.50)							+		+	+		+		High gradient
Bear creek (Tinkers creek RM 6.94)		+							+	+		+		
Hawthorne creek (Tinkers creek RM 7.8)		+							+	+		+		
Beaver Meadow run (Tinkers creek RM 10.6)		+							+	+		+		
Pond brook (Tinkers creek RM 22.5)				+					+	+		+		EOLP ecoregion - channel modification
Unnamed tributary (Tinkers creek RM 25.44)		+							+	+		+		
North branch (unnamed tributary RM 0.18)		+							+	+		+		
Unnamed tributary (Tinkers creek RM 27.72)		+							+	+		+		
Chippewa creek - st. rte. 82 to the mouth	*	+							+	+		+		

Table 26-2. Use designations for water bodies in the Cuyahoga river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
- all other segments		+							+	+		+		
Brandywine creek - Penn Central railroad tracks (RM 2.2) to the mouth	o	+							+	+		+		
- all other segments		+							+	+		+		
Indian creek		+							+	+		+		
Stanford run	o	+							+	+		+		
Slipper run						++				+		+		
Boston run	o					+			+	+		+		
Haskell run	o	+							+	+		+		
Ritchie run	o	*							*	*		*		
Salt run	o					+			+	+		+		
Dickerson run - RM 3.1 to the mouth	o	+							+	+		+		
- all other segments		*							*	*		*		
Langes run - RM 2.4 to the mouth	o					+			+	+		+		
- all other segments						+			+	+		+		
Robinson run	o					+			+	+		+		
Furnace run		+							+	+		+		
Yellow creek		+							+	+		+		
North fork		+							+	+		+		

Table 26-2. Use designations for water bodies in the Cuyahoga river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Woodward creek - Northampton rd. (RM 3.4) to Bath rd. (RM 2.2)	o					+			+	+		+		
- all other segments						+			+	+		+		
Sand run		+							+	+		+		
Mud brook		+							+	+		+		
Unnamed tributary (Mud brook RM 5.48)		+							+	+		+		
Powers brook (Mud brook RM 9.09)		+							+	+		+		
Little Cuyahoga river		+							+	+		+		
Ohio canal (little Cuyahoga river RM 2.0) - Summit lake (RM 2.84) to lock 1 (RM 1.25)				+					+	+		+		EOLP ecoregion - channel modification
- lock 1 to end of enclosed segment (RM 0.47)							+						+	Channel modification
- RM 0.47 to the mouth				+					+	+			+	EOLP ecoregion - channel modification
Camp brook (a.k.a. Chessie tributary) (little Cuyahoga river RM 4.1)		+							+	+			+	
Springfield lake outlet		+							+	+		+		
Wingfoot lake outlet		+							+	+		+		
Union Oil tributary (little Cuyahoga river RM 11.6)		+							+	+		+		
Fish creek - headwaters to Sunrise dr. (RM 1.3)				+					+	+		+		EOLP ecoregion - channel modification
- all other segments		+							+	+		+		
Plum creek		+							+	+		+		
Breakneck creek (Cuyahoga river RM 56.82)		+							+	+		+		

Table 26-2. Use designations for water bodies in the Cuyahoga river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Lake Hodgson								o						PWS intake - Ravenna
Wahoo ditch				+					+	+		*		EOLP ecoregion - channel modification
Hommon avenue ditch							+		+	+			+	Small drainageway maintenance
Congress lake outlet (Feeder canal)				+					+	+		+		EOLP ecoregion - channel modification
Potter creek		+							+	+		+		
Eckert ditch (Cuyahoga river RM 59.95)		+							+	+		+		
Unnamed tributary (Eckert ditch RM 0.92)		+							+	+		+		
Unnamed tributary (Cuyahoga river RM 63.82)						+			+	+		+		
Unnamed tributary (Cuyahoga river RM 65.19)		+							+	+		+		
Harper ditch (Cuyahoga river RM 66.33) - headwaters to Beck rd. (RM 0.2)		+							+	+		+		
- Beck rd. to the mouth		+				+			+	+		+		
Unnamed tributary (Harper ditch RM 0.61)		+							+	+		+		
Unnamed tributary (Cuyahoga river RM 69.43)		+							+	+		+		
Black brook (Cuyahoga river RM 76.64))		+							+	+		+		
Sawyer brook (Cuyahoga river RM 79.15)		+							+	+		+		
Bridge creek (Cuyahoga river RM 83.29)		+							+	+		+		
Unnamed tributary (Bridge creek RM 0.52)		+							+	+		+		
Unnamed tributary (Cuyahoga river RM 84.60)						+			+	+		+		

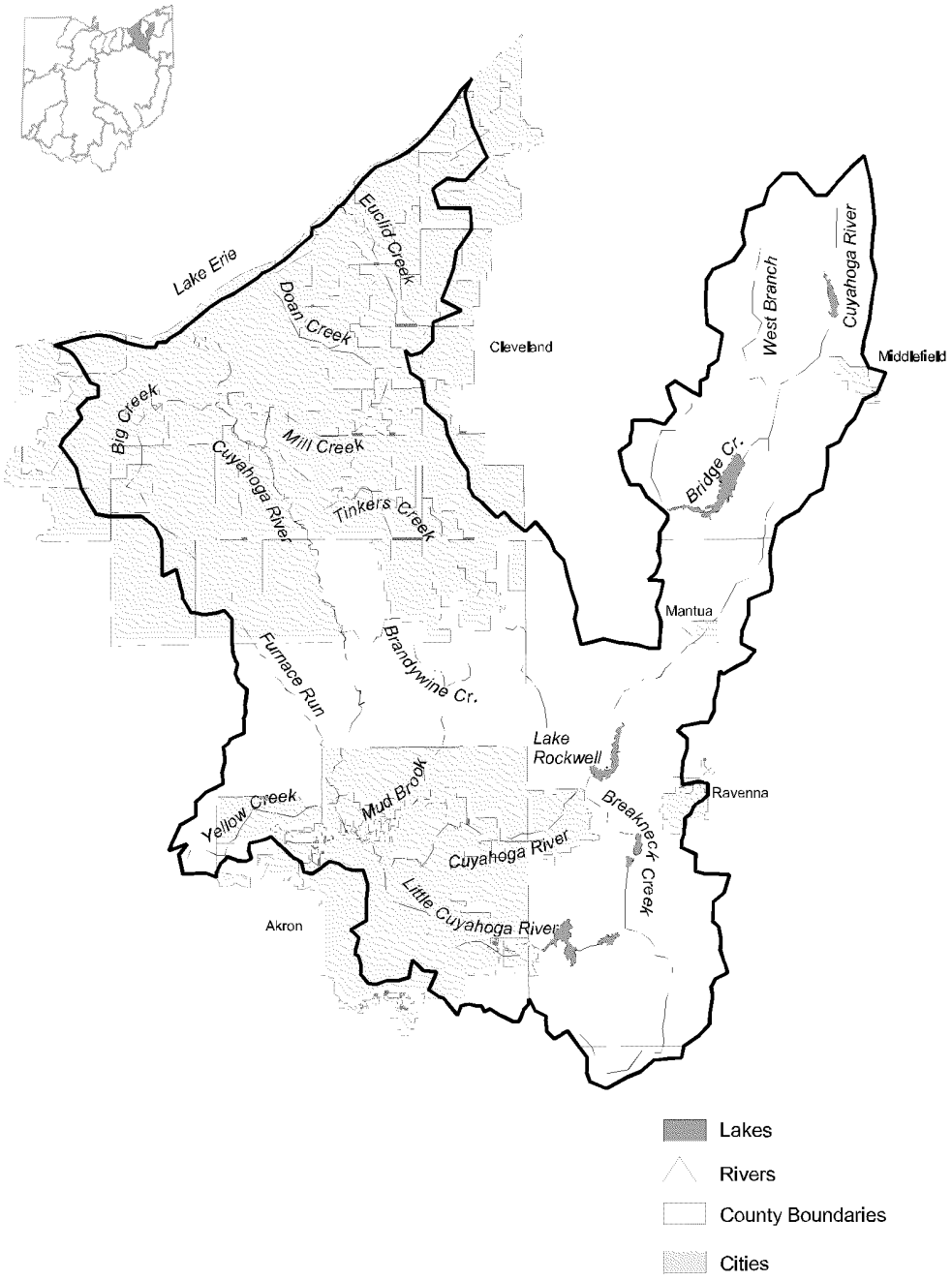
Table 26-2. Use designations for water bodies in the Cuyahoga river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
West branch (Cuyahoga river RM 84.90)		+							+	+		+		
Diedrich creek (West branch RM 2.15)		+							+	+		+		
Butternut creek (West branch RM 9.54)		+							+	+		+		
Unnamed tributary (Cuyahoga river RM 88.0)		+							+	+		+		
Johnson Rubber tributary (unnamed tributary RM 2.3)							+		+	+			+	Small drainageway maintenance
Tare creek (Cuyahoga river RM 88.55)		*							*	*		*		
Unnamed tributary (Cuyahoga river RM 93.65)		+							+	+		+		
Doan brook		+							+	+		+		
Shaker Lakes national environmental education landmark	*	+							+	+		+		
Ninemile creek		*							*	*		*		
Euclid creek - Anderson road (RM 5.6) to U.S. rte. 20 (RM 2.4)	*	+							+	+		+		
- all other segments		+							+	+		+		
East branch (Euclid creek RM 3.2)		+							+	+		+		
Unnamed tributary (East branch RM 1.55)							+		+	+			+	Channel modification

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Cuyahoga river drainage basin.



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3745-1-27 **Black river drainage basin.**

(A) The water bodies listed in table 27-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Black river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 27-1. Use designations for water bodies in the Black river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Brownhelm creek		*							*	*		*		
Quarry creek		*							*	*		*		
Beaver creek		+							+	+		+		
Martin run		*							*	*		*		
Black river		+			+				+	+		+		
French creek - Gulf rd. to mouth		+			+				+	+		+		
- all other segments		+							+	+		+		
East branch		+							+	+		+		
Salt creek		+							+	+		+		
Crow creek		+							+	+			+	
Coon creek		+							+	+		+		
East fork		+							+	+		+		
West fork		+							+	+		+		
Clear creek		+							+	+		+		
Willow creek (East branch RM 5.56)		+							+	+		+		
West branch - U.S. rte. 20 to the Black river		+							+	+		+		
- Parsons rd. to U.S. rte. 20	*	+							+	+		+		
- at RM 14.42	*	+						o	+	+		+		PWS intake - Oberlin

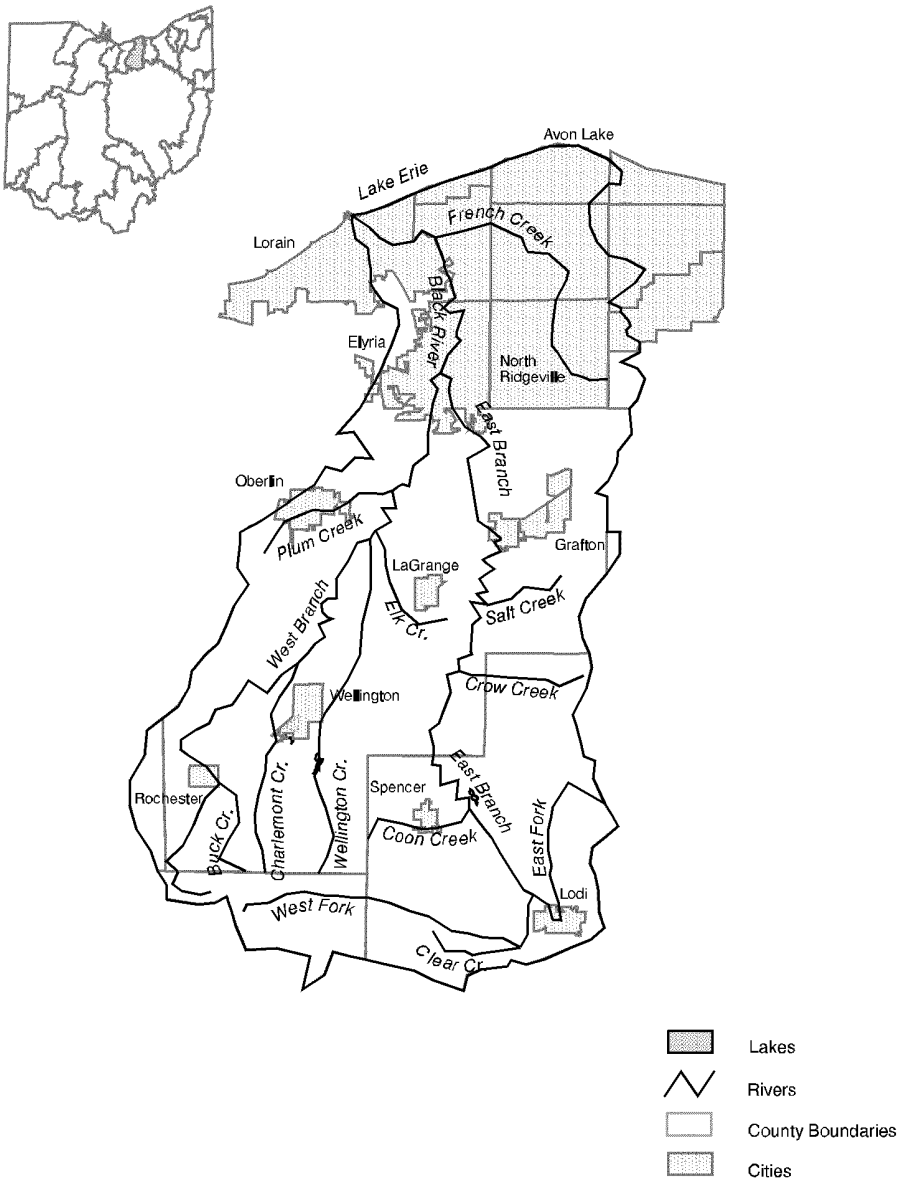
Table 27-1. Use designations for water bodies in the Black river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
[illegible]														
- all other segments		*							*	*		*		
Plum creek		+							+	+		+		
Elk creek		*							*	*		*		
Wellington creek - Findley state forest boundaries	*	+							+	+		+		
- all other segments		+							+	+		+		
Charlemont creek - at RM 2.97		+						o	+	+		+		PWS intake - Wellington
- all other segments		+							+	+		+		
Buck creek		+							+	+		+		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Black river drainage basin.



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3745-1-28 **Vermilion river drainage basin.**

(A) The water bodies listed in table 28-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Aministrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Vermilion river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 28-1. Use designations for water bodies in the Vermilion river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Vermilion river - Erie-Huron county line (RM 19.7) to the estuary (RM 2.8)		+			o				+	+		+		
- at RM 52.24		+						o	+	+		+		PWS intake - New London
- all other segments		+							+	+		+		
Unnamed tributary (Vermilion river RM 8.29)		+							+	+		+		
Unnamed tributary (Vermilion river RM 12.13)		+							+	+		+		
East fork		+							+	+		+		
Frankenburg creek (East fork RM 3.24)		+							+	+		+		
Unnamed tributary (East fork RM 8.47)		+							+	+		+		
Unnamed tributary (Vermilion river RM 24.35)		+							+	+		+		
East branch		+							+	+		+		
Unnamed tributary (East branch RM 8.2)		+							+	+		+		
Skellinger creek		+							+	+			+	
Unnamed tributary (Vermilion river RM 32.98)		+							+	+		+		
Indian creek		*							*	*		*		
Southwest branch		+							+	+		+		
Unnamed tributary (Southwest branch RM 2.3)		+							+	+		+		
Unnamed tributary (Southwest branch RM 5.35)		+							+	+		+		
Buck creek		+							+	+		+		

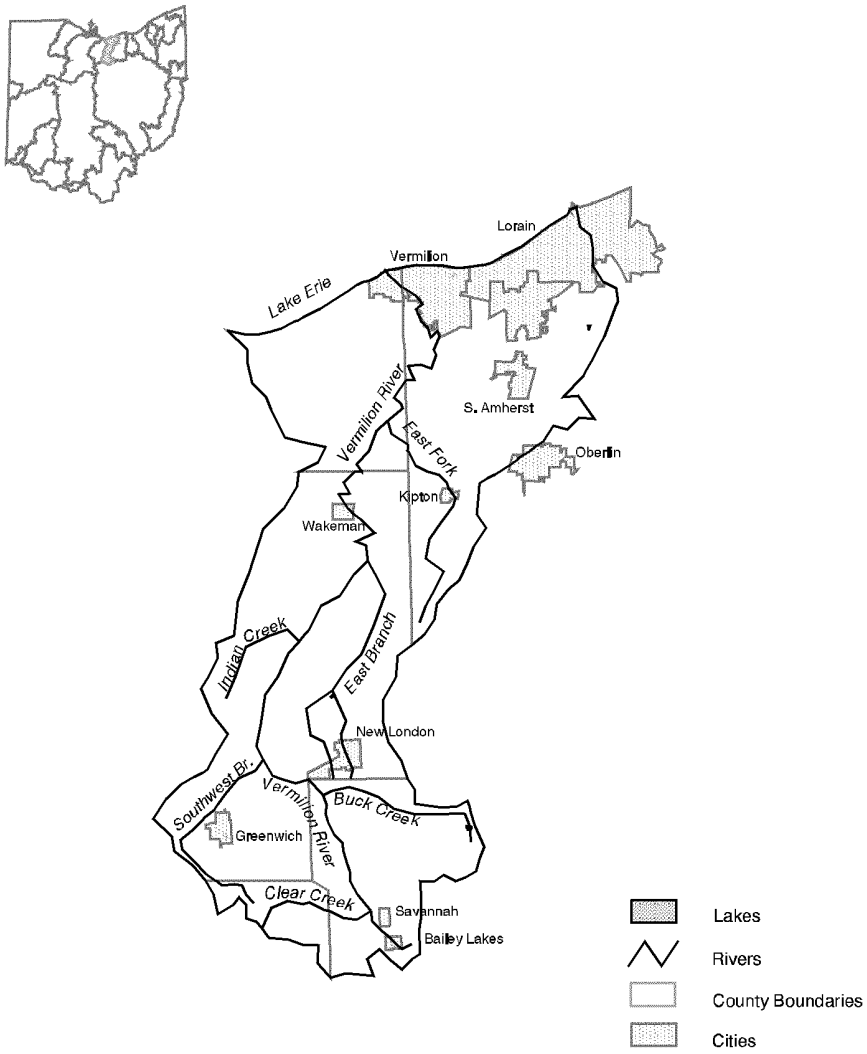
Table 28-1. Use designations for water bodies in the Vermilion river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Unnamed tributary (Buck creek RM 4.92)		+							+	+		+		
Unnamed tributary (Vermilion river RM 54.62)		+							+	+		+		
Clear creek		+							+	+		+		
Unnamed tributary (Vermilion river RM 63.52		+							+	+		+		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Vermilion river drainage basin.



Effective: 4/1/2007

R.C. 119.032 review date: 4/1/2012

Promulgated Under: R.C. 119.03
Statutory Authority: R.C. 6111.041
Rule Amplifies: R.C. 6111.041
Prior Effective Dates: 4/4/1985, 8/19/1985, 3/29/2001

3745-1-29 **Wabash river drainage basin.**

(A) The water bodies listed in table 29-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Wabash river drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 29-1. Use designations for water bodies in the Wabash river drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Wabash river		*							*	*		*		
Hickory branch		*							*	*		*		
Scherman ditch		*							*	*		*		
Beaver creek		+							+	+		+		
Big run		*							*	*		*		
Brush run		*							*	*		*		
Little Beaver creek		+							+	+		*		
Little Bear creek		*							*	*		*		
Buck run		*							*	*		*		
Hardin creek		*							*	*		*		
Grand Lake St. Marys			*					+	+	+		+		
Coldwater creek		*							*	*		*		
Burntwood creek		*							*	*		*		
Beaver creek		*							*	*		*		
Darlinghaus ditch		*							*	*		*		
Crab branch		*							*	*		*		
Toti creek		*							*	*		*		
Stony creek		*							*	*		*		

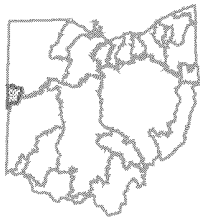
Table 29-1. Use designations for water bodies in the Wabash river drainage basin.

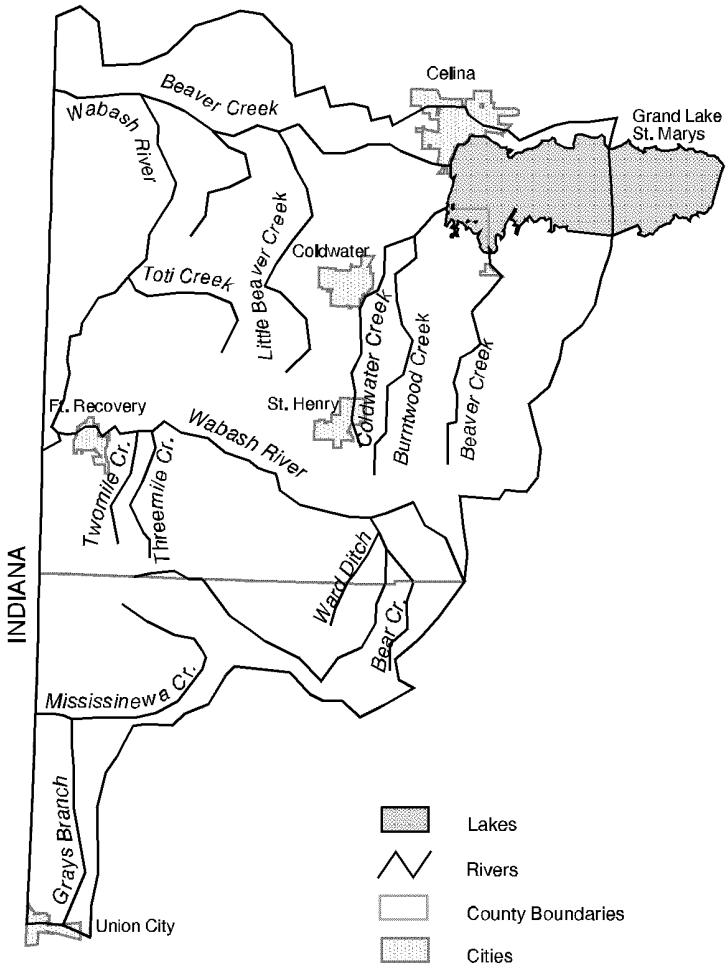
Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Twomile creek		*							*	*		*		
Threemile creek		*							*	*		*		
Vandenbush ditch		*							*	*		*		
Ward ditch		*							*	*		*		
Bear creek		*							*	*		*		
Mississinewa river - headwaters to Ohio-Indiana state line				+					*	*			+	ECBP ecoregion - channel modification
Jordan ditch		*							*	*		*		
Grays branch		*							*	*		*		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Wabash river drainage basin.





Effective: 7/21/2002

R.C. 119.032 review date: 7/23/2012

Promulgated under: R.C. 119.03
Rule authorized by: R.C. 6111.041
Rule amplifies: R.C. 6111.041
Prior effective dates: 4/4/1985, 8/19/1985, 4/26/1997

3745-1-30 **Mill creek drainage basin.**

(A) The water bodies listed in table 30-1 of this rule are ordered from downstream to upstream. Tributaries of a water body are indented. The aquatic life habitat, water supply and recreation use designations are defined in rule 3745-1-07 of the Administrative Code. The state resource water use designation is defined in rule 3745-1-05 of the Administrative Code. The most stringent criteria associated with any one of the use designations assigned to a water body will apply to that water body.

(B) Figure 1 of the appendix to this rule is a generalized map of the Mill creek drainage basin.

(C) RM, as used in this rule, stands for river mile and refers to the method used by the Ohio environmental protection agency to identify locations along a water body. Mileage is defined as the lineal distance from the downstream terminus (i.e., mouth) and moving in an upstream direction.

(D) The following symbols are used throughout this rule:

* Designated use based on the 1978 water quality standards;

+ Designated use based on the results of a biological field assessment performed by the Ohio environmental protection agency;

o Designated use based on justification other than the results of a biological field assessment performed by the Ohio environmental protection agency; and

L An L in the warmwater habitat column signifies that the water body segment is designated limited warmwater habitat.

Table 30-1. Use designations for water bodies in the Mill creek drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
Muddy creek		*							*	*		*		
Rapid run (Ohio river RM 500.74)							+		+	+			+	Irretrievable habitat modification
Wulff run (Rapid run RM 1.65)							+		+	+			+	Irretrievable habitat modification
Mill creek - headwaters to I-275 (RM 17.9)		*							+	+		+		
- I-275 to Center Hill rd. (RM 7.9)		+							+	+		+		
- Center Hill rd. (RM 7.9) to the mouth				+					+	+		+		IP ecoregion - channel modification
West Fork creek (Mill creek RM 3.45) - headwaters to Montana ave. (RM 2.1)		+							+	+			+	
- Montana ave. to the mouth							+		+	+			+	Small drainageway maintenance
Ross run (Mill creek RM 6.45)							+		+	+			+	Small drainageway maintenance
Winton Ridge tributary (Mill creek RM 6.85)		+							+	+			+	
Bloody run (Mill creek RM 7.63)				+					+	+			+	IP ecoregion - channel modification
West fork - headwaters to Winton lake	*	+							+	+		+		
- all other segments		+							+	+		+		
Cooper creek (Mill creek RM 14.05) a.k.a. Rossmoyne creek		+							+	+			+	
Sharon creek (Mill creek RM 15.63)		+							+	+		+		
Sharon lake		+							+	+		+		
Town run (Mill creek RM 16.93)		+							+	+			+	

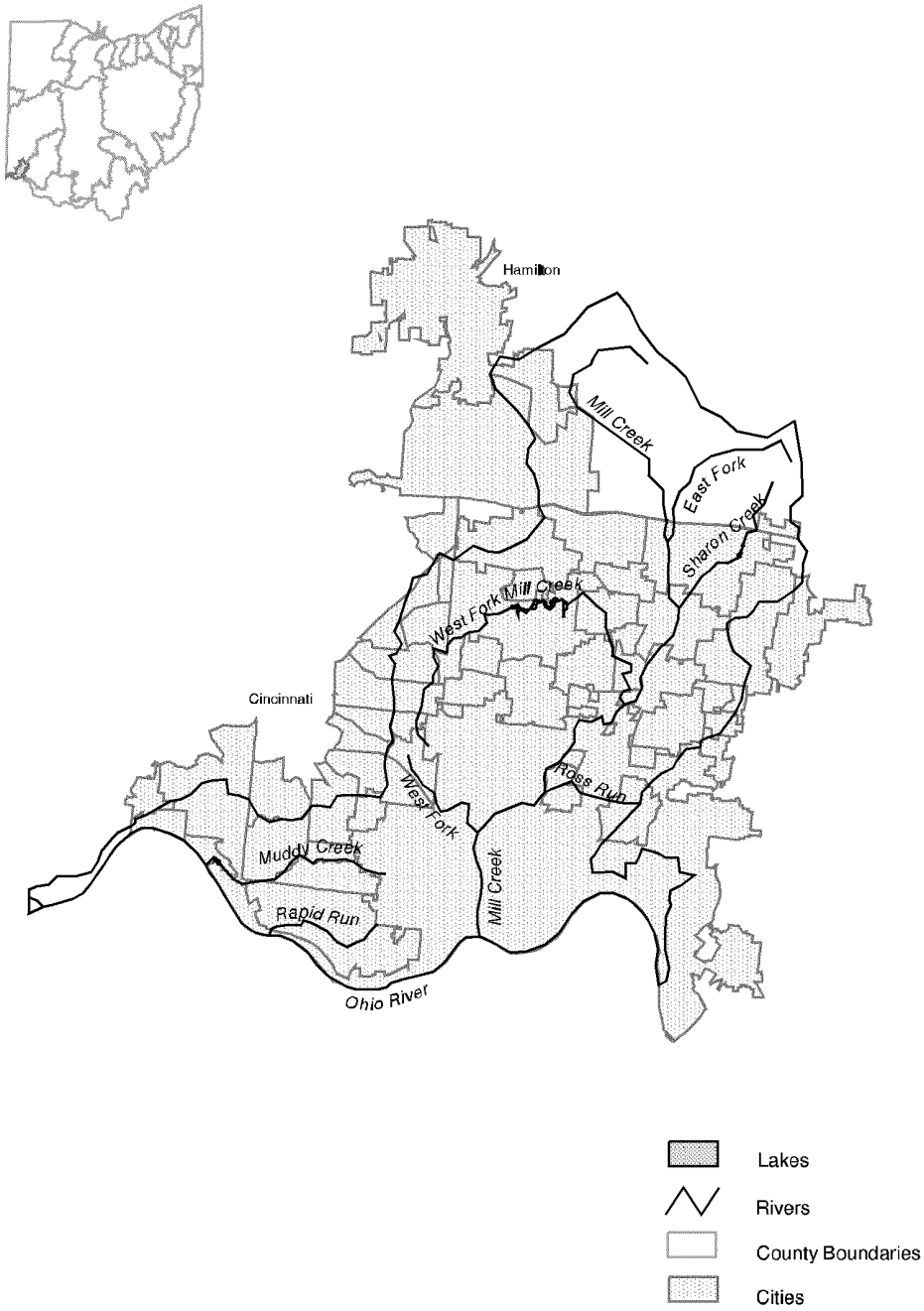
Table 30-1. Use designations for water bodies in the Mill creek drainage basin.

Water Body Segment	Use Designations													Comments
		Aquatic Life Habitat						Water Supply			Recreation			
	SRW	WWH	EWH	MWH	SSH	CWH	LRW	PWS	AWS	IWS	BW	PCR	SCR	
East fork (Mill creek RM 17.95) - headwaters to Butler county upper Mill creek WWTP (RM 1.07)		+							+	+			+	
- upper Mill creek WWTP to the mouth		+							+	+		+		
Beaver run (Mill creek RM 18.21)		+							+	+		+		

SRW = state resource water; WWH = warmwater habitat; EWH = exceptional warmwater habitat; MWH = modified warmwater habitat; SSH = seasonal salmonid habitat; CWH = coldwater habitat; LRW = limited resource water; PWS = public water supply; AWS = agricultural water supply; IWS = industrial water supply; BW = bathing water; PCR = primary contact recreation; SCR = secondary contact recreation.

Appendix

Figure 1. Mill creek drainage basin.



Effective: 3/29/01

R.C. Section 119.032 rule review dates: 7/17/00, 3/17/06, 3/17/11

Promulgated under: R.C. Section 119.03
Rule authorized by: R.C. Section 6111.041
Rule amplifies: R.C. Section 6111.041
Prior effective date: 4/4/85

3745-1-31 Lake Erie standards.

(A) Lake Erie is designated exceptional warmwater habitat, superior high quality water, public water supply, agricultural water supply, industrial water supply and bathing waters, and will meet the criteria set forth in, or derived in accordance with, rules 3745-1-01 to 3745-1-07 of the Administrative Code, rule 3745-1-33 of the Administrative Code, and rules 3745-1-36 to 3745-1-39 of the Administrative Code. However, criteria set forth in this rule supersede the above rules where applicable. These criteria apply outside the mixing zone.

(B) Temperature.

(1) There shall be no water temperature changes as a result of human activity that cause mortality, long-term avoidance or exclusion from habitat, or adversely affect the reproductive success of representative aquatic species.

(2) At no time shall water temperature exceed the average or daily maximum temperatures indicated in paragraphs (A) and (B) of table 31-1 of this rule.

(3) The temperature of the hypolimnetic waters of lake Erie shall not exceed at any time the daily maximum temperatures indicated in paragraph (C) of table 31-1 of this rule.

Table 31-1. Temperature criteria.

(A) Lake Erie western basin - includes the area of lake Erie west of a line drawn from Pelee point, Canada to Scott point on Catawba island. 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:	-	-	-	-	-	53 (11.7)	59 (15.0)	65 (18.3)	75 (23.9)
Daily Maximum:	35 (1.7)	38 (3.3)	39 (3.9)	45 (7.2)	51 (10.6)	56 (13.3)	64 (17.8)	72 (22.2)	78 (25.6)

	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:	80 (26.7)	83 (28.3)	83 (28.3)	78 (25.6)	76 (24.4)	66 (18.9)	60 (15.6)	53 (11.7)	-
Daily Maximum:	83 (28.3)	85 (29.4)	85 (29.4)	83 (28.3)	81 (27.2)	71 (21.7)	65 (18.3)	58 (14.4)	46 (7.8)

(B) Lake Erie central basin - includes the area of lake Erie east of a line drawn from Pelee point, Canada to Scott point on Catawba island to the Pennsylvania-Ohio state line. 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:	-	-	-	-	43 (6.1)	53 (11.7)	59 (15.0)	63 (17.2)	75 (23.9)
Daily Maximum:	35 (1.7)	38 (3.3)	39 (3.9)	45 (7.2)	48 (8.9)	56 (13.3)	63 (17.2)	72 (22.2)	78 (25.6)

	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:	80 (26.7)	83 (28.3)	83 (28.3)	76 (24.4)	71 (21.7)	66 (18.9)	58 (14.4)	48 (8.9)	-
Daily Maximum:	83 (28.3)	85 (29.4)	85 (29.4)	81 (27.2)	76 (24.4)	71 (21.7)	63 (17.2)	53 (11.7)	46 (7.8)

(C) Seasonal daily maximum temperature limitations for the hypolimnetic regions of lake Erie. Shown as degrees fahrenheit and (celsius).

Month Daily	Maximum
January	44 (6.7)
February	44 (6.7)
March	44 (6.7)
April	47 (8.3)
May	51 (10.6)
June	54 (12.2)
July	59 (15.0)
August	59 (15.0)
September	55 (12.8)
October	46 (7.8)
November	41 (5.0)
December	38 (3.3)

Effective: 10/31/1997

R.C. 119.032 review dates: 03/29/2007 and 03/29/2012

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Statutory Authority: R.C. 6111.041, 6111.12
Rule Amplifies: R.C. 6111.041, 6111.12
Prior Effective Dates: 4/4/1985, 5/1/1990, 10/1/1996

3745-1-32 Ohio river standards.

(A) The Ohio river is designated warmwater habitat, public water supply, agricultural water supply, industrial water supply and bathing waters, and will meet the most stringent criteria set forth in, or derived in accordance with, this rule, rules 3745-1-01 to 3745-1-07 of the Administrative Code, and rules 3745-1-34 to 3745-1-36 of the Administrative Code.

Table 32-1. Water quality criteria for the Ohio river.

Chemical	Form[1]	Units[2]	IMZM[3]	OMZM[3]	OMZA[3]
Bacteria (fecal coliform)	T		--	bb	
Cyanide	free	µg/l	44	22	5.2
Dissolved oxygen[4]	T	mg/l	--	4.0[c]	5.0
Radionuclides	T		--	dd	
Temperature	--	ºF	--	Table 32-3	Table 32-3

[1] T = total.

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

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

[4] For dissolved oxygen, OMZM means outside mixing zone minimum at any time and OMZA means outside mixing zone minimum daily average.

[a] See rule 3745-1-07 of the Administrative Code.

[b] For the months of May to October, the maximum allowable level of fecal coliform bacteria shall not exceed two hundred per one hundred ml as a monthly geometric mean based on not less than five samples per month; nor exceed four hundred per one hundred ml in more than ten per cent of all samples taken during the month. For the months of May to October, measurements of Escherichia coli bacteria may be substituted for fecal coliform. Content shall not exceed one hundred thirty per one hundred ml as a monthly geometric mean, based on not less than five samples per month, nor exceed two hundred forty per one hundred ml in any sample. For the months of November to April, the maximum allowable level of fecal coliform bacteria shall not exceed two thousand per one hundred ml as a geometric mean based on not less than five samples per month.

[c] A minimum of 5.0 mg/l at any time shall be maintained during the April fifteen to June fifteen spawning season.

[d] Gross total alpha particle activity (including radium-226, but excluding radon and uranium) shall not exceed fifteen picocuries per liter (pci/l) and combined radium-226 and radium-228 shall not exceed four pci/l. The concentration of total gross beta particle activity shall not exceed fifty pci/l. The concentration of total strontium-90 shall not exceed eight pci/l.

Table 32-2. Ohio river water quality criteria for the protection of human health.
Page 1 of 5

Chemical	Form[1]	Units[2]	OMZA[3] Intakes	OMZA[3] Elsewhere
Acenaphthene	T	µg/l	1,200	1,200
Acrolein	T	µg/l	320	320
Acrylonitrile[5]	T	µg/l	0.59	0.59
Alachlor	T	µg/l	2.0[a]	--
Aldicarb[6]	T	µg/l	7.0[a]	--
Aldicarb sulfone[6]	T	µg/l	7.0[a]	--
Aldicarb sulfoxide[6]	T	µg/l	7.0[a]	--
Aldrin[5]	T	µg/l	0.0013	0.0013
Anthracene	T	µg/l	9,600	9,600
Antimony	TR	µg/l	6.0[a]	14
Arsenic	TR	µg/l	10[a]	50
Asbestos	T	Mf/l	7.0[a]	--
Atrazine	T	µg/l	3.0[a]	--
Barium	TR	µg/l	2,000[a]	--
Benzene[5]	T	µg/l	5.0[a]	12
Benzidine[5]	T	µg/l	0.0012	0.0012
Benzo(a)anthracene[5]	T	µg/l	0.044	0.044
Benzo(a)pyrene[5]	T	µg/l	0.044	0.044
Benzo(b)fluoranthene[5]	T	µg/l	0.044	0.044
Benzo(k)fluoranthene[5]	T	µg/l	0.044	0.044
Beryllium	TR	µg/l	4.0[a]	16
Bromate	T	µg/l	10[a]	--
Bromoform[5]	T	µg/l	43	43
Butylbenzyl phthalate	T	µg/l	3,000	3,000
Cadmium	TR	µg/l	5.0[a]	--
Carbofuran	T	µg/l	40[a]	--
Carbon tetrachloride[5]	T	µg/l	2.5	2.5
Chloramine	T	µg/l	4,000[a]	--
Chlordane[5]	T	µg/l	0.021	0.021
Chlorides	T	mg/l	250[a]	250
Chlorine	T	µg/l	4,000[a]	--
Chlorine dioxide	T	µg/l	800[a]	--
Chlorite	T	µg/l	1,000[a]	--
Chloroacetic acid[7]	T	µg/l	60[a]	--
Chlorobenzene	T	µg/l	100[a]	680
Chlorodibromomethane[5]	T	µg/l	4.1	4.1

Table 32-2. Ohio river water quality criteria for the protection of human health.
Page 2 of 5

Chemical	Form[1]	Units[2]	OMZA[3] Intakes	OMZA[3] Elsewhere
Bis(2-Chloroethyl)ether [5]	T	µg/l	0.31	0.31
Chloroform[5]	T	µg/l	57	57
bis(2-Chloroisopropyl)ether	T	µg/l	1,400	1,400
bis(2-Chloromethyl)ether [5]	T	µg/l	0.0013	0.0013
2-Chloronaphthalene	T	µg/l	1,700	1,700
2-Chlorophenol	T	µg/l	120	120
Chromium	TR	µg/l	100[a]	--
Chrysene[5]	T	µg/l	0.044	0.044
Copper	TR	µg/l	--	--
Cyanide	free	µg/l	200[a]	700
2,4-D (2,4-Dichlorophenoxy-acetic acid)	T	µg/l	70[a]	100
Dalapon	T	µg/l	200[a]	--
4,4'-DDD[5]	T	µg/l	0.0083	0.0083
4,4'-DDE[5]	T	µg/l	0.0059	0.0059
4,4'-DDT[5]	T	µg/l	0.0059	0.0059
Dibenzo(a,h)anthracene [5]	T	µg/l	0.044	0.044
Dibromochloropropane	T	µg/l	0.2[a]	--
Di-n-butyl phthalate	T	µg/l	2,700	2,700
Dichloroacetic acid[7]	T	µg/l	60[a]	--
1,2-Dichlorobenzene	T	µg/l	600[a]	2,700
1,3-Dichlorobenzene	T	µg/l	400	400
1,4-Dichlorobenzene	T	µg/l	75[a]	400
3,3'-Dichlorobenzidine [5]	T	µg/l	0.40	0.40
Dichlorobromomethane [5]	T	µg/l	5.6	5.6
1,2-Dichloroethane [5]	T	µg/l	3.8	3.8
1,1-Dichloroethylene [5]	T	µg/l	0.57	0.57
cis-1,2-Dichloroethylene	T	µg/l	70[a]	--
trans-1,2-Dichloroethylene	T	µg/l	100[a]	700
2,4-Dichlorophenol	T	µg/l	93	93
1,2-Dichloropropane [5]	T	µg/l	5.0[a]	5.2
1,3-Dichloropropene	T	µg/l	10	10
Dieldrin[5]	T	µg/l	0.0014	0.0014
Di(2-ethylhexyl)adipate	T	µg/l	400[a]	--
Diethyl phthalate	T	µg/l	23,000	23,000
2,4-Dimethylphenol	T	µg/l	540	540

Table 32-2. Ohio river water quality criteria for the protection of human health.
Page 3 of 5

Chemical	Form[1]	Units[2]	OMZA[3] Intakes	Elsewhere
Dimethyl phthalate	T	µg/l	310,000	310,000
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	T	µg/l	13	13
Dinitrophenols[4]	T	µg/l	70	70
2,4-Dinitrotoluene[5]	T	µg/l	1.1	1.1
Dinoseb	T	µg/l	7.0[a]	--
1,2-Diphenylhydrazine[5]	T	µg/l	0.40	0.40
Diquat	T	µg/l	20[a]	--
Dissolved solids	T	mg/l	750/500[a,b]	--
alpha-Endosulfan[8]	T	µg/l	110	110
beta-Endosulfan[8]	T	µg/l	110	110
Endosulfan sulfate[8]	T	µg/l	110	110
Endothall	T	µg/l	100[a]	--
Endrin[9]	T	µg/l	0.76	0.76
Endrin aldehyde[9]	T	µg/l	0.76	0.76
Ethylbenzene	T	µg/l	700[a]	3,100
Ethylene dibromide (EDB)	T	µg/l	0.050[a]	--
bis(2-Ethylhexyl)phthalate[5]	T	µg/l	6.0[a]	18
Fluoranthene	T	µg/l	300	300
Fluorene	T	µg/l	1,300	1,300
Fluoride	T	µg/l	1,000	1,000
Glyphosate	T	µg/l	700[a]	--
Heptachlor[5]	T	µg/l	0.0021	0.0021
Heptachlor epoxide[5]	T	µg/l	0.0010	0.0010
Hexachlorobenzene[5]	T	µg/l	0.0075	0.0075
Hexachlorobutadiene[5]	T	µg/l	4.4	4.4
alpha-Hexachlorocyclohexane[5]	T	µg/l	0.039	0.039
beta-Hexachlorocyclohexane[5]	T	µg/l	0.14	0.14
gamma-Hexachlorocyclohexane (Lindane)[5]	T	µg/l	0.19	0.19
Hexachlorocyclohexane-technical grade[5]	T	µg/l	0.12	0.12
Hexachlorocyclopentadiene	T	µg/l	50[a]	240
Hexachloroethane[5]	T	µg/l	19	19
Indeno(1,2,3-c,d)pyrene[5]	T	µg/l	0.044	0.044
Iron	S	µg/l	300[a]	--

Table 32-2. Ohio river water quality criteria for the protection of human health.
Page 4 of 5

Chemical	Form[1]	Units[2]	OMZA[3] Intakes	OMZA[3] Elsewhere
Isophorone[5]	T	µg/l	360	360
Mercury	TR	µg/l	0.012	0.012
Methoxychlor	T	µg/l	40[a]	100
Methyl bromide	T	µg/l	48	48
Methylene chloride[5]	T	µg/l	5.0[a]	47
Nickel	TR	µg/l	610	610
Nitrate-N + Nitrite-N	T	µg/l	10,000[a]	10,000
Nitrite-N	T	µg/l	1,000[a]	1,000
Nitrobenzene	T	µg/l	17	17
Nitrosoamines[5]	T	µg/l	0.0080	0.0080
N-Nitrosodibutylamine[5]	T	µg/l	0.064	0.064
N-Nitrosodiethylamine[5]	T	µg/l	0.0080	0.0080
N-Nitrosodimethylamine[5]	T	µg/l	0.0069	0.0069
N-Nitrosodi-n-propylamine[5]	T	µg/l	0.050	0.050
N-Nitrosodiphenylamine[5]	T	µg/l	50	50
N-Nitrosodipyrrolidine[5]	T	µg/l	0.16	0.16
Oxamyl (Vydate)	T	µg/l	200[a]	--
Pentachlorobenzene	T	µg/l	3.5	3.5
Pentachlorophenol[5]	T	mg/l	1.0[a]	82
Phenol	T	µg/l	21,000	21,000
Phenolics	T	µg/l	5.0	5.0
Picloram	T	µg/l	500[a]	--
Polychlorinated biphenyls[5]	T	µg/l	0.0017	0.0017
Pyrene	T	µg/l	960	960
Selenium	TR	µg/l	50[a]	170
Silver	T	µg/l	50	50
Silvex (2,4,5-TP, 2-[2,4,5-Trichlorophenoxy]propionic acid	T	µg/l	10	10
Simazine	T	µg/l	4.0[a]	--
Styrene	T	µg/l	100[a]	--
Sulfates	T	mg/l	250[a]	250
1,2,4,5-Tetrachlorobenzene	T	µg/l	2.3	2.3
2,3,7,8-Tetrachlorodibenzo-p-dioxin[5]	T	pg/l	0.13	0.13
1,1,2,2-Tetrachloroethane[5]	T	µg/l	1.7	1.7

Table 32-2. Ohio river water quality criteria for the protection of human health.
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Chemical	Form[1]	Units[2]	OMZA[3] Intakes	OMZA[3] Elsewhere
Tetrachloroethylene [5]	T	µg/l	5.0[a]	8.0
Thallium	TR	µg/l	1.7	1.7
Toluene	T	µg/l	1,000[a]	6,800
Toxaphene[5]	T	µg/l	0.0073	0.0073
Trichloroacetic acid[7]	T	µg/l	60[a]	--
1,2,4-Trichlorobenzene	T	µg/l	70[a]	260
1,1,1-Trichloroethane	T	µg/l	200[a]	--
1,1,2-Trichloroethane [5]	T	µg/l	5.0[a]	6.0
Trichloroethylene [5]	T	µg/l	5.0[a]	27
2,4,5-Trichlorophenol	T	µg/l	2,600	2,600
2,4,6-Trichlorophenol [5]	T	µg/l	21	21
Vinyl chloride[5]	T	µg/l	2.0[a]	20
Xylenes	T	µg/l	10,000[a]	--
Zinc	T	µg/l	9,100	9,100

[1] S = soluble; T = total; TR = total recoverable.
[2] mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion); ng/l = nanograms per liter (parts per trillion); pg/l = picograms per liter (parts per quadrillion); Mf/l = million fibers per liter.
[3] OMZA = outside mixing zone average. Criteria in the "Intakes" column apply within five hundred yards of drinking water intakes. Criteria in the "Elsewhere" column apply at all other locations.
[4] The criteria for this chemical apply to the sum of all dinitrophenols.
[5] Criteria for this chemical are based on a carcinogenic endpoint.
[6] The criterion for this chemical applies to the sum of aldicarb, aldicarb sulfone and aldicarb sulfoxide.
[7] The criterion for this chemical applies to the sum of chloroacetic acid, dichloroacetic acid and trichloroacetic acid.
[8] The criteria for this chemical apply to the sum of alpha-endosulfan, beta-endosulfan and endosulfan sulfate.
[9] The criteria for this chemical apply to the sum of endrin and endrin aldehyde.
[a] This criterion is the maximum contaminant level (MCL) developed under the "Safe Drinking Water Act".
[b] Equivalent 25°C specific conductance values are 1200 micromhos/cm as a maximum and 800 micromhos/cm as a thirty-day average.

Table 32-3. Ohio river temperature criteria.

Month/date	Period Average (°F)	Instantaneous Maximum (°F)
January 1-31	45	50
February 1-29	45	50
March 1-15	51	56
March 16-31	54	59
April 1-15	58	64
April 16-30	64	69
May 1-15	68	73
May 16-31	75	80
June 1-15	80	85
June 16-30	83	87
July 1-31	84	89
August 1-31	84	89
September 1-15	84	87
September 16-30	82	86
October 1-15	77	82
October 16-31	72	77
November 1-30	67	72
December 1-31	52	57

Effective: 12/30/2002

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

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3745-1-33 Water quality criteria for the lake Erie drainage basin.

(A) This rule applies in addition to the requirements contained in rule 3745-1-07 of the Administrative Code to water bodies within the lake Erie drainage basin. Except as provided in paragraphs (D) and (E) of this rule, the methodologies contained in rules 3745-1-36, 3745-1-37, 3745-1-38 and 3745-1-39 of the Administrativ e Code shall be used when adopting or revising numeric aquatic life, human health and wildlife water quality criteria and when implementing the narrative water quality criteria contained in rule 3745-1-04 of the Administrative Code for water bodies located in the lake Erie drainage basin.

(B) The chemical-specific criteria listed in this rule apply as "Outside Mixing Zone Averages". For the purpose of setting water quality based effluent limits, these criteria 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.

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

(1) The water quality criteria and values for protection of human health, or site-specific modifications thereof, are "Outside Mixing Zone Average" water quality criteria and shall apply as follows:

(a) The "Drinking" water quality criteria and values for the protection of human health shall apply to all water bodies located in the lake Erie drainage basin within five hundred yards of drinking water intakes.

(b) The "Nondrinking" water quality criteria and values for the protection of human health shall apply to all water bodies located in the lake Erie drainage basin other than those specified in paragraph (C)(3)(i) of this rule.

(2) Criteria for protection of wildlife, or site-specific modifications thereof, are "Outside Mixing Zone Average" water quality criteria and shall apply to all water bodies located in the lake Erie drainage basin.

(D) For pollutants listed in table 33-1 of this rule, any methodologies and procedures acceptable under 40 C.F.R. 131 may be used when developing water quality criteria or implementing narrative criteria.

(E) For any pollutant other than those in table 33-1 of this rule for which it is demonstrated that a methodology or procedure cited in this rule 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.

Table 33-1. Pollutants subject to any methodologies and procedures acceptable under 40 C.F.R. 131.

Alkalinity
Ammonia
Bacteria
Biochemical oxygen demand (BOD)
Chlorine
Color
Dissolved oxygen
Dissolved solids
pH
Phosphorus
Salinity
Temperature
Total and suspended solids
Turbidity

Table 33-2. Lake Erie drainage basin water quality criteria for the protection of human health and wildlife.

Chemical	Form[1]	Units[2]	Human Health OMZA[3] Drinking	Human Health OMZA[3] Nondrinking	Wildlife OMZA[3]
Arsenic	TR	µg/l	10	--	--
Benzene[4]	T	µg/l	12	310	--
Chlordane[4]	T	ng/l	0.25	0.25	--
Chlorides	T	mg/l	250	--	--
Chlorobenzene	T	µg/l	470	3200	--
Cyanides	T	mg/l	0.60	48	--
DDT[4]	T	ng/l	0.15	0.15	0.011[a]
Dieldrin[4]	T	ng/l	0.0065	0.0065	--
2,4-Dimethylphenol	T	µg/l	450	8700	--
2,4-Dinitrophenol	T	µg/l	55	2800	--
Dissolved solids	T	mg/l	750/500[b]	--	--
Hexachlorobenzene[4]	T	ng/l	0.45	0.45	--
Hexachloroethane[4]	T	µg/l	5.3	6.7	--
Iron	S	µg/l	300	--	--
Lindane	T	µg/l	0.47	0.50	--
Mercury	TR	µg/l	0.0031	0.0031	0.0013
Methylene chloride[4]	T	µg/l	47	2600	--
Nitrate-N + Nitrite-N	T	mg/l	10	--	--
PCB[4]	T	ng/l	0.026	0.026	0.12
Sulfates	T	mg/l	250	--	--
2,3,7,8-TCDD[4]	T	pg/l	0.0086	0.0086	0.0031
Toluene	T	µg/l	5600	51000	--
Toxaphene[4]	T	ng/l	0.068	0.068	--
Trichloroethylene[4]	T	µg/l	29	370	--

[1] S = soluble; T = total; TR = total recoverable.
[2] mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion); ng/l = nanograms per liter (parts per trillion); pg/l = picograms per liter (parts per quadrillion).
[3] OMZA = outside mixing zone average.
[4] Human health criteria for this chemical are based on a carcinogenic endpoint.
[a] This criterion applies to the sum of DDT and metabolites.
[b] Equivalent 25°C specific conductance values are 1200 micromhos/cm as a maximum and 800 micromhos/cm as a thirty-day average.

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3745-1-34 Water quality criteria for the Ohio river drainage basin.

(A) This rule applies in addition to the requirements contained in rule 3745-1-07 of the Administrative Code to water bodies within the Ohio river drainage basin. Except as provided in paragraph (D) of this rule, the methodologies contained in rule 3745-1-36 of the Administrative Code shall be used when adopting or revising numeric aquatic life water quality criteria and when implementing the narrative aquatic life water quality criteria contained in rule 3745-1-04 of the Administrative Code for water bodies located in the Ohio river drainage basin. Any methodologies and procedures acceptable under 40 C.F.R. 131 may be used when developing or revising human health water quality criteria or implementing narrative criteria contained in rule 3745-1-04 of the Administrative Code for water bodies located in the Ohio river drainage basin.

(B) The chemical-specific criteria listed in this rule apply as "Outside Mixing Zone Averages". For the purpose of setting water quality based effluent limits, these criteria 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.

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

(1) To protect against adverse reproductive effects on wildlife, "the Outside Mixing Zone Average" criteria for polychlorinated biphenyls is 1.0 ng/l. In addition, any whole sample of any representative aquatic organisms shall not exceed 0.64 mg/kg (wet weight). These criteria, or site-specific modifications thereof, shall apply to all water bodies of the Ohio river drainage basin.

(2) The water quality criteria for protection of human health, or site-specific modifications thereof, are "Outside Mixing Zone Average" water quality criteria and shall apply as follows:

(a) The "Drinking" water quality criteria for the protection of human health shall apply to all water bodies located in the Ohio river drainage basin within five hundred yards of drinking water intakes.

(b) The "Nondrinking" water quality criteria for the protection of human health shall apply to all water bodies located in the Ohio river drainage basin other than those specified in paragraph (C)(3)(i) of this rule.

(D) For any pollutant for which it is demonstrated that a methodology or procedure cited in this rule 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.

Table 34-1. Ohio river drainage basin water quality criteria for the protection of human health. Page 1 of 5

Chemical	Form[1]	Units[2]	OMZA[3] Drinking	OMZA[3] Nondrinking
Acenaphthene	T	µg/l	1,200	2,700
Acrolein	T	µg/l	320	780
Acrylonitrile[5]	T	µg/l	0.59	6.6
Alachlor	T	µg/l	2.0[a]	--
Aldicarb[6]	T	µg/l	7.0[a]	--
Aldicarb sulfone[6]	T	µg/l	7.0[a]	--
Aldicarb sulfoxide[6]	T	µg/l	7.0[a]	--
Aldrin[5]	T	µg/l	0.0013	0.0014
Anthracene	T	µg/l	9,600	110,000
Antimony	TR	µg/l	6.0[a]	4,300
Arsenic	TR	µg/l	10[a]	--
Asbestos	T	Mf/l	7.0[a]	--
Atrazine	T	µg/l	3.0[a]	--
Barium	TR	µg/l	2,000[a]	--
Benzene[5]	T	µg/l	5.0[a]	710
Benzidine[5]	T	µg/l	0.0012	0.0054
Benzo(a)anthracene[5]	T	µg/l	0.044	0.49
Benzo(a)pyrene[5]	T	µg/l	0.044	0.49
Benzo(b)fluoranthene[5]	T	µg/l	0.044	0.49
Benzo(k)fluoranthene[5]	T	µg/l	0.044	0.49
Beryllium	TR	µg/l	4.0[a]	280
Bromate	T	µg/l	10[a]	--
Bromoform[5]	T	µg/l	43	3,600
Butylbenzyl phthalate	T	µg/l	3,000	5,200
Cadmium	TR	µg/l	5.0[a]	--
Carbofuran	T	µg/l	40[a]	--
Carbon tetrachloride[5]	T	µg/l	2.5	44
Chloramine	T	µg/l	4,000[a]	--
Chlordane[5]	T	µg/l	0.021	0.022
Chlorides	T	mg/l	250[a]	--
Chlorine	T	µg/l	4,000[a]	--
Chlorine dioxide	T	µg/l	800[a]	--
Chlorite	T	µg/l	1,000[a]	--
Chloroacetic acid[7]	T	µg/l	60[a]	--
Chlorobenzene	T	µg/l	100[a]	21,000
Chlorodibromomethane[5]	T	µg/l	4.1	340
Bis(2-Chloroethyl)ether[5]	T	µg/l	0.31	14
Chloroform[5]	T	µg/l	57	4,700
bis(2-Chloroisopropyl)ether	T	µg/l	1,400	170,000
bis(2-Chloromethyl)ether[5]	T	µg/l	0.0013	0.0078

Table 34-1. Ohio river drainage basin water quality criteria for the protection of human health. Page 2 of 5

Chemical	Form[1]	Units[2]	OMZA[3] Drinking	OMZA[3] Nondrinking
2-Chloronaphthalene	T	µg/l	1,700	4,300
2-Chlorophenol	T	µg/l	120	400
Chromium	TR	µg/l	100[a]	--
Chrysene[5]	T	µg/l	0.044	0.49
Copper	TR	µg/l	--	1,300
Cyanide	free	µg/l	200[a]	220,000
2,4-D (2,4-Dichlorophenoxy-acetic acid)	T	µg/l	70[a]	--
Dalapon	T	µg/l	200[a]	--
4,4'-DDD[5]	T	µg/l	0.0083	0.0084
4,4'-DDE[5]	T	µg/l	0.0059	0.0059
4,4'-DDT[5]	T	µg/l	0.0059	0.0059
Dibenzo(a,h)anthracene[5]	T	µg/l	0.044	0.49
Dibromochloropropane	T	µg/l	0.2[a]	--
Di-n-butyl phthalate	T	µg/l	2,700	12,000
Dichloroacetic acid[7]	T	µg/l	60[a]	--
1,2-Dichlorobenzene	T	µg/l	600[a]	17,000
1,3-Dichlorobenzene	T	µg/l	400	2,600
1,4-Dichlorobenzene	T	µg/l	75[a]	2,600
3,3'-Dichlorobenzidine[5]	T	µg/l	0.40	0.77
Dichlorobromomethane[5]	T	µg/l	5.6	460
1,2-Dichloroethane[5]	T	µg/l	3.8	990
1,1-Dichloroethylene[5]	T	µg/l	0.57	32
cis-1,2-Dichloroethylene	T	µg/l	70[a]	--
trans-1,2-Dichloroethylene	T	µg/l	100[a]	140,000
2,4-Dichlorophenol	T	µg/l	93	790
1,2-Dichloropropane[5]	T	µg/l	5.0[a]	390
1,3-Dichloropropene	T	µg/l	10	1,700
Dieldrin[5]	T	µg/l	0.0014	0.0014
Di(2-ethylhexyl)adipate	T	µg/l	400[a]	--
Diethyl phthalate	T	µg/l	23,000	120,000
2,4-Dimethylphenol	T	µg/l	540	2,300
Dimethyl phthalate	T	µg/l	310,000	2,900,000
4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)	T	µg/l	13	770
Dinitrophenols[4]	T	µg/l	70	14,000
2,4-Dinitrotoluene[5]	T	µg/l	1.1	91
Dinoseb	T	µg/l	7.0[a]	--
1,2-Diphenylhydrazine[5]	T	µg/l	0.40	5.4
Diquat	T	µg/l	20[a]	--

Table 34-1. Ohio river drainage basin water quality criteria for the protection of human health. Page 3 of 5

Chemical	Form[1]	Units[2]	OMZA[3] Drinking	OMZA[3] Nondrinking
Dissolved solids	T	mg/l	750/500[a,b]	--
alpha-Endosulfan[8]	T	µg/l	110	240
beta-Endosulfan[8]	T	µg/l	110	240
Endosulfan sulfate[8]	T	µg/l	110	240
Endothall	T	µg/l	100[a]	--
Endrin[9]	T	µg/l	0.76	0.81
Endrin aldehyde[9]	T	µg/l	0.76	0.81
Ethylbenzene	T	µg/l	700[a]	29,000
Ethylene dibromide (EDB)	T	µg/l	0.050[a]	--
bis(2-Ethylhexyl)phthalate[5]	T	µg/l	6.0[a]	59
Fluoranthene	T	µg/l	300	370
Fluorene	T	µg/l	1,300	14,000
Fluoride	T	µg/l	4,000[a]	--
Glyphosate	T	µg/l	700[a]	--
Heptachlor[5]	T	µg/l	0.0021	0.0021
Heptachlor epoxide[5]	T	µg/l	0.0010	0.0011
Hexachlorobenzene[5]	T	µg/l	0.0075	0.0077
Hexachlorobutadiene[5]	T	µg/l	4.4	500
alpha-Hexachlorocyclohexane[5]	T	µg/l	0.039	0.13
beta-Hexachlorocyclohexane[5]	T	µg/l	0.14	0.46
gamma-Hexachlorocyclohexane (Lindane)[5]	T	µg/l	0.19	0.63
Hexachlorocyclohexane-technical grade[5]	T	µg/l	0.12	0.41
Hexachlorocyclopentadiene	T	µg/l	50[a]	17,000
Hexachloroethane[5]	T	µg/l	19	89
Indeno(1,2,3-c,d)pyrene[5]	T	µg/l	0.044	0.49
Iron	S	µg/l	300[a]	--
Isophorone[5]	T	µg/l	360	26,000
Mercury	TR	µg/l	0.012	0.012
Methoxychlor	T	µg/l	40[a]	--
Methyl bromide	T	µg/l	48	4,000
Methylene chloride[5]	T	µg/l	5.0[a]	16,000
Nickel	TR	µg/l	610	4,600
Nitrate-N + Nitrite-N	T	µg/l	10,000[a]	--
Nitrite-N	T	µg/l	1,000[a]	--
Nitrobenzene	T	µg/l	17	1,900
Nitrosoamines[5]	T	µg/l	0.0080	12
N-Nitrosodibutylamine[5]	T	µg/l	0.064	5.9
N-Nitrosodiethylamine[5]	T	µg/l	0.0080	12

Table 34-1. Ohio river drainage basin water quality criteria for the protection of human health. Page 4 of 5

Chemical	Form[1]	Units[2]	OMZA[3] Drinking	OMZA[3] Nondrinking
N-Nitrosodimethylamine [5]	T	µg/l	0.0069	81
N-Nitrosodi-n-propylamine [5]	T	µg/l	0.050	14
N-Nitrosodiphenylamine [5]	T	µg/l	50	160
N-Nitrosodipyrrolidine [5]	T	µg/l	0.16	920
Oxamyl (Vydate)	T	µg/l	200[a]	--
Pentachlorobenzene	T	µg/l	3.5	4.1
Pentachlorophenol [5]	T	mg/l	1.0[a]	82
Phenol	T	µg/l	21,000	4,600,000
Picloram	T	µg/l	500[a]	--
Polychlorinated biphenyls[5]	T	µg/l	0.0017	0.0017
Pyrene	T	µg/l	960	11,000
Selenium	TR	µg/l	50[a]	11,000
Silvex (2,4,5-TP, 2-[2,4,5-Trichlorophenoxy]propionic acid	T	µg/l	10	--
Simazine	T	µg/l	4.0[a]	--
Styrene	T	µg/l	100[a]	--
Sulfates	T	mg/l	250[a]	--
1,2,4,5-Tetrachlorobenzene	T	µg/l	2.3	2.9
2,3,7,8-Tetrachlorodibenzo-p-dioxin[5]	T	pg/l	0.13	0.14
1,1,2,2-Tetrachloroethane [5]	T	µg/l	1.7	110
Tetrachloroethylene [5]	T	µg/l	5.0[a]	89
Thallium	TR	µg/l	1.7	6.3
Toluene	T	µg/l	1,000[a]	200,000
Toxaphene[5]	T	µg/l	0.0073	0.0075
Trichloroacetic acid[7]	T	µg/l	60[a]	--
1,2,4-Trichlorobenzene	T	µg/l	70[a]	940
1,1,1-Trichloroethane	T	µg/l	200[a]	--
1,1,2-Trichloroethane [5]	T	µg/l	5.0[a]	420
Trichloroethylene [5]	T	µg/l	5.0[a]	810
2,4,5-Trichlorophenol	T	µg/l	2,600	9,800
2,4,6-Trichlorophenol [5]	T	µg/l	21	65
Vinyl chloride[5]	T	µg/l	2.0[a]	5,300
Xylenes	T	µg/l	10,000[a]	--
Zinc	T	µg/l	9,100	69,000

Table 34-1. Ohio river drainage basin water quality criteria for the protection of human health. Page 5 of 5

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[1] S = soluble; T = total; TR = total recoverable.
[2] mg/l = milligrams per liter (parts per million); µg/l = micrograms per liter (parts per billion); ng/l = nanograms per liter (parts per trillion); pg/l = picograms per liter (parts per quadrillion); Mf/l = million fibers per liter.
[3] OMZA = outside mixing zone average.
[4] The criteria for this chemical apply to the sum of all dinitrophenols.
[5] Criteria for this chemical are based on a carcinogenic endpoint.
[6] The criterion for this chemical applies to the sum of aldicarb, aldicarb sulfone and aldicarb sulfoxide.
[7] The criterion for this chemical applies to the sum of chloroacetic acid, dichloroacetic acid and trichloroacetic acid.
[8] The criteria for this chemical apply to the sum of alpha-endosulfan, beta-endosulfan and endosulfan sulfate.
[9] The criteria for this chemical apply to the sum of endrin and endrin aldehyde.
[a] This criterion is the maximum contaminant level (MCL) developed under the "Safe Drinking Water Act".
[b] Equivalent 25°C specific conductance values are 1200 micromhos/cm as a maximum and 800 micromhos/cm as a thirty-day average.

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3745-1-35 Site-specific modifications to criteria and values.

(A) Requirements for site-specific modifications to criteria and values. Criteria and values adopted in, or developed pursuant to, this chapter may be modified on a site-specific basis to reflect local environmental conditions in accordance with the following provisions. Any such modifications shall be protective of designated uses and aquatic life, wildlife and human health and be submitted to the U.S. EPA for approval. Any site-specific modifications shall be based on a sound scientific rationale. In addition, any site-specific modifications that result in less stringent criteria shall not be likely to jeopardize the continued existence of threatened or endangered species or result in the destruction or adverse modification of such species' critical habitat. More stringent modifications shall be developed to protect threatened or endangered species, where such modifications are necessary to ensure that water quality is not likely to jeopardize the continued existence of such species or result in the destruction or adverse modification of such species' critical habitat. More stringent modifications may also be developed to protect candidate (C1) species being considered by the United States Fish and Wildlife Service for listing under section 4 of the Endangered Species Act (16 U.S.C. Section 1531 et seq., as amended), where such modifications are necessary to protect such species.

(B) Aquatic life.

(1) Aquatic life criteria or values may be modified on a site-specific basis to provide an additional level of protection where the toxicity or exposure potential is greater than the toxicity or exposure potential assumptions used to derive the criteria or values in question.

(2) Less stringent site-specific modifications to chronic or acute aquatic life criteria or values may be developed when:

(a) The local water quality characteristics (such as, but not limited to, pH, hardness, temperature or color) lessen the biological availability or toxicity of a pollutant; or

(b) The sensitivity of the aquatic organisms species that occur at the site differs from the species actually tested in developing the criteria. The phrase "occur at the site" includes the species, genera, families, orders, classes, and phyla that: are usually present at the site; are present at the site only seasonally due to migration; are present intermittently because they periodically return to or extend their ranges into the site; were present at the site in the past and are not currently present at the site due to degraded conditions but are expected to return to the site when conditions improve; are present in nearby bodies of water and are not currently present at the site due to degraded conditions but are expected to be present at the site when conditions improve. The taxa that "occur at the site" cannot be determined merely by sampling downstream and/or upstream of the site at one point in time. "Occur at the site" does not include taxa that were once present at the site but cannot exist at the site now due to permanent physical alteration of the habitat at the site resulting, for example, from dams.

(3) Less stringent modifications also may be developed to acute and chronic aquatic life criteria or values to reflect local physical and hydrological conditions.

(4) Less stringent modifications to the whole effluent toxicity level for limited resource waters, as specified in rule 3745-2-09 of the Administrative Code, may be applied. Documentation provided by the permittee or independently available to the director shall show that the modification, not to exceed 1.0 acute toxic unit, is protective of the resident aquatic community.

(5) Any modifications to protect threatened or endangered aquatic species required by paragraph (A) of this rule may be accomplished using either of the two following procedures:

(a) If the species mean acute value (SMAV) for a listed or proposed species, or for a surrogate of such species, is lower than the calculated final acute value (FAV), such lower SMAV may be used instead of the calculated FAV in developing site-specific modified criteria; or

(b) The site-specific criteria may be calculated using the recalculation procedure for site-specific modifications described in chapter 3 of the "U.S. EPA Water Quality Standards Handbook, Second Edition - Revised (1994)".

(C) Wildlife.

(1) Wildlife water quality criteria may be modified on a site-specific basis to provide an additional level of protection where the toxicity or exposure potential is greater than the toxicity or exposure potential assumptions used to derive the criteria in question.

(2) Less stringent site-specific modifications to wildlife water quality criteria may be developed provided that:

(a) The modification demonstration addresses both the mobility of prey organisms and wildlife populations in defining the site for which the modification is developed;

(b) The modification reflects a site-specific bioaccumulation factor; and

(c) There is a showing that:

(i) Any increased uptake of the toxicant by prey species utilizing the site will not cause adverse effects in wildlife populations; and

(ii) Wildlife populations utilizing the site or downstream waters will continue to be fully protected.

(3) Any modification to protect threatened or endangered wildlife species required by paragraph (A) of this rule must consider both the mobility of prey organisms and wildlife populations in defining the site for which criteria are developed, and may be accomplished by using the following recommended method:

(a) Use the methodology contained in rule 3745-1-39 of the Administrative Code, substituting appropriate species-specific toxicological, epidemiological, or exposure information, including changes to the BAF;

(b) Use an interspecies uncertainty factor of one where epidemiological data are available for the species in question. If necessary, species-specific exposure parameters can be derived in accordance with rule 3745-1-39 of the Administrative Code;

(c) Apply an intraspecies uncertainty factor (to account for protection of individuals within a wildlife population) in the denominator of the effect part of the wildlife equation contained in rule 3745-1-39 of the Administrative Code in a manner consistent with the other uncertainty factors described in rule 3745-1-39 of the Administrative Code; and

(d) Compare the resulting wildlife value for the species in question to the two class-specific wildlife values which were previously calculated, then select the lowest of the three as the site-specific modification.

(D) Bioaccumulation factors.

(1) BAFs may be modified on a site-specific basis, pursuant to the methodology contained in rule 3745-1-37 of the Administrative Code, to larger values where reliable data show that local bioaccumulation is greater than the basin-wide value.

(2) BAFs may be modified on a site-specific basis, pursuant to the methodology contained in rule 3745-1-37 of the Administrative Code, to lower values if:

(a) The fraction of the total chemical that is freely dissolved in the ambient water is different than that used to derive the system-wide BAFs (i.e., the concentrations of particulate organic carbon and the dissolved organic carbon are different than those used to derive the system-wide BAFs);

(b) Input parameters of the Gobas model, such as the structure of the aquatic food web and the disequilibrium constant, are different at the site than those used to derive the system-wide BAFs;

(c) The per cent lipid of aquatic organisms that are consumed and occur at the site is different than that used to derive the system-wide BAFs; or

(d) Site-specific field-measured BAFs or biota-sediment accumulation factor (BSAFs) are determined.

(3) Any more stringent modifications to protect threatened or endangered species required by paragraph (A) of this rule shall be derived using procedures set forth in the methodology contained in rule 3745-1-37 of the Administrative Code.

(E) Human health.

(1) Human health criteria or values may be modified on a site-specific basis to provide an additional level of protection where the toxicity or exposure potential is greater than the toxicity or exposure potential assumptions used to derive the criteria or values in question. Human health criteria or values shall be modified on a site-specific basis to provide additional protection appropriate for highly exposed subpopulations.

(2) Less stringent site-specific modifications to human health criteria or values may be developed when:

(a) Local fish consumption rates are lower than the rate used to derive human health criteria or values under rule 3745-1-38 of the Administrative Code (this option shall not be available for water bodies subject to a fish consumption advisory); and/or

(b) A site-specific BAF is derived which is lower than that used to derive human health criteria or values under rule 3745-1-38 of the Administrative Code.

(F) Notification requirements. When the director proposes a site-specific modification to a criterion or value as allowed or required in paragraph (A) of this rule, the director shall notify the other Great Lakes states of such a proposal and, for less stringent criteria, supply appropriate justification.

(G) Notwithstanding paragraphs (A) to (F) of this rule, any chemical-specific criterion listed in this chapter or derived pursuant to rule 3745-1-36, 3745-1-37, 3745-1-38 or 3745-1-39 of the Administrative Code may be modified for a particular surface water body or segment if specific information is provided to the director which shows either of the following:

(1) That all, or portions, of the data used to derive the criterion are inapplicable or not relevant to that surface water body or segment; or

(2) That the otherwise applicable criterion is more or less stringent than necessary to protect human health, aquatic life, wildlife or agricultural use.

In such cases, the director may adopt a less or more stringent site-specific criterion if it can be scientifically justified based on new toxicological data or site-specific conditions of water

quality, pollutant bioavailability, resident species, or human exposure.

(H) Within the lake Erie drainage basin, paragraph (G) of this rule applies only when it results in modifications at least as protective as modifications resulting from paragraphs (A) to (F) of this rule.

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3745-1-36 **Methodologies for development of aquatic life criteria and values.**

All pollutants or combinations of pollutants, for which aquatic life criteria have not been adopted in rule 3745-1-07 of the Administrative Code, shall not exceed the water quality criteria or values derived using the procedures contained in this rule.

(A) Tier I acute aquatic criterion (AAC) and tier II acute aquatic value (AAV). This criterion and value apply outside the mixing zone to all aquatic life habitat use designations. This criterion and value shall be expressed as the quantity of chemical per liter of water (e.g., mg/l or ug/l). Paragraphs (A)(1) to (A)(3) of this rule shall be used to calculate the tier I AAC when acute toxicity data are available for species in at least eight families. Paragraph (A)(4) of this rule shall be used to calculate the tier II AAV when there are not enough toxicity data to use the procedures in paragraphs (A)(1) to (A)(3) of this rule but there is at least one EC_{50} or LC_{50} value for a species in one of the following three genera of the family Daphnidae: Ceriodaphnia sp., Daphnia sp., or Simocephalus sp.

(1) The procedures in paragraphs (A)(1) to (A)(3) of this rule shall be used to calculate the tier I AAC when LC_{50} or EC_{50} data for at least one species of freshwater animal in at least the eight different families identified in paragraphs (A)(1)(a) to (A)(1)(h) of this rule are included:

(a) The family Salmonidae in the class Osteichthyes;

(b) One other family (preferably a commercially or recreationally important warmwater species) in the class Osteichthyes (e.g., bluegill, channel catfish);

(c) A third family in the phylum Chordata (e.g., fish, amphibian);

(d) A planktonic crustacean (e.g., a cladoceran, copepod);

(e) A benthic crustacean (e.g., ostracod, isopod, amphipod, crayfish);

(f) An insect (e.g., mayfly, dragonfly, damselfly, stonefly, caddisfly, mosquito, midge);

(g) A family in a phylum other than Arthropoda or Chordata (e.g., Rotifera, Annelida, Mollusca);

(h) A family in any order of insect or any phylum not already represented.

(2) When data are not available to show that acute toxicity to two or more species is similarly related to a water quality characteristic (e.g., hardness, pH or

temperature), the tier I AAC shall be calculated using the procedures in paragraphs (A)(2)(a) to (A)(2)(i) of this rule.

(a) For each species for which at least one acute value is available, the species mean acute value (SMAV) shall be calculated as the geometric mean of the results of all acceptable flow-through acute toxicity tests in which the concentrations of test material were measured with the most sensitive tested life stage of the species. For a species for which no such result is available, the SMAV shall be calculated as the geometric mean of all acceptable acute toxicity tests with the most sensitive tested life stage, i.e., results of flow-through tests in which the concentrations were not measured and results of static and renewal tests based on initial concentrations (nominal concentrations are acceptable for most test materials if measured concentrations are not available) of test material.

(b) For each genus for which one or more SMAVs are available, the genus mean acute value (GMAV) shall be calculated as the geometric mean of the SMAVs available for the genus.

(c) The GMAVs shall be ordered from high to low.

(d) Ranks (R) shall be assigned to the GMAVs from "one" for the lowest to "N" for the highest. If two or more GMAVs are identical, successive ranks are arbitrarily assigned.

(e) The cumulative probability (P), shall be calculated for each GMAV as R / (N + 1).

(f) The four GMAVs shall be selected which have cumulative probabilities closest to 0.05. (If there are fewer than fifty-nine GMAVs, these will always be the four lowest GMAVs.

(g) Using the four selected GMAVs and Ps, the final acute value (FAV) shall be calculated as:

$$S^2 = \frac{\Sigma((\ln GMAV)^2) - \frac{(\Sigma(\ln GMAV))^2}{4}}{\Sigma(P) - \frac{(\Sigma(\sqrt{P}))^2}{4}}$$

$$L = \frac{\Sigma(\ln GMAV) - S(\Sigma(\sqrt{P}))}{4}$$

$$A = S(\sqrt{0.05}) + L$$

$$FAV = e^A$$

(h) If, for a commercially, recreationally or ecologically important species, the geometric mean of the acute values from flow-through tests in which the concentrations of test material were measured is lower than the calculated FAV, then that geometric mean shall be used as the FAV instead of the calculated FAV.

(i) The AAC shall be calculated by dividing the FAV by two.

(3) When enough data are available to show that acute toxicity to two or more species is similarly related to a water quality characteristic (e.g., hardness, pH or temperature), the tier I FAV shall be calculated using the procedures in paragraphs (A)(3)(a) to (A)(3)(l) of this rule or using an analysis of covariance. The two methods are equivalent and produce identical results. If two or more factors affect toxicity, multiple regression analysis shall be used.

(a) For each species for which comparable acute toxicity values are available at two or more different values of the water quality characteristic, a least squares regression of the acute toxicity values on the corresponding values of the water quality characteristic shall be performed to obtain the slope and its ninety-five per cent confidence limits for each species. Because the best documented relationship is that between hardness and acute toxicity of metals and a log-log relationship fits these data, geometric means and natural logarithms of both toxicity and water quality are used in the rest of this method. For relationships based on other water quality characteristics, such as pH or temperature, no transformation or a different transformation might fit the data better, and appropriate changes shall be made as necessary throughout this method.

(b) Data for each species shall be evaluated as to whether or not they are relevant, taking into account the range and number of the tested values of the water quality characteristic and the degree of agreement within and

between species. If useful slopes are not available for at least one fish and one invertebrate, or if the available slopes are too dissimilar, or if too few data are available to adequately define the relationship between acute toxicity and the water quality characteristic, the AAC shall be calculated using the procedures in paragraph (A)(2) of this rule, using the results of tests conducted under conditions and in waters similar to those commonly used for toxicity tests with the species.

(c) For each species, the geometric mean of the available acute values shall be calculated and then each of the acute values for a species shall be divided by the mean for the species. This calculation normalizes the acute values so that the geometric mean of the normalized values for each species individually and for any combination of species is 1.0.

(d) The values of the water quality characteristic shall be similarly normalized for each species individually using the procedure in paragraph (A)(3)(c) of this rule.

(e) Individually for each species a least squares regression of the normalized acute values on the water quality characteristic shall be performed. The resulting slopes and ninety-five per cent confidence limits will be identical to those obtained in paragraph (A)(3)(a) of this rule. If, however, the data are actually plotted, the line of best fit for each individual species will go through the point 1, 1 in the center of the graph.

(f) All the normalized data shall be treated as if they were for the same species and a least squares regression of all the normalized acute values on the corresponding normalized values of the water quality characteristic is performed to obtain the pooled acute slope, V, and its ninety-five per cent confidence limits. If all of the normalized data are actually plotted, the line of best fit will go through the point 1, 1 in the center of the graph.

(g) For each species the geometric mean, W, of the acute toxicity values and the geometric mean, X, of the values of the water quality characteristic shall be calculated. (These were calculated in paragraphs (A)(3)(c) and (A)(3)(d) of this rule.)

(h) For each species the natural logarithm (ln), Y, of the SMAV at a selected value, Z, of the water quality characteristic shall be calculated using the equation:

$$Y = \ln W - V(\ln X - \ln Z).$$

(i) For each species the SMAV at Z shall be calculated using the equation:

$$SMAV = e^{Y}.$$

(j) The FAV shall be obtained by using the procedures described in paragraphs (A)(2)(b) to (A)(2)(g) of this rule.

(k) If, for a commercially or recreatio nally important species the geometric mean of the acute values at Z from flow-through tests in which the concentrations of the test material were measured is lower than the FAV at Z, then the geometric mean shall be used as the FAV instead of the FAV.

(l) The final acute equation shall be written as:

$$FAV = e^{(V[\ln(\text{water quality characteristic})] + A - V[\ln Z])},$$

Where:

V = pooled acute slope, and A = ln (FAV at Z). Because V, A, and Z are known, the FAV can be calculated for any selected value of the water quality characteristic.

(m) For any value of Z, the AAC shall be calculated by dividing the FAV by two.

(4) Tier II values.

(a) If the required data to derive the tier I AAC in paragraphs (A)(1) to (A)(3) of this rule are not present in the acute toxicity data base and at least one EC_{50} or LC_{50} value is available for a species in one of the following three genera of the family Daphnidae - Ceriodaphnia sp., Daphnia sp., or Simocephalus sp., a tier II secondary acute value (SAV) shall be calculated by dividing the lowest GMAV in the data base by the secondary acute factor (SAF) (see table 36-1 of this rule) corresponding to the number of satisfied minimum data requirements listed in the tier I methodology (see paragraph (A)(1) of this rule).

(b) The tier II AAV equals the SAV divided by two.

(c) If appropriate, the AAV shall be made a function of a water quality characteristic in a manner similar to that described in paragraph (A)(3) of this rule.

(B) Tier I chronic aquatic criterion (CAC) and tier II chronic aquatic value (CAV). This criterion and value apply outside the mixing zone to al l aquatic life habitat use designations except the limited resource water use designation. This criterion and value shall be expressed as the quantity of chemical per liter of water (e.g., mg/l or ug/l). Paragraphs (B)(1) and (B)(2) of this rule are used to calculate the tier I CAC. Paragraphs (B)(3) and (B)(4) of this rule shall be used to calculate the tier II CAV

when there are not enough toxicity data to use the method in paragraphs (B)(1) and (B)(2) of this rule.

(1) If chronic values are available for species in eight families as described in paragraph (A)(1) of this rule, a species mean chronic value (SMCV) shall be calculated for each species for which at least one chronic value is available by calculating the geometric mean of the results of all acceptable life-cycle and partial life-cycle toxicity tests with the species; for a species of fish for which no such result is available, the SMCV shall be the geometric mean of all acceptable early life-stage tests. Appropriate genus mean chronic values (GMCVs) shall also be calculated. A GMCV shall be the geometric mean of the SMCVs for the genus. The CAC shall be obtained using the procedure contained in paragraphs (A)(1) to (A)(3) of this rule, substituting CAC for FAV, SMCV for SMAV and GMCV for GMAV.

(2) If chronic data for a chemical are not available for at least eight freshwater species meeting the requirements in paragraph (A)(1) of this rule, the CAC shall be calculated by dividing the FAV by a final acute-chronic ratio (FACR).

(a) Acute-chronic ratio (ACRs) are required for at least one species of aquatic animal in at least three different families provided that of the three species:

(i) At least one is a fish;

(ii) At least one is an invertebrate; and

(iii) At least one species is an acutely sensitive freshwater species (the other two may be saltwater species).

(b) For each chronic value for which at least one corresponding appropriate acute value is available, an ACR shall be calculated using the chronic value for the denominator and using the geometric mean of the results of all acceptable flow-through (except static is acceptable for daphnids and midges) acute tests in the same dilution water in which the concentrations are measured for the numerator. For fish, the acute test(s) shall be conducted with juveniles. The acute test(s) should be part of the same study as the chronic test. If acute tests were not conducted as part of the same study, but were conducted as part of a different study in the same laboratory and dilution water, then they may be used. If no such acute tests are available, results of acute tests conducted in the same dilution water in a different laboratory may be used. If no such acute tests are available, an ACR shall not be calculated.

(c) For each species, the species mean ACR shall be calculated as the geometric mean of all ACRs available for that species. If the minimum ACR data requirements (as described in paragraph (B)(2)(a) of this rule) are not met

with freshwater data alone, saltwater data may be used along with the freshwater data.

(d) For some materials, the ACR seems to be the same for all species, but for other materials the ratio seems to increase or decrease as the SMAV increases. Thus the FACR shall be obtained in the following ways.

(i) If the species mean ACR seems to increase or decrease as the SMAVs increase, the FACR shall be calculat ed as the geometric mean of the ACRs for species whose SMAVs are close to the FAV.

(ii) If no major trend is apparent and the ACRs for all species are within a factor of ten, the FACR shall be calcul ated as the geometric mean of all of the species mean ACRs.

(iii) If the most appropriate species mean ACRs are less than 2.0, the FACR shall be assumed to be 2.0.

(e) The FCV shall be calculated by dividing the FAV by the FACR.

(f) If the SMCV of a commercially or recreationally important species is lower than the calculated CAC, then that SMCV shall be used as the CAC instead of the calculated CAC.

(3) Secondary acute-chronic ratio.

(a) If fewer than three acceptable experimentally determined ACRs are available for the chemical, the secondary acute-chronic ratio (SACR) shall be determined using enough assumed ACRs of eighteen so that the total number of ACRs equals three. Calculate the SACR as the geometric mean of the three ACRs. If no experimental ly determined ACRs are available, the SACR shall be eighteen.

(4) Tier II chronic aquatic value.

(a) The CAV shall be calculated using one of the following equations:

(i) CAV = FAV ÷ SACR (Use FAV from paragraph (A) of this rule and use SACR from paragraph (B)(3) of this rule);

(ii) CAV = SAV ÷ FACR (Use SAV from paragraph (A)(4) of this rule and use FACR from paragraph (B)(2) of this rule); or

(iii) CAV = SAV ÷ SACR (Use SAV from paragraph (A)(4) of this rule and use SACR from paragraph (B)(3) of this rule).

(b) If appropriate, the CAV shall be made a function of a water quality characteristic in a manner similar to that described in paragraph (A)(3) of this rule.

(c) If the SMCV of a commercially or recreationally important species is lower than the calculated CAV, then that SMCV shall be used as the CAV instead of the calculated CAV.

(C) Final plant value (FPV). This value applies in place of the CAC or CAV if it is lower than the CAC or CAV. Results of at least one acceptable test with a freshwater algae or vascular plant is required. If plants are among the aquatic organisms most sensitive to the material, results of a test with a plant in another phylum (division) shall also be available.

(1) A plant value shall be the result of a ninety-six-hour test conducted with an alga or a chronic test conducted with an aquatic vascular plant. A test of the toxicity of a metal to a plant shall not be used if the medium contained an excessive amount of a complexing agent, such as EDTA, that might affect the toxicity of the metal. Concentrations of EDTA above two hundred micrograms per liter shall be considered excessive.

(2) The FPV shall be obtained by selecting the lowest result from a test with an important aquatic plant species in which the concentrations of test material are measured and the endpoint is biologically important.

(D) Application of criteria and values.

(1) The FAV and SAV shall be applied as maximum concentrations inside the mixing zone.

(2) The AAC and AAV shall be applied as maximum concentrations outside the mixing zone.

(3) The CAC, CAV, and FPV if available shall be applied as thirty-day average concentrations outside the mixing zone.

Table 36-1.

Secondary acute factors

Number of minimum data requirements satisfied	Secondary acute factor
1.....	21.9
2 and neither requirement includes the family Salmonidae.....	13.0
2 and one requirement includes the family Salmonidae.....	7.9
3.....	8.0
4.....	7.0
5.....	6.1
6.....	5.2
7.....	4.3

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3745-1-37 **Methodology for deriving bioaccumulation factors.**

(A) The purpose of this rule is to describe procedures for deriving bioaccumulation factors (BAFs) to be used in the calculation of human health tier I criteria and tier II values and wildlife tier I criteria. A subset of the human health BAFs are also used to identify the chemicals that are considered bioaccumulative chemicals of concern (BCCs).

(B) Review and selection of data.

(1) Field-measured BAFs. The following procedural and quality assurance requirements shall be met for field-measured BAFs.

(a) The filed studies used shall be limited to those conducted in the Great Lakes system with fish in trophic levels three and/or four.

(b) The trophic level of the fish species shall be determined.

(c) The site of the field study shall not be so unique such that the BAF cannot be extrapolated to other locations where the criteria and values will apply.

(d) For organic chemicals, the per cent lipid shall be either measured or reliably estimated for the tissue used in the determination of the BAF.

(e) The concentration of the chemical in the water shall be measured in a way that can be related to particulate organic carbon (POC) and/or dissolved organic carbon (DOC) and shall be relatively constant during the steady-state time period.

(f) For organic chemicals with log K_{ow} greater than four, the concentrations of POC and DOC in the ambient water shall be either measured or reliably estimated.

(g) For inorganic and organic chemicals, BAFs shall be used only if they are expressed on a wet weight basis; BAFs reported on a dry weight basis cannot be converted to wet weight unless a conversion factor is measured or reliably estimated for the tissue used in the determination of the BAF.

(2) Field-measured biota-sediment accumulation factors (BSAFs). The following procedural and quality assurance requirements shall be met for field-measured BSAFs.

(a) The field studies used shall be limited to those conducted in the Great Lakes system with fish in trophic levels three and/or four.

(b) Samples of surface sediments shall be from locations where there is net deposition of fine sediment (zero to one centimeter is ideal) and that are representative of average surface sediments in the vicinity of the organism.

(c) The K_{ow}s used shall be of acceptable quality as described in paragraph (B)(6) of this rule.

(d) The site of the field study shall not be so unique such that the resulting BAF cannot be extrapolated to other locations where the criteria and values will apply.

(e) The trophic level of the fish species shall be determined.

(f) The per cent lipid shall be either measured or reliably estimated for the tissue used in the determination of the BAF.

(3) Laboratory-measured BCFs. The following procedural and quality assurance requirements shall be met for laboratory-measured BCFs.

(a) The test organism shall not be diseased, unhealthy, or adversely affected by the concentration of the chemical.

(b) The total concentration of the chemical in the water shall be measured and shall be relatively constant during the steady-state time period.

(c) The organisms shall be exposed to the chemical using a flow-through or renewal procedure.

(d) For organic chemicals, the per cent lipid shall be either measured or reliably estimated for the tissue used in the determination of the BCF.

(e) For organic chemicals with log K_{ow} greater than four, the concentrations of POC and DOC in the test solution shall be either measured or reliably estimated.

(f) Laboratory-measured BCFs should be determined using fish species, but BCFs determined with molluscs and other invertebrates may be used if Appropriate.

(g) In a bioconcentration test, if laboratory-measured BCFs increase or decrease as the concentration of the chemical increase in the test solutions, the BCF measured at the lowest test concentration that is above concentrations existing in the control water shall be used (i.e., a BCF shall not be calculated from a control treatment). The concentrations of an inorganic chemical in a bioconcentration test shall be greater than normal background levels and greater than levels required for normal nutrition of the test

species if the chemical is a micronutrient, but below levels that adversely affect the species.

(h) For inorganic and organic chemicals, BCFs shall be used only if they are expressed on a wet weight basis. BCFs reported on a dry weight basis cannot be converted to wet weight unless a conversion factor is measured or reliably estimated for the tissue used in the determination of the BAF.

(i) BCFs for organic chemicals may be based on measurement of radioactivity only when the BCF is intended to include metabolites or when there is confidence that there is no interference due to metabolites.

(j) The calculation of the BCF shall address growth dilution.

(k) Other aspects of the methodology used shall be similar to those described in "Standard Practice for Conducting Bioconcentration Tests with Fishes and Saltwater Bivalve Molluscs. Standard E 1022. American Society for Testing and Materials, Philadelphia, PA. (1990)".

(4) Predicted BCFs. The following procedural and quality assurance requirements shall be met for predicted BCFs.

(a) The K_{ow} used shall be of acceptable quality as described in paragraph (B)(5) of this rule.

(b) The predicted baseline BCF shall be calculated using the equation

Predicted baseline BCF = K_{ow}

Where:

K_{ow} = octanol-water partition coefficient.

(5) Octanol-water partition coefficient (K_{ow}).

(a) The value of K_{ow} used for an organic chemical shall be determined by giving priority to the experimental and computational techniques used as shown in table 37-1 of this rule.

(b) A value of K_{ow} that seems to be different from the others may be considered an outlier and not used. The value of K_{ow} used for an organic chemical shall be either the geometric mean of the available K_{ow}s with highest priority or the arithmetic mean of the available log K_{ow}s with the highest priority. Because it is an intermediate value in the derivation of a BAF, the values used for the K_{ow} and log K_{ow} of a chemical shall not be rounded to fewer than three significant digits after the decimal point.

(C) Baseline BAFs shall be derived using the following four methods, which are listed from most preferred to least preferred.

(1) A measured baseline BAF for an organic or inorganic chemical derived from a field study of acceptable quality.

(2) A predicted baseline BAF for an organic chemical derived using field-measured BSAFs of acceptable quality.

(3) A predicted baseline BAF for an organic or inorganic chemical derived from a BCF measured in a laboratory study of acceptable quality and a FCM.

(4) A predicted baseline BAF for an organic chemical derived from a K_{ow} of acceptable quality and a FCM.

For comparative purposes, baseline BAFs shall be derived for each chemical by as many of the four methods as available data allow.

(D) Calculation of baseline BAFs for organic chemicals.

(1) Lipid normalization.

(a) It is assumed that BAFs and BCFs for organic chemicals can be extrapolated on the basis of per cent lipid from one tissue to another and from one aquatic species to another in most cases.

(b) Because BAFs and BCFs for organic chemicals are related to the per cent lipid, it does not make any difference whether the tissue sample is whole body or edible portion, but both the BAF (or BCF) and the per cent lipid must be determined for the same type of tissue. The per cent lipid of the tissue should be measured during the BAF or BCF study, but in some cases it may be reliably estimated from measurements on tissue from other organisms. If per cent lipid is not reported for the test organisms in the original study, it may be obtained from the author. In the case of a laboratory study, lipid data for the same or a comparable laboratory population of test organisms that were used in the original study may be used.

(c) The lipid-normalized concentration (C_l) of a chemical in tissue is defined using the equation

$$C_l = \frac{C_B}{f_l}$$

Where:

C_b = concentration of the organic chemical in the tissue of aquatic biota (either whole organism or specified tissue) expressed in micrograms per gram; and

f_l = fraction of the tissue that is lipid.

(2) Bioavailability. By definition, baseline BAFs and BCFs for organic chemicals, whether measured or predicted, are based on the concentration of the chemical that is freely dissolved in the ambient water in order to account for bioavailability. For the purposes of this rule, the relationship between the total concentration of the chemical in the ambient water (i.e., that which is freely dissolved plus that which is sorbed to particulate organic carbon or to dissolved organic carbon) to the freely dissolved concentration of the chemical in the ambient water shall be calculated using the equation

$$C_w^{fd} = (f_{fd})(C_w^t)$$

Where:

C_w^{fd} = freely dissolved concentration of the organic chemical in the ambient water;

C_w^t = total concentration of the organic chemical in the ambient water; and

f_{fd} = fraction of the total chemical in the ambient water that is freely dissolved.

The fraction of the total chemical in the ambient water that is freely dissolved (f_{fd}), shall be calculated using the equation

$$f_{fd} = \frac{1}{1 + \frac{(DOC)(K_{ow})}{10} + (POC)(K_{ow})}$$

Where:

DOC = concentration of dissolved organic carbon, expressed as kilograms of dissolved organic carbon per liter of water;

K_{ow} = octanol-water partition coefficient of the chemical; and

POC = concentration of particulate organic carbon, expressed as kilograms of particulate organic carbon per liter of water.

(3) Food-chain multiplier (FCM). In the absence of a field-measured BAF or a predicted BAF derived from a BSAF, a FCM shall be used to calculate the baseline BAF for trophic levels three and four from a laboratory-measured or

predicted BCF. For an organic chemical, the FCM used shall be derived from table 37-2 of this rule using the chemical's log K_{ow} and linear interpolation. A FCM greater than 1.0 applies to most organic chemicals with a log K_{ow} of four or more. The trophic level used shall take into account the age or size of the fish species consumed by the human, avian or mammalian predator.

(4) Calculation of a baseline BAF from a field-measured BAF. A baseline BAF shall be calculated from a filed-measured BAF using the equation

$$\text{Baseline BAF} = \left[\frac{\text{Measured BAF}_T^t}{f_{fd}} - 1 \right] \left(\frac{1}{f_l} \right)$$

Where:

BAF^t_T = Baf based on total concentration in tissue and water;

f_l = Fraction of the tissue that is lipid; and

f_{fd} = Fraction of the total chemical that is freely dissolved in the ambient water.

The trophic level to which the baseline BAF applies is the same as the trophic level of the organisms used in the determination of the field-measured BAF. For each trophic level, a species mean measured baseline BAF shall be calculated as the geometric mean if more than one measured baseline BAF is available for a given species. For each trophic level, the geometric mean of the species mean measured baseline BAFs shall be calcu lated. If a baseline BAF based on a measured BAF is available for either trophic level three or four, but not both, a measured baseline BAF for the other trophic level shall be calculated using the ratio of the FCMs that are obtained by li near interpolation from table 37-2 of this rule for the chemical.

(5) Calculation of a baseline BAF from a field-measured BSAF.

(a) A baseline BAF for organic chemical "i" shall be calcu lated from a field-measured BSAF of acceptable quality using the equation

$$(\text{Baseline BAF})_i = (\text{Baseline BAF})_r \cdot \frac{(\text{BSAF})_i \cdot (K_{ow})_i}{(\text{BSAF})_r \cdot (K_{ow})_r}$$

Where:

$(BSAF)_i$ = BSAF for chemical "i";

$(BSAF)_r$ = BSAF for the reference chemical "r";

$(K_{ow})_i$ = octanol-water partition coefficient for chemical "i"; and

$(K_{ow})_r$ = octanol-water partition coefficient for the reference chemical "r".

(b) A BSAF shall be calculated using the equation

$$\mathbf{BSAF} = \frac{C_\ell}{C_{soc}}$$

Where:

C_l = the lipid-normalized concentration of the chemical in tissue; and

C_{soc} = the organic carbon-normalized concentration of the chemical in sediment.

(c) The organic carbon-normalized concentration of a chemical in sediment (C_{soc}), shall be calculated using the equation

$$C_{soc} = \frac{C_s}{f_{oc}}$$

Where:

C_s = concentration of chemical in sediment (expressed as micrograms per gram sediment); and

f_{oc} = fraction of the sediment that is organic carbon.

(d) Predicting BAFs from BSAFs requires data from a steady-state (or near steady-state) condition between sediment and ambient water for both a reference chemical "r" with a field-measured BAF^{fd}_l and other chemicals "N=i" for which BSAFs are to be determined.

(e) The trophic level to which the baseline BAF applies is the same as the trophic level of the organisms used in the determination of the BSAF. For each trophic level, a species mean baseline BAF shall be calculated as the geometric mean if more than one baseline BAF is predicted from BSAFs for a given species. For each trophic level, the geometric mean of the species mean baseline BAFs derived using BSAFs shall be calculated.

(f) If a baseline BAF based on a measured BSAF is available for either trophic level three or four, but not both, a baseline BAF for the other trophic level

shall be calculated using the ratio of the FCMs that are obtained by linear interpolation from table 37-2 of this rule for the chemical.

(6) Calculation of a baseline BAF from a laboratory-measured BCF. A baseline BAF for trophic level three and a baseline BAF for trophic level four shall be calculated from a laboratory-measured BCF of acceptable quality and a FCM using the equation

$$\text{Baseline BAF} = (\text{FCM})\left[\frac{\text{Measured BCF}_T^t}{f_{fd}} - 1\right]\left(\frac{1}{f_l}\right)$$

Where:

BCF^t_T = BCF based on total concentration in tissue and water;

F_l = fraction of the tissue that is lipid;

f_{fd} = fraction of the total chemical in the test water that is freely dissolved; and

FCM = the food-chain multiplier obtained from table 37-2 of this rule by linear interpolation for trophic level three or four, as necessary.

For each trophic level, a species mean baseline BAF shall be calculated as the geometric mean if more than one baseline BAF is predicted from laboratory-measured BCFs for a given species. For each trophic level, the geometric mean of the species mean baseline BAFs based on laboratory-measured BCFs shall be calculated.

(7) Calculation of a baseline BAF from an octanol-water partition coefficient. A baseline BAF for trophic level three and a baseline BAF for trophic level four shall be calculated from a K_{ow} of acceptable quality and a FCM using the equation

$$\begin{aligned}\text{Baseline BAF} &= (\text{FCM})\ (\text{predicted baseline BCF})\\ &= (\text{FCM})\ (K_{ow})\end{aligned}$$

Where:

FCM = the food-chain multiplier obtained from table 37-2 of this rule by linear interpolation for trophic level three or four, as necessary; and

K_{ow} = octanol-water partition coefficient.

(E) Human health and wildlife BAFs for organic chemicals.

(1) To calculate human health and wildlife BAFs for an organic chemical, the K_{ow} of the chemical shall be used with a POC concentration of 0.00000004 kg/l and a DOC concentration of 0.000002 kg/l to yield the fraction freely dissolved (f_{fd}) using the equations

$$f_{fd} = \frac{1}{1 + \frac{(DOC)(K_{ow})}{10} + (POC)(K_{ow})}$$

$$= \frac{1}{1 + \frac{(0.000002\ kg/L)(K_{ow})}{10} + (0.00000004\ kg/L)(K_{ow})}$$

$$= \frac{1}{1 + (0.00000024\ kg/L)(K_{ow})} .$$

(2) The human health BAFs for an organic chemical shall be calculated using the equations.

(a) For trophic level three

Human health BAF^{HH}_{TL3} = [(baseline BAF) (0.0182) + 1] (f_{fd})

and

(b) For trophic level four

Human health BAF^{HH}_{TL4} = [(baseline BAF) (0.0310) + 1] (f_{fd})

Where:

0.0182 and 0.0310 are the standardized fraction lipid values for trophic levels three and four, respectively, that are used to derive human health criteria and values pursuant to rule 3745-1-38 of the Administrative Code.

(3) The wildlife BAFs for an organic chemical shall be calculated using the following equations:

(a) For trophic level three:

Wildlife BAF^{WL}_{TL3} = [(baseline BAF) (0.0646) + 1] (f_{fd})

(b) For trophic level four:

$$\text{Wildlife BAF}^{WL}_{TL4} = [(\text{baseline BAF})\ (0.1031) + 1]\ (f_{fd})$$

Where:

0.0646 and 0.1031 are the standardized fraction lipid values for trophic levels three and four, respectively, that are used to derive wildlife criteria pursuant to rule 3745-1-39 of the Administrative Code.

(F) Human health and wildlife BAFs for inorganic chemicals.

(1) For inorganic chemicals, the baseline BAFs for trophic levels three and four are both assumed to equal the BCF determined for the chemical with fish, i.e., the FCM is assumed to be 1.0 for both trophic levels three and four. However, a FCM greater than 1.0 might be applicable to some metals, such as mercury, if, for example, an organometallic form of the metal biomagnifies.

(2) BAFs for human health criteria and values.

(a) Measured BAFs and BCFs used to determine human health BAFs for inorganic chemicals shall be based on edible tissue of freshwater fish unless it is demonstrated that whole-body BAFs or BCFs are similar to edible-tissue BAFs or BCFs. BCFs and BAFs based on measurements of aquatic plants and invertebrates should not be used in the derivation of human health criteria and values.

(b) If one or more field-measured baseline BAFs for an inorganic chemical are available from studies conducted in the Great Lakes system with the edible tissue of fish:

(i) For each trophic level, a species mean measured baseline BAF shall be calculated as the geometric mean if more than one measured BAF is available for a given species; and

(ii) For each trophic level, the geometric mean of the species mean measured baseline BAFs shall be used as the human health BAF for that chemical.

(c) If an acceptable measured baseline BAF is not available for an inorganic chemical and one or more acceptable edible-portion laboratory-measured BCFs are available for the chemical, a predicted baseline BAF shall be calculated by multiplying the geometric mean of the BCFs times a FCM. The FCM shall be 1.0 unless chemical-specific biomagnification data

support using a multiplier other than 1.0. The predicted baseline BAF shall be used as the human health BAF for that chemical.

(3) BAFs for wildlife criteria.

(a) Measured BAFs and BCFs used to determine wildlife BAFs for inorganic chemicals shall be based on whole-body freshwater fish and invertebrate data unless it is demonstrated that edible-tissue BAFs or BCFs are similar to whole-body BAFs or BCFs.

(b) If one or more field-measured baseline BAFs for an inorganic chemical are available from studies conducted in the Great Lakes system with whole body fish or invertebrates:

(i) For each trophic level, a species mean measured baseline BAF shall be calculated as the geometric mean if more than one measured BAF is available for a given species;

(ii) For each trophic level, the geometric mean of the species mean measured baseline BAFs shall be used as the wildlife BAF for that chemical; and

(iii) If an acceptable measured baseline BAF is not available for an inorganic chemical and one or more acceptable whole-body laboratory-measured BCFs are available for the chemical, a predicted baseline BAF shall be calculated by multiplying the geometric mean of the BCFs times a FCM. The FCM shall be 1.0 unless chemical-specific biomagnification data support using a multiplier other than 1.0. The predicted baseline BAF shall be used as the wildlife BAF for that chemical.

(G) Final review. For both organic and inorganic chemicals, human health and wildlife BAFs for both trophic levels shall be reviewed for consistency with all available data concerning the bioaccumulation, bioconcentration, and metabolism of the chemical. BAFs derived in accordance with this methodology shall be modified if changes are justified by available data.

Table 37-1. Priorities for K_{ow} experimental and computational techniques for organic chemicals.

Priority		Technique
Log $K_{ow} \leq 4.0$	Log $K_{ow} > 4.0$	
1	1	Slow-stir
1	1	Generator-column
1	4	Shake-flask
2	2	Reverse-phase liquid chromatography on C18 chromatography packing with extrapolation to zero per cent solvent
3	3	Reverse-phase liquid chromatography on C18 chromatography packing without extrapolation to zero per cent solvent
4	5	Calculated by the CLOGP program (a computer program available from Pomona college)

Table 37-2. Food-chain multipliers for trophic levels 2, 3 and 4.

Log K_{ow}	Trophic level 2	Trophic[1] level 3	Trophic level 4	Log K_{ow}	Trophic level 2	Trophic[1] level 3	Trophic level 4
2.0	1.000	1.005	1.000	6.0	1.000	10.556	15.996
2.5	1.000	1.010	1.002	6.1	1.000	11.337	17.783
3.0	1.000	1.028	1.007	6.2	1.000	12.064	19.907
3.1	1.000	1.034	1.007	6.3	1.000	12.691	21.677
3.2	1.000	1.042	1.009	6.4	1.000	13.228	23.281
3.3	1.000	1.053	1.012	6.5	1.000	13.662	24.604
3.4	1.000	1.067	1.014	6.6	1.000	13.980	25.645
3.5	1.000	1.083	1.019	6.7	1.000	14.223	26.363
3.6	1.000	1.103	1.023	6.8	1.000	14.355	26.669
3.7	1.000	1.128	1.033	6.9	1.000	14.388	26.669
3.8	1.000	1.161	1.042	7.0	1.000	14.305	26.242
3.9	1.000	1.202	1.054	7.1	1.000	14.142	25.468
4.0	1.000	1.253	1.072	7.2	1.000	13.852	24.322
4.1	1.000	1.315	1.096	7.3	1.000	13.474	22.856
4.2	1.000	1.380	1.130	7.4	1.000	12.987	21.038
4.3	1.000	1.491	1.178	7.5	1.000	12.517	18.967
4.4	1.000	1.614	1.242	7.6	1.000	11.708	16.749
4.5	1.000	1.766	1.334	7.7	1.000	10.914	14.388
4.6	1.000	1.950	1.459	7.8	1.000	10.069	12.050
4.7	1.000	2.175	1.633	7.9	1.000	9.162	9.840
4.8	1.000	2.452	1.871	8.0	1.000	8.222	7.798
4.9	1.000	2.780	2.193	8.1	1.000	7.278	6.012
5.0	1.000	3.181	2.612	8.2	1.000	6.361	4.519
5.1	1.000	3.643	3.162	8.3	1.000	5.489	3.311
5.2	1.000	4.188	3.873	8.4	1.000	4.683	2.371
5.3	1.000	4.803	4.742	8.5	1.000	3.949	1.663
5.4	1.000	5.502	5.821	8.6	1.000	3.296	1.146
5.5	1.000	6.266	7.079	8.7	1.000	2.732	0.778
5.6	1.000	7.096	8.551	8.8	1.000	2.246	0.521
5.7	1.000	7.962	10.209	8.9	1.000	1.837	0.345
5.8	1.000	8.841	12.050	9.0	1.000	1.493	0.226
5.9	1.000	9.716	13.964				

[1] The FCMs for trophic level 3 are the geometric mean of the FCMs for sculpin and alewife.

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3745-1-38 **Methodologies for development of human health criteria and values for the lake Erie drainage basin.**

This rule applies to water bodies located in the lake Erie drainage basin. All pollutants or combinations of pollutants, for which human health criteria have not been adopted in rule 3745-1-07 or 3745-1-33 of the Administrative Code, shall not exceed the water quality criteria or values derived using the procedures contained in this rule.

(A) General provisions.

(1) The purpose of this rule is to describe procedures for calculating human health criteria and values that provide protection of humans from unacceptable exposure to toxicants through consumption of contaminated fish and drinking water and from ingesting water as a result of participation in water-oriented recreational activities.

(2) Level of protection. The criteria and values developed shall provide a level of protection likely to be without appreciable risk of carcinogenic and/or noncarcinogenic effects. Ambient criteria and values for single carcinogens shall not be set at a level representing a lifetime upper-bound incremental risk greater than one in one hundred thousand of developing cancer using the hazard assessment techniques and exposure assumptions described in this rule. Criteria and values affording protection from noncarcinogenic effects shall be established at levels that, taking into account uncertainties, are considered likely to be without an appreciable risk of adverse human health effects (i.e., acute, subchronic and chronic toxicity including reproductive and developmental effects) during a lifetime of exposure, using the risk assessment techniques and exposure assumptions described in this rule.

(3) Two-tiered classification. Chemical concentration levels in surface water protective of human health shall be derived based on either a tier I or tier II classification. The two tiers are primarily distinguished by the amount of toxicity data available for deriving the concentration levels and the quantity and quality of data on bioaccumulation.

(B) Minimum data requirements. The best available toxicity data on the adverse health effects of a chemical and the best data on bioaccumulation factors shall be used when developing human health tier I criteria or tier II values. The best available toxicity data shall include data from well-conducted epidemiologic and/or animal studies which provide, in the case of carcinogens, an adequate weight of evidence of potential human carcinogenicity and, in the case of noncarcinogens, a dose-response relationship involving critical effects biologically relevant to humans. Such information shall be obtained from the U.S. EPA integrated risk information system (IRIS) database, scientific literature, and other informational databases, studies and reports containing adverse health effects data of adequate quality for use in this rule,

when available. Strong consideration shall be given to the most currently available guidance provided by IRIS in deriving criteria or values, supplemented with any recent data not incorporated into IRIS. The best available bioaccumulation data shall include data from field studies and well-conducted laboratory studies.

(1) Carcinogens.

(a) Tier I human cancer criteria (HCC) and tier II human cancer values (HCV) shall be derived using the methodologies described in paragraph (C)(1) of this rule when there is adequate evidence of potential human carcinogenic effects for a chemical. The U.S. EPA classification system for chemical carcinogens, which is described in "Guidelines for Carcinogen Risk Assessment, Risk Assessment Forum, U.S. Environmental Protection Agency, Washington, DC, EPA/630/P-03/ 001F, March 2005," shall be used in determining whether adequate evidence of potential carcinogenic effects exists. Carcinogens are classified, depending on the weight of evidence, as carcinogenic to humans, likely to be carcinogenic to humans, or having suggestive evidence of carcinogenic potential. The human evidence shall be considered inadequate and therefore the chemical cannot be classified as a human carcinogen, if any of the following conditions exists:

(i) There is little or no pertinent information;

(ii) Some studies provide evidence of carcinogenicity but other studies of equal quality with animals of the same sex and strain are negative;

(iii) There are negative results that are not sufficiently robust for the descriptor "not likely to be carcinogenic to humans;"

(iv) There is animal evidence that demonstrates lack of carcinogenic effect in both sexes in well-designed and well-conducted studies in at least two appropriate animal species (in the absence of other animal or human data suggesting a potential for cancer effects);

(v) There is convincing and extensive experimental evidence showing that the only carcinogenic effects observed in animals are not relevant to humans;

(vi) There is convincing evidence that carcinogenic effects are not likely by a particular exposure route; or

(vii) There is convincing evidence that carcinogenic effects are not likely below a defined dose range.

(b) Chemicals are described as "carcinogeni c to humans" when either: there is convincing epidemiological evidence of a causal association between

human exposure and cancer; or when all of the following conditions are met:

(i) There is strong evidence of an association between human exposure and either cancer or the key precursor events of a chemical's mode of action but not enough for a causal association;

(ii) There is extensive evidence of carcinogenicity in animals;

(iii) The mode or modes of carcinogenic action and associated precursor events have been identified in animals, and

(iv) There is strong evidence that the key precursor events that precede the cancer response in animals are anticipated to occur in humans and progress to tumors, based on biological information.

(c) Chemicals described as "likely to be carcinogenic to humans" include chemicals for which the weight of evidence is adequate to demonstrate carcinogenic potential to humans but does not reach the weight of evidence for the descriptor "carcinogenic to humans." Chemicals with weight of evidence demonstrating carcinogenic potential to humans can include, but are not limited to:

(i) Chemicals for which a plausible association is demonstrated between human exposure and cancer, in most cases with some supporting biological, experimental evidence, though not necessarily carcinogenicity data from animal experiments;

(ii) Chemicals that tested positive for carcinogenicity in animal experiments in more than one species, sex, strain, site, or exposure route, with or without evidence of carcinogenicity in humans;

(iii) Chemicals for which positive tumor study results are demonstrated that raise additional biological concerns beyond that of a statistically significant result, for example, a high degree of malignancy or an early age of onset;

(iv) Chemicals for which a rare animal tumor response in a single experiment is demonstrated that is assumed to be relevant to humans; or

(v) Chemicals for which positive tumor study results are demonstrated that are strengthened by other lines of evidence, for example, either plausible association between human exposure and cancer or evidence that the chemical or an important metabolite causes events generally

known to be associated with tumor formation likely to be related to tumor response in this case.

(d) "Suggestive evidence of carcinogenic potential" is evidence used to describe chemicals where the weight of evidence is suggestive of carcinogenicity; a concern for potential carcinogenic effects in humans is raised, but the data are judged not sufficient for a stronger conclusion. Chemicals with weight of evidence suggestive of carcinogenicity can include, but are not limited to:

(i) Chemicals with studies that show a small, and possibly not statistically significant, increase in tumor incidence observed in a single animal or human study that does not reach the weight of evidence for the descriptor "likely to be carcinogenic to humans;"

(ii) Chemicals with studies that show a small increase in a tumor with a high background rate in that sex and strain, when there is some but insufficient evidence that the observed tumors may be due to intrinsic factors that cause background tumors and not to the chemical being assessed;

(iii) Chemicals with evidence of a positive response in a study whose power, design, or conduct limits the ability to draw a confident conclusion, but where the carcinogenic potential is strengthened by other lines of evidence; or

(iv) Chemicals with studies that show a statistically significant increase at one dose only, but no significant response at the other doses and no overall trend.

(e) Tier I. Weight of evidence of potential human carcinogenic effects sufficient to derive a HCC shall generally include chemicals that are carcinogenic to humans and likely to be carcinogenic to humans and can include, on a case-by-case basis as determined by the director, chemicals with suggestive evidence of carcinogenic potential if studies have been well-conducted when compared to studies used in classifying chemicals that are carcinogenic to humans or likely to be carcinogenic to humans. The decision to use data on a chemical with suggestive evidence of carcinogenic potential for deriving tier I criteria shall be a case-by-case determination. In determining whether to derive a HCC, additional evidence that shall be considered includes but is not limited to available information on mode of action, such as mutagenicity/genotoxicity (determinations of whether the chemical interacts directly with DNA), structure activity, and metabolism.

(f) Tier II. Weight of evidence of chemicals with effects suggestive of carcinogenic potential sufficient to derive a HCV shall include those

chemicals with suggestive evidence of carcinogenic potential for which there are, at a minimum, data sufficient for quantitative risk assessment, but for which data are inadequate for tier I criterion development due to a tumor response of marginal statistical significance or inability to derive a strong dose-response relationship. In determining whether to derive tier II human cancer values, additional evidence that shall be considered includes but is not limited to available information on mode of action such as mutagenicity/genotoxicity (determinations of whether the chemical interacts directly with DNA), structure activity and metabolism. As with the use of data on chemicals with suggestive evidence of carcinogen ic potential in developing tier I criteria, the decision to use data on chemicals with suggestive evidence of carcinogenic potential to derive tier II values shall be made on a case-by-case basis by the director.

(2) Noncarcinogens.

(a) All available toxicity data shall be evaluated considering the full range of possible health effects of a chemical, i.e., acute/subacute, chronic/subchronic and reproductive/developmental effects, in order to best describe the dose-response relationship of the chemical, and to calculate human noncancer criteria (HNC) and human noncancer values (HNV) which will protect against the most sensitive endpoint(s) of toxicity. Paragraphs (B)(2)(b) and (B)(2)(c) of this rule provide the minimum data sets necessary to calculate HNC and HNV, respectively.

(b) Tier I. The minimum data set sufficient to derive an HNC shall include at least one well-conducted epidemiologic study or animal study. A well-conducted epidemiologic study for an HNC must quantify exposure level(s) and demonstrate positive association between exposure to a chemical and adverse effect(s) in humans. A well-conducted study in animals must demonstrate a dose response relationship involving one or more critical effect(s) biologically relevant to humans. The duration of a study should span multiple generations of exposed test species or at least a major portion of the lifespan of one generation. By the use of uncertainty adjustments, shorter term studies (such as ninety-day subchronic studies) with evaluation of more limited effect(s) may be used to extrapolate to longer exposures or to account for a variety of adverse effects. For an HNC developed pursuant to this rule, such a limited study must be conducted for at least ninety days in rodents or ten per cent of the lifespan of other appropriate test species and demonstrate a no observable adverse effect level (NOAEL). Chronic studies of one year or longer in rodents or fifty per cent of the lifespan or greater in other appropriate test species that demonstrate a lowest observable adverse effect level (LOAEL) may be sufficient for use in tier I criterion derivation if the effects observed at the LOAEL were relatively mild and reversible as compared to effects at higher doses. This does not preclude the use of a LOAEL from a study (of chronic duration) with only

one or two doses if the effects observed appear minimal when compared to effect levels observed at higher doses in other studies.

(c) Tier II. When the minimum data for deriving tier I criteria are not available to meet the tier I data requirements, a more limited database may be considered for deriving tier II values. As with tier I criteria, all available data shall be considered and shall address a range of adverse health effects with exposure over a substantial portion of the lifespan (or multiple generations) of the test species. With the use of appropriate uncertainty factors to account for a less extensive database, the minimum data sufficient to derive a tier II value shall include a NOAEL from at least one well-conducted short-term repeated dose study. This study shall be of at least twenty-eight days duration, in animals demonstrating a dose-response, and involving effects biologically relevant to humans. Data from studies of longer duration (greater than twenty-eight days) and LOAELS from such studies (greater than twenty-eight days) may be more appropriate in some cases for derivation of tier II values. Use of a LOAEL shall be based on consideration of the following information: severity of effect, quality of the study and duration of the study.

(3) Bioaccumulation factors (BAFs).

(a) Tier I for carcinogens and noncarcinogens. To be considered a tier I cancer or noncancer human health criterion, along with satisfying the minimum toxicity data requirements of paragraphs (B)(1) and (B)(2) of this rule, a chemical shall have the following minimum bioaccumulation data. For all organic chemicals either: A field-measured BAF; a BAF derived using the BSAF methodology; or a BAF less than one hundred twenty-five regardless of how the BAF was derived. For all inorganic chemicals, including organometals such as mercury, either: a field-measured BAF; or a laboratory-measured BCF.

(b) Tier II for carcinogens and noncarcinogens: a chemical is considered a tier II cancer or noncancer human health value if it does not meet either the minimum toxicity data requirements of paragraph (B)(1) or (B)(2) of this rule or the minimum bioaccumulation data requirements of paragraph (B)(3)(a) of this rule.

(C) Principles for development of tier I criteria or tier II values. The fundamental components of the procedure to calculate tier I criteria or tier II values are the same. However, certain aspects of the procedure designed to account for short-duration studies or other limitations in data are more likely to be relevant in deriving tier II values than tier I criteria.

(1) Carcinogens.

(a) A non-threshold mechanism of carcinogenesis shall be assumed unless biological data adequately demonstrate the existence of a threshold on a chemical-specific basis.

(b) All appropriate human epidemiologic data and animal cancer bioassay data shall be considered. Data specific to an environmentally appropriate route of exposure shall be used. Oral exposure should be used preferentially over dermal and inhalation since, in most cases, the exposure routes of greatest concern are fish consumption and drinking water/incidental ingestion. The risk associated does shall be set at a level corresponding to an incremental cancer risk of one in one hundred thousand. If acceptable human epidemiologic data are available for a chemical, they shall be used to derive the risk associated dose. If acceptable human epidemiologic data are not available, the risk associated dose shall be derived from available animal bioassay data. Data from a species that is considered most biologically relevant to humans is preferred where all other considerations regarding quality of data are equal. In the absence of data to distinguish the most relevant species, data from the most sensitive species tested, i.e., the species showing a carcinogenic effect at the lowest administered dose, shall be used.

(c) When animal bioassay data are used and a non-threshold mechanism of carcinogenicity is assumed, the data shall be fitted to a linearized multistage model. The upper-bound ninety-five per cent confidence limit on risk (or, the lower ninety-five per cent confidence limit on dose) at the one in one hundred thousand risk level shall be used to calculate a risk associated dose (RAD). Other models, including modifications or variations of the linear multistage model, which are more appropriate to the available data may be used where scientifically justified.

(d) If the duration of the study is significantly less than the natural lifespan of the test animal, the slope may be adjusted on a case-by-case basis to compensate for latent tumors which were not expressed. In the absence of alternative approaches which compensate for study durations significantly less than lifetime, the process described in "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), Office of Science and Technology, Office of Water, U.S. Environmental Protection Agency, Washington, DC, EPA-822-B-00-004, October 2000" shall be used.

(e) A species scaling factor shall be used to account for differences between test species and humans. It shall be assumed that milligrams per surface area per day is an equivalent dose between species. All doses presented in mg/kg body weight shall be converted to an equivalent surface area dose by raising the mg/kg dose to the two-thirds power. However, if adequate

pharmacokinetic and metabolic studies are available, these data may be factored into the adjustment for species differences.

(f) Additional data selection and adjustment decisions must also be made in the process of quantifying risk. Consideration shall be given to tumor selection for modeling. All doses shall be adjusted to give an average daily dose over the study duration. Adjustments in the rate of tumor response shall be made for early mortality in test species. The goodness-of-fit of the model to the data shall also be assessed.

(g) When a linear, non-threshold dose response relationship is assumed, the RAD shall be calculated using the equation

$$RAD = \frac{0.00001}{q_1^*}$$

Where:

RAD = risk associated dose in milligrams of toxicant per kilogram body weight per day (mg/kg/day);

0.00001 (1×10^{-5}) = incremental risk of developing cancer equal to one in one hundred thousand; and

q_1^* = slope factor $(mg/kg/day)^{-1}$.

(h) If human epidemiologic data and/or other animal biological data indicate that a chemical causes cancer through a threshold mechanism, the risk associated dose may be calculated using a method which assumes that a threshold mechanism is operative.

(2) Noncarcinogens.

(a) Noncarcinogens shall generally be assumed to have a threshold dose or concentration below which no adverse effects should be observed. Therefore, the tier I criterion or tier II value shall be the maximum water concentration of a substance at or below which a lifetime exposure from drinking the water, consuming fish caught in the water, and ingesting water as a result of participating in water-related recreation activities is likely to be without appreciable risk of deleterious effects. For some noncarcinogens, there may not be a threshold dose below which no adverse effects are observed. Chemicals acting as genotoxic teratogens and germline mutagens are thought to possibly produce reproductive and/or developmental effects via a genetically linked mechanism which may have no threshold. Other chemicals also may not demonstrate a threshold. Criteria and values for these types of chemicals shall be established on a

case-by-case basis using appropriate assumptions reflecting the likelihood that no threshold exists.

(b) All appropriate human and animal toxicologic data shall be reviewed and evaluated. To the maximum extent possible, data most specific to the environmentally relevant route of exposure shall be used. Oral exposure data should be used preferentially over dermal and inhalation since, in most cases, the exposure routes of greatest concern are fish consumption and drinking water/incidental ingestion. When acceptable human data are not available (e.g., well-conducted epidemiologic studies), animal data from species most biologically relevant to humans shall be used. In the absence of data to distinguish the most relevant species, data from the most sensitive animal species tested, i.e., the species showing a toxic effect at the lowest administered dose (given a relevant route of exposure), shall be used.

(c) Minimum data requirements are specified in paragraph (B)(2) of this rule. The experimental exposure level representing the highest level tested at which no adverse effects were demonstrated (NOAEL) from studies satisfying the provisions of paragraph (B)(2) of this rule shall be used for criteria calculations. In the absence of a NOAEL, the LOAEL from studies satisfying the provisions of paragraph (B)(2) of this rule may be used if it is based on mild and reversible effects.

(d) Uncertainty factors shall be used to account for the uncertainties in predicting acceptable dose levels for the general human population based upon experimental animal data or limited human data.

(i) An uncertainty factor of ten shall be used when extrapolating from valid experimental results from studies on prolonged exposure to average healthy humans. This ten-fold factor is used to protect sensitive members of the human population.

(ii) An uncertainty factor of one hundred shall be used when extrapolating from valid results of long-term studies on experimental animals when results of studies of human exposure are not available or are inadequate. In comparison to paragraph (C)(2)(d)(i) of this rule, this represents an additional ten-fold uncertainty factor in extrapolating data from the average animal to the average human.

(iii) An uncertainty factor of up to one thousand shall be used when extrapolating from animal studies for which the exposure duration is less than chronic, but greater than ninety days length, or when other significant deficiencies in study quality are present, and when useful long-term human data are not available.

(iv) An uncertainty factor of up to three thousand shall be used when extrapolating from animal studies for which the exposure duration is less than twenty-eight days.

(v) An additional uncertainty factor of between one and ten may be used when deriving a criterion from a LOAEL. The level of additional uncertainty applied shall depend upon the severity and the incidence of the observed adverse effect.

(vi) An additional uncertainty factor of between one and ten may be applied when there are limited effects data or incomplete sub-acute or chronic toxicity data (e.g., reproductive/developmental data). The level of quality and quantity of the experimental data available as well as structure-activity relationships shall be used to determine the factor selected.

(vii) When deriving an uncertainty factor in developing a tier I criterion or tier II value, the total uncertainty, as calculated following the guidance of paragraphs (C)(2)(d)(i) to (C)(2)(d)(vi) of this rule, shall not exceed ten thousand for tier I criteria and thirty thousand for tier II values.

(e) All study results shall be converted, as necessary, to the standard unit for acceptable daily exposure of milligrams of toxicant per kilogram of body weight per day (mg/kg/day). Doses shall be adjusted for continuous exposure.

(3) Criteria and value derivation.

(a) Carcinogens. The tier I HCC and tier II HCV shall be calculated using the equation

$$HCV = \frac{RAD \times BW}{WC + [(FC_{TL3} \times BAF^{HH}_{TL3}) + (FC_{TL4} \times BAF^{HH}_{TL4})]}$$

Where:

HCV = human cancer value in milligrams per liter (mg/l);

RAD = risk associated dose in milligrams toxicant per kilogram body weight per day (mg/kg/day) that is associated with a lifetime incremental cancer risk equal to one in one hundred thousand;

BW = weight of an average human (seventy kilograms);

WC = per capita water consumption (two liters/day for surface waters designated as public water supplies and 0.01 liters/day for surface waters not designated as public water supplies);

FC_{TL3} = mean consumption of trophic level three of regionally caught freshwater fish (0.0036 kilogram/day);

FC_{TL4} = mean consumption of trophic level four of regionally caught freshwater fish (0.0114 kilogram/day);

BAF^{HH}_{TL3} = bioaccumulation factor for trophic level three fish, as derived using the BAF methodology contained in rule 3745-1-37 of the Administrative Code; and

BAF^{HH}_{TL4} = bioaccumulation factor for trophic level four fish, as derived using the BAF methodology contained in rule 3745-1-37 of the Administrative Code.

(b) Noncarcinogens. The tier I HNC or tier II HNV shall be calculated using the equation

$$HNV = \frac{ADE \times BW \times RSC}{WC + [(FC_{TL3} \times BAF^{HH}_{TL3}) + (FC_{TL4} \times BAF^{HH}_{TL4})]}$$

Where:

HNV = human noncancer value in milligrams per liter (mg/l);

ADE = acceptable daily exposure in milligrams toxicant per kilogram body weight per day (mg/kg/day);

RSC = relative source contribution factor of 0.8. An RSC derived from actual exposure data may be developed using the methodology outlined in "Methodology for Deriving Ambient Water Quality Criteria for the Protection of Human Health (2000), Office of Science and Technology, Office of Water, U.S. Environmental Protection Agency, Washington, DC, EPA-822-B-00-004, October 2000;"

BW = weight of an average human (seventy kilograms);

WC = per capita water consumption (two liters/day for surface waters designated as public water supplies and 0.01 liters/day for surface waters not designated as public water supplies);

FC_{TL3}= mean consumption of trophic level three fish by regional sport fishers of regionally caught freshwater fish (0.0036 kilogram/day);

FC_{TL4}= mean consumption of trophic level four fish by regional sport fishers of regionally caught freshwater fish (0.0114 kg/day);

BAF^{HH}_{TL3} = human Health bioaccumulation factor for edible portion of trophic level three fish, as derived using the BAF methodology contained in rule 3745-1-37 of the Administrative Code; and

BAF^{HH}_{TL4} = human health bioaccumulation factor for edible portion of trophic level four fish, as derived using the BAF methodology contained in rule 3745-1-37 of the Administrative Code.

(D) Application of criteria and values. The HCC, HCV, HNC and HNV shall be applied as thirty-day average concentrations outside the mixing zone.

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3745-1-39 **Methodology for the development of wildlife criteria for the lake Erie drainage basin.**

This rule applies to water bodies located in the lake Erie drainage basin. This rule establishes a methodology which is required when developing tier I wildlife criteria for bioaccumulative chemicals of concern (BCCs).

(A) General provisions

(1) A tier I wildlife criterion is the concentration of a substance which is likely to, if not exceeded, protect avian and mammalian wildlife populations inhabiting the lake Erie drainage basin from adverse effects resulting from the ingestion of water and aquatic prey taken from surface waters of the lake Erie drainage basin. These criteria are based on existing toxicological studies of the substance of concern and quantitative information about the exposure of wildlife species to the substance through food and water consumption. Separate avian and mammalian values are developed using taxonomic class-specific toxicity data and exposure data for five representative wildlife species. The wildlife species selected are representative of avian and mammalian species resident in the Great Lakes basin which are likely to experience the highest exposures to bioaccumulative contaminants through the aquatic food web; they are the bald eagle, herring gull, belted kingfisher, mink, and river otter.

(2) Rule 3745-1-35 of the Administrative Code describes the procedures for calculating site-specific wildlife criteria.

(3) The term "wildlife value" (WV) is used to denote the value for each representative species which results from using the equation in this rule, the value obtained from averaging species values within a class, or any value derived from application of the site-specific procedure provided in rule 3745-1-35 of the Administrative Code. The WVs calculated for the representative species are used to calculate taxonomic class-specific WVs. The WV is the concentration of a substance which, if not exceeded, should better protect the taxon in question.

(4) "Tier I wildlife criterion," or "tier I criterion" is used to denote the number derived from data meeting the tier I minimum database requirements, and which will be protective of the two classes of wildlife.

(B) Calculation of wildlife values for tier I criteria.

(1) Equation for avian and mammalian wildlife values. Tier I wildlife values for BCCs shall be calculated using the equation

$$WV = \frac{\frac{TD}{UF_A \times UF_S \times UF_L} \times Wt}{W + \Sigma(F_{TLi} \times BAF^{WL}_{TLi})}$$

Where:

WV = wildlife value in milligrams of substance per liter (mg/l);

TD = test dose in milligrams of substance per kilograms per day (mg/kg-d) for the test species. This shall be either a NOAEL or a LOAEL;

UF_A = uncertainty factor for extrapolating toxicity data across species (unitless). A species-specific UF shall be selected and applied to each representative species, consistent with the equation;

UF_s = UF for extrapolating from subchronic to chronic exposures (unitless);

UF_L = UF for LOAEL to NOAEL extrapolations (unitless);

WT = average weight in kilograms (kg) for the representative species;

W = average daily volume of water consumed in liters per day (l/d) by the representative species;

F_{TLi} = average daily amount of food consumed from trophic level I in kilograms per day (kg/d) by the representative species; and

BAF^{WL}_{TLi} = bioaccumulation factor for wildlife food in trophic level I in liters per kilogram (l/kg), developed using the BAF methodology contained in rule 3745-1-37 of the Administrative Code. For consumption of piscivorous birds by other birds (e.g., herring gull by eagles), the BAF shall be derived by multiplying the trophic level three BAF for fish by a biomagnification factor to account for the biomagnification from fish to the consumed birds.

(2) Identification of representative species for protection. For bioaccumulative chemicals, piscivorous species are identified as the focus of concern for wildlife criteria development in the Great Lakes. Three avian species (eagle, kingfisher and herring gull) and two mammalian species (mink and otter) serve as representative species for protection. The TD obtained from toxicity data for each taxonomic class shall be used to calculate WVs for each of the five representative species.

(3) Calculation of avian and mammalian wildlife values and tier I criterion derivation. The avian WV is the geometric mean of the WVs calculated for the three representative avian species. The mammalian WV is the geometric mean

of the WVs calculated for the two representative mammalian species. The lower of the mammalian and avian WVs shall be selected as the tier I criterion.

(C) Parameters of the effect component of the wildlife criteria methodology.

(1) Definitions. The following definitions provide additional specificity and guidance in the evaluation of toxicity data and the application of this rule.

(a) Acceptable endpoints. For the purpose of wildlife criteria derivation, acceptable subchronic and chronic endpoints are those which affect reproductive or developmental success, organismal viability or growth, or any other endpoint which is, or is directly related to, parameters that influence population dynamics.

(b) Chronic effect. An adverse effect that is measured by assessing an acceptable endpoint and results from continual exposure over several generations, or at least over a significant part of the test species' projected life span or life stage.

(c) Subchronic effect. An adverse effect, measured by assessing an acceptable endpoint, resulting from continual exposure for a period of time less than that deemed necessary for a chronic test.

(2) Minimum toxicity database for tier I criteria development. A TD value is required for criterion calculation. To derive a tier I criterion for wildlife, the data set shall provide enough data to generate a subchronic or chronic dose-response curve for any given substance for both mammalian and avian species. In reviewing the toxicity data available which meet the minimum data requirements for each taxonomic class, the following order of preference shall be applied to select the appropriate TD to be used for calculation of individual WVs. Data from peer-reviewed field studies of wildlife species take precedence over other types of studies, where such studies are of adequate quality. An acceptable field study shall be of subchronic or chronic duration, provide a defensible, chemical-specific dose-response curve in which cause and effect are clearly established, and assess acceptable endpoints as defined in this document. When acceptable wildlife field studies are not available, or determined to be of inadequate quality, the needed toxicity information may come from peer-reviewed laboratory studies. When laboratory studies are used, preference shall be given to laboratory studies with wildlife species over traditional laboratory animals to reduce uncertainties in making interspecies extrapolations. All available laboratory data and field studies shall be reviewed to corroborate the final tier I criterion, to assess the reasonableness of the toxicity value used, and to assess the appropriateness of any UFs which are applied. When evaluating the studies from which a test dose is derived in general, the following requirements shall be met.

(a) The mammalian data shall come from at least one well-conducted study of ninety days or greater designed to observe subchronic or chronic effects as defined in this document.

(b) The avian data shall come from at least one well-conducted study of seventy days or greater designed to observe subchronic or chronic effects as defined in this rule.

(c) In reviewing the studies from which a TD is derived for use in calculating a WV, studies involving exposure routes other than oral may be considered only when an equivalent oral daily dose can be estimated and technically justified because the criteria calculations are based on an oral route of exposure.

(d) In assessing the studies which meet the minimum data requirements, preference shall be given to studies which assess effects on developmental or reproductive endpoints.

(3) Selection of TD data. In selecting data to be used in the derivation of WVs, the evaluation of acceptable endpoints, as defined in paragraph (C)(1) of this rule, shall be the primary selection criterion. All data not part of the selected subset may be used to assess the reasonableness of the toxicity value and the appropriateness of the UFs which are applied.

(a) If more than one TD value is available within a taxonomic class, based on different endpoints of toxicity, that TD which is likely to reflect best potential impacts to wildlife populations through resultant changes in mortality or fecundity rates shall be used for the calculation of WVs.

(b) If more than one TD is available within a taxonomic class, based on the same endpoint of toxicity, the TD from the most sensitive species shall be used.

(c) If more than one TD based on the same endpoint of toxicity is available for a given species, the TD for that species shall be calculated using the geometric mean of those TDs.

(4) In those cases in which a TD is available in units other than milligrams of substance per kilograms per day (mg/kg/d), the following procedures shall be used to convert the TD to the appropriate units prior to calculating a WV.

(a) If the TD is given in milligrams of toxicant per liter of water consumed by the test animals (mg/l), the TD shall be multiplied by the daily average volume of water consumed by the test animals in liters per day (l/d) and divided by the average weight of the test animals in kilograms (kg).

(b) If the TD is given in milligrams of toxicant per kilogram of food consumed by the test animals (mg/kg), the TD shall be multiplied by the average amount of food in kilograms consumed daily by the test animals (kg/d) and divided by the average weight of the test animals in kilograms (kg).

(5) Drinking and feeding rates.

(a) When drinking and feeding rates and body weight are needed to express the TD in milligrams of substance per kilograms per day (mg/kg/d), they shall be obtained from the study from which the TD was derived. If not already determined, body weight, and drinking and feeding rates shall be converted to a wet weight basis.

(b) If the study does not provide the needed values, the values shall be determined from appropriate scientific literature. For studies done with domestic laboratory animals, either the "Registry of Toxic Effects of Chemical Substances (National Institute for Occupational Safety and Health, Cincinnati, Ohio, July 1997)", or "Recommendations for and Documentation of Biological Values for Use in Risk Assessment (U.S. EPA, 1988), EPA/600/6-87/008" shall be consulted. When these references do not contain exposure information for the species used in a given study, either the allometric equations in this rule or the exposure estimation methods presented in chapter 4 of "The Wildlife Exposure Factors Handbook (U.S. EPA, 1993), EPA/600/R-93/187", should be applied to approximate the needed feeding or drinking rates. The choice of the methods described in this paragraph is at the discretion of the director.

(c) For mammalian species, the general allometric equations are:

(i) $F = 0.0687 \times (Wt)^{0.82}$

Where:

F = feeding rate of mammalian species in kilograms per day (kg/d) dry weight.

Wt = average weight in kilograms (kg) of the test animals.

(ii) $W = 0.099 \times (Wt)^{0.90}$

Where:

W = drinking rate of mammalian species in liters per day (l/d).

Wt = average weight in kilograms (kg) of the test animals.

(d) For avian species, the general allometric equations are:

(i) $F = 0.0582\ (Wt)^{0.65}$

Where:

F = feeding rate of avian species in kilograms per day (kg/d) dry weight.

Wt = average weight in kilograms (kg) of the test animals.

(ii) $W = 0.059 \times (Wt)^{0.67}$

Where:

W = drinking rate of avian species in liters per day (l/d).

Wt = average weight in kilograms (kg) of the test animals.

(6) LOAEL to NOAEL extrapolations (UF_L). In those cases in which a NOAEL is unavailable as the TD and a LOAEL is available, the LOAEL may be used to estimate the NOAEL. If used, the LOAEL shall be divided by an UF to estimate a NOAEL for use in deriving WVs. The value of the UF shall not be less than one and shall not exceed ten, depending on the dose-response curve and any other available data, and is represented by UF_L) in the equation expressed in paragraph (B)(1) of this rule.

(7) Subchronic to chronic extrapolations (UF_s). In instances where only subchronic data are available, the TD may be derived from subchronic data. In such cases, the TD shall be divided by an UF to extrapolate from subchronic to chronic levels. The value of the UF shall not be less than one and shall not exceed ten, and is represented by UF_s in the equation expressed in paragraph (B)(1) of this rule. This factor shall be used when assessing highly bioaccumulative substances where toxicokinetic considerations suggest that a bioassay of limited length underestimates chronic effects.

(8) Interspecies extrapolations (UF_A).

(a) The selection of the UF_A shall be based on the available toxicological data and on available data concerning the physicochemical, toxicokinetic, and toxicodynamic properties of the substance in question and the amount and quality of available data. This value is a UF that is intended to account for differences in toxicological sensitivity among species.

(b) For the derivation of tier I criteria, a UF_A shall not be less than one and shall not exceed one hundred, and shall be applied to each of the five

representative species, based on existing data and the director's best professional judgement. The value of UF_Amay differ for each of the representative species.

(c) For tier I wildlife criteria, the UF_Ashall be used only for extrapolating toxicity data across species within a taxonomic class, except as provided in this paragraph. The tier I UF_A is not intended for interclass extrapolations because of the poorly defined comparative toxicokinetic and toxicodynamic parameters between mammals and birds. However, an interclass extrapolation employing a UF_A may be used for a given chemical if it can be supported by a validated biologically-based dose-response model or by an analysis of interclass toxicological data, considering acceptable endpoints, for a chemical analog that acts under the same mode of toxic action.

(D) Parameters of the exposure component of the wildlife criteria methodology

(1) Drinking and feeding rates of representative species. The body weights (Wt), feeding rates (F_{TLi}), drinking rates (W), and trophic level dietary composition (as food ingestion rate and per cent in diet) for each of the five representative species are presented in table 39-1 of this rule.

(2) BAFs. The methodology for development of bioaccumulation factors is in rule 3745-1-37 of the Administrative Code. Trophic level three and four BAFs are used to derive WVs because these are the trophic levels at which the representative species feed.

(E) Application of criteria. The wildlife criterion shall be applied as a thirty-day average concentration outside the mixing zone.

Table 39-1. Exposure parameters for the five representative species identified for protection.

Species	Adult body weight	Water ingestion rate	Food ingestion rate of prey in each trophic level	Trophic level of prey
Units	kg	l/day	kg/day	Per cent of diet
Mink	0.80	0.081	TL3: 0.159 Other: 0.0177	TL3: 90 % Other: 10 %
Otter	7.4	0.600	TL3: 0.977 TL4: 0.244	TL3: 80 % TL4: 20 %
Kingfisher	0.15	0.017	TL3: 0.0672	TL3: 100 %
Herring gull	1.1	0.063	TL3: 0.192 TL4: 0.0480 Other: 0.0267	Fish: 90 % TL3: 80 % TL4: 20 % Other: 10 %
Bald eagle	4.6	0.160	TL3: 0.371 TL4: 0.0929 PB: 0.0283 Other: 0.0121	Fish: 92 % TL3: 80 % TL4: 20 % Birds: 8 % PB: 70 % Non-aquatic: 30 %

Note: TL3 = trophic level 3 fish
TL4 = trophic level 4 fish
PB = piscivorous birds
Other = non-aquatic birds and mammals

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3745-1-50 Wetland definitions.

In addition to the definitions in rule 3745-1-02 of the Administrative Code technical words used in rules 3745-1-50 to 3745-1-54 of the Administrative Code shall be defined as follows:

(A) "Alternatives analysis" means a systematic review and evaluation of practicable alternatives including avoidance, minimization and/or compensatory mitigation for impacts to a wetland.

(B) "Areal cover" means the per cent of vegetation covering any area of vegetated wetland. Areal measurements are those made as if the wetland were being viewed from the air.

(C) "Avoidance" is the first step in the alternatives analysis and means that the applicant must demonstrate that alternatives which fulfill the basic project purpose and have less impacts to the wetland are not practicable, so long as the alternative does not have other significant adverse environmental consequences.

(D) "Biodiversity" means the number of community types, different species, and genetic variants of species found in a given area.

(E) "Bog" means a peat-accumulating wetland that has no significant inflows or outflows and supports acidophilic mosses, particularly Sphagnum spp.

(F) "Compensatory mitigation" refers to the final step in the alternatives analysis and means restoration, creation, enhancement or, in exceptional circumstances, preservation of wetlands expressly for the purpose of compensating for unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization have been achieved.

(G) "Creation" means the establishment of a wetland where one did not formerly exist. This would involve wetland construction on non-hydric soils.

(H) "Critical habitat" means:

(1) The specific areas within the geographical area currently occupied by a species, at the time it is listed in accordance with the Endangered Species Act (16 U.S.C.A. section 1531 et seq., as amended) on which are found those physical or biological features essential to the conservation of the species, and that may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by a species at the time it is listed in accordance with the Endangered Species Act, upon a determination by the secretary of the department of the interior, that such areas are essential for the conservation of the species.

(I) "Cumulative impacts" mean the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonable foreseeable future actions. Cumulative impacts can result from individually minor but

collectively significant actions taking place over a period of time. Cumulative impacts shall be considered on a watershed basis.

(J) "Direct impacts" mean effects which are caused by the action and occur at the same time and place.

(K) "Dispersal corridor" means a linear area that is used by organisms to move from one place of suitable habitat to another.

(L) "Endangered species" means a native Ohio plant species listed or designated by the Ohio department of natural resources as endangered pursuant to section 1518.01 of the Revised Code, and animal species listed or designated as endangered by the Ohio department of natural resources pursuant to section 1531.25 of the Revised Code; or any plant or animal species that is native to Ohio or that migrates or is otherwise reasonably likely to occur within the state which has been listed as endangered pursuant to section 4 of the Endangered Species Act, (16 U.S.C.A. 1531 et seq., as amended).

(M) "Enhancement" means activities conducted in existing wetlands to improve or repair existing or natural wetland functions and values of that wetland.

(N) "Fen" means a carbon accumulating (peat, muck) wetland that is saturated, primarily by a discharge of free flowing ground water during most of the year. Fens are rarely inundated. Fens often have a sloped surface which prevents the accumulation of stagnant or ponded water. The water of fens is usually mineral rich and has a circumneutral pH (5.5-9.0). In calcareous fens, soil may be dominated by deposits of calcium carbonate rich sediments (marl). Characteristic indicator vegetation species may include, but are not limited to Potentilla fruticosa, Solidago ohioensis, Lobelia kalmii, Cacalia plantaginea, Deschampsia cespitosa, Triglochin spp., Parnassia glauca, Gentianopsis spp., Rhynchospora spp., and some Eleocharis spp.

(O) "Forested wetland" means a wetland class characterized by woody vegetation that is twenty feet tall or taller.

(P) "Floodplain" means the relatively level land next to a stream or river channel that is periodically submerged by flood waters. It is composed of alluvium deposited by the present stream or river when it floods.

(Q) "Function" means processes occurring in, or because of, the presence of a wetland that contribute to a larger ecological condition such as water quality improvement, flood control and/or biodiversity maintenance.

(R) "Ground water discharge" means water flowing out of a ground water zone. In regards to wetlands, ground water discharge occurs when water flows from a ground water zone to a wetland.

(S) "Ground water recharge" means water flow into a ground water zone. In regards to wetlands, ground water recharge occurs when water flows from a wetland to a ground water zone.

(T) "Hydrologically isolated wetlands " means those wetlands which;

(1) Have no surface water connection to a surface water of the state;

(2) Are outside of, and not contiguous to, any one hundred-year "floodplain" as that term is defined in this rule; and

(3) Have no contiguous hydric soil between the wetland and any surface water of the state.

(U) "Indirect impacts" means effects which are caused by the project that occur farther removed in distance from the project, but are still reasonably foreseeable. Indirect impacts may include related effects on air and water and other natural systems, including ecosystems, and other adverse environmental impacts that may be a consequence of the project.

(V) "In-kind" means compensatory mitigation of wetland losses by restoring or creating a forested wetland for a forested wetland and a non-forested wetland for a non-forested wetland.

(W) "Minimization" refers to a step in the alternatives analysis and means that unavoidable impacts are reduced to the maximum extent practicable.

(X) "Mitigation bank" means a site where wetlands have been restored, created, enhanced or, in exceptional circumstances, preserved expressly for the purpose of providing compensatory mitigation generally in advance of authorizing impacts.

(Y) "Mitigation bank service area" means the designated area where a mitigation bank can reasonably be expected to provide appropriate compensation for impacts to wetlands and other aquatic resources.

(Z) "Mitigation ratio" means the rate at which wetland units (e.g., acres) will be restored, created, enhanced or preserved to provide for compensation of unavoidable wetland losses.

(AA) "Native species" means a species which, by scientific evidence, was present in Ohio just prior to European exploration and settlement.

(BB) "Non-native species" means a species which, by scientific evidence, was not present in Ohio just prior to European exploration and settlement.

(CC) "Nuisance organisms" means organisms that are primarily vegetative organisms, that generally are non-native and have opportunistic growth patterns, and that displace more

diverse assemblages.

(DD) "Off-site mitigation" means wetland restoration, creation, enhancement or preservation occurring farther than one mile from the project boundary but within the same watershed.

(EE) "Old-growth forests" means forests characterized by, but not limited to, the following characteristics: overstory canopy trees of great age (exceeding at least fifty per cent of a projected maximum attainable age for a species); little or no evidence of human-caused understory disturbance during the past eighty to one hundred years; an all-aged structure and multilayered canopies; aggregations of canopy trees interspersed with canopy gaps; and significant numbers of standing dead snags and downed logs.

(FF) "On-site mitigation" means wetland restoration, creation, enhancement or preservation occurring within one mile of the project boundary but within the same watershed.

(GG) "Practicable" means available and capable of being done after taking into consideration cost, existing technology and logistics in light of overall and basic project purposes. For the purposes of this definition,

(1) "Available" means an alternative which is obtainable for the purpose of the project;

(2) "Basic project purpose" means the generic function of the project; and

(3) "Overall project purpose" means the basic project purpose plus consideration of costs and technical and logistical feasibility.

(HH) "Preservation" means protection of ecologically important wetlands in perpetuity through the implementation of appropriate legal mechanisms to prevent harm to the wetland. Preservation may include protection of adjacent upland areas as necessary to ensure protection of the wetland.

(II) "Public need" means an activity or project that provides important tangible and intangible gains to society, that satisfies the expressed or observed needs of the public where accrued benefits significantly outweigh reasonably foreseeable detriments.

(JJ) "Restoration" means the re-establishment of a previously existing wetland at a site where it has ceased to exist.

(KK) "Substrate" means solid material, such as soil, on or within which organisms can live.

(LL) "Threatened species" means: a native Ohio plant species listed or designated by the Ohio department of natural resources as threatened with extirpation pursuant to section 1518.01 of the Revised Code; or an animal species listed or designated as threatened with statewide extinction by the Ohio department of natural resources pursuant to section 1531.25 of the

Revised Code; or a species that appears on the threatened species registry, as defined in rule 3745-1-05 of the Administrative Code; or any plant or animal species that is native to Ohio or that migrates or is otherwise reasonably likely to occur within the state and which has been listed as threatened pursuant to section 4 of the Endangered Species Act (16 U.S.C.A. 1531 et seq., as amended).

(MM) "Vernal pools" means shallow, temporarily flooded, depressional forested or forest edge wetlands, that are typically dry for most of the summer and fall. These wetlands are generally inundated in the late winter and spring when they are subject to a burst of biological activity, including amphibian breeding. When flooded, vernal pools are often comprised of areas of open water that are not densely vegetated. They also tend to accumulate organic (woody) debris.

(NN) "Watershed" means a common surface drainage area corresponding to one from the list of thirty-seven adapted from the forty-four cataloging units as depicted on the hydrologic unit map of Ohio, U.S. geological survey, 1988, and as described in paragraph (F)(2) of rule 3745-1-54 of the Administrative Code or as otherwise shown on map number 1 found in rule 3745-1-54 of the Administrative Code. Watersheds are limited to those parts of the cataloging units that geographically lie within the borders of the state of Ohio.

Effective: 5/1/1998

R.C. Section 119.032 review dates: 10/31/2007 and 10/31/2012

Promulgated under: R.C. Section 119.03
Rule authorized by: R.C. Sections 6111.041 and 6111.12
Rule amplifies: R.C. Sections 6111.041 and 6111.12
Prior effective dates: none

3745-1-51 Wetland narrative criteria.

[Comment: to the extent the director has specific authority under Chapter 6111. of the Revised Code, including sections 6111.03 and 6111.041 of the Revised Code, the criteria specified in this rule are applicable to the maintenance or enhancement of wetland functions. Such authority includes the issuance of certifications under section 401 of the Clean Water Act, 33 U.S.C. section 1341 (effective December 27, 1977), and Chapter 3745-32 of the Administrative Code, the issuance of NPDES permits under section 402 of the Clean Water Act, 33 U.S.C. section 1342 (effective December 21, 2000), and Chapter 3745-33 of the Administrative Code, and the issuance of permits and plan approvals under Chapter 3745-42 of the Administrative Code and sections 6111.44 and 6111.45 of the Revised Code.]

In addition to the criteria listed in rule 3745-1-04 of the Administrative Code, to every extent practicable and possible as determined by the director, and except as authorized in accordance with rule 3745-1-54 of the Administrative Code, the following narrative criteria shall apply to wetlands.

(A) The hydrology necessary to support the biological and physical characteristics naturally present in wetlands shall be protected to prevent significant adverse impacts on:

(1) Water currents, erosion or sedimentation patterns;

(2) Natural water temperature variations;

(3) Chemical, nutrient and dissolved oxygen regimes of the wetland;

(4) The movement of aquatic fauna;

(5) The pH of the wetland; and

(6) Water levels or elevations, including those resulting from ground water recharge and discharge.

(B)

(1) Water quality necessary to support existing habitats and the populations of wetland flora and fauna shall be protected to prevent significant adverse impacts on:

(a) Food supplies for fish and wildlife;

(b) Reproductive and nursery areas; and

(c) Dispersal corridors, as that term is defined in rule 3745-1-50 of the Administrative Code.

(2) Water quality shall be protected to prevent conditions conducive to the establishment or proliferation of nuisance organisms, as that term is defined in rule 3745-1-50 of the

Administrative Code.

(C) Conditions shall not occur that will have a significant adverse impact on the ability of the wetland to be used for wetland-dependent recreational opportunities in or on the water.

Effective: 10/17/2003

R.C. 119.032 review dates: 10/31/2007 and 10/31/2012

Promulgated Under: R.C. 119.03
Statutory Authority: R.C. 6111.041 and 6111.12
Rule Amplifies: R.C. 6111.041 and 6111.12
Prior Effective Date: 5/1/1998

3745-1-52 Numeric chemical criteria for waste water discharges to wetlands.

For the purposes of establishing waste water discharge permit limits for waste water discharges to wetlands pursuant to Chapter 6111. of the Revised Code, numeric chemical criteria associated with the "warmwater aquatic life habitat" use designation, as specified in this chapter of the Administrative Code, shall apply at the "end of pipe". The applicant may submit a request, in writing, to the director to use alternate criteria. The director may approve the request if the use of alternative criteria is deemed not to be injurious to the wetland's designated use and assigned category, as specified in rule 3745-1-54 of the Administrative Code.

Effective: 5/1/1998

R.C. Section 119.032 review dates: 10/31/2007 and 10/31/2012

Promulgated under: R.C. Section 119.03
Rule authorized by: R.C. Sections 6111.041 and 6111.12
Rule amplifies: R.C. Sections 6111.041 and 6111.12
Prior effective dates: none

3745-1-53 Wetland use designation.

All surface waters of the state of Ohio which meet the definition of a wetland in rule 3745-1-02 of the Administrative Code are assigned the wetland designated use.

Effective: 5/1/1998

R.C. Section 119.032 review dates: 10/31/2007 and 10/31/2012

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Rule amplifies: R.C. Sections 6111.041 and 6111.12
Prior effective dates: none

3745-1-54 Wetland antidegradation.

(A) The provisions in this rule apply in addition to the provisions in rule 3745-1-05 of the Administrative Code.

(B)

(1) The wetland designated use shall be maintained and protected such that degradation of surface waters through direct, indirect, or cumulative impacts does not result in the net loss of wetland acreage or functions in accordance with paragraphs (D) and (E) of this rule.

(2)

(a) Each wetland shall be assigned a category by Ohio EPA for the purposes of reviews of projects pursuant to this rule.

(i) A category will be assigned based on the wetland's relative functions and values, sensitivity to disturbance, rarity, and potential to be adequately compensated for by wetland mitigation.

(ii) In assigning a wetland category, the director will consider the results of an appropriate wetland evaluation method(s) acceptable to the director, and other information necessary in order to fully assess the wetland's functions and values.

(iii) Wetland antidegradation categories, and the requirements for an antidegradation review for wetlands in each category, are outlined in paragraphs (C), (D) and (E) of this rule.

(b) The functions of a wetland may include, but are not limited to, the following:

(i) Ground water exchange, including the discharge and recharge of ground water;

(ii) Nutrient removal and/or transformation;

(iii) Sediment and/or contaminant retention;

(iv) Water storage;

(v) Sediment stabilization;

(vi) Shoreline stabilization;

(vii) Maintenance of biodiversity, as that term is defined in rule 3745-1-50 of the

Administrative Code;

(viii) Recreation;

(ix) Education and research; and

(x) Habitat for threatened or endangered species.

(3) The director may consider the regional significance of the function(s) a wetland performs (e.g., wetlands recognized as providing important hydrological functions in watershed management plans) when determining whether degradation of the wetland can be authorized.

(4) Threatened or endangered species.

(a) The applicant shall provide Ohio EPA with written comments from both the Ohio department of natural resources and the United States fish and wildlife service, regarding threatened and endangered species, including the presence or absence of critical habitat, for all wetlands under review.

(b) In making determinations regarding the lowering of water quality in wetlands which contain critical habitat for threatened or endangered species, or either the permanent or seasonal presence of a threatened or endangered species, the director shall consider the anticipated impact of the proposed lowering of water quality on the threatened or endangered species.

(5) Indirect impacts. In making determinations regarding the lowering of water quality in a wetland, the director may take into consideration other environmental impacts that may be a consequence of approving the request.

(6) Wetlands impacted without prior authorization.

(a) Where a wetland has been degraded or destroyed without prior authorization, the wetland will be considered a category 3 wetland, unless the applicant demonstrates that a lower category is appropriate based on other information including, but not limited to, adjacent vegetation, aerial photographs, U.S. fish and wildlife service national wetland inventory maps, Ohio wetland inventory maps, public information, on-site inspections, previous site descriptions, and soil maps.

(b) The director may consider other information in determining whether a lower category is appropriate.

(c) When reviewing applications for discharges to wetlands which have occurred without prior authorization, the fact that the discharge has already occurred shall

have no bearing on the decision of whether to allow lower water quality. Ohio EPA shall review the impacts based on pre-discharge conditions.

(d) The director may require compensatory mitigation, if approved in accordance with other provisions of this rule, at the same mitigation ratios as required for impacts to category 3 wetlands, as indicated in paragraph (F)(1) of this rule.

(e) Nothing in paragraph (B)(6) of this rule relieves any person from liability for degrading or destroying a wetland without prior authorization or in violation of any applicable laws.

(C) Wetland categories.

(1) Wetlands assigned to category 1.

(a) Wetlands assigned to category 1 support minimal wildlife habitat, and minimal hydrological and recreational functions as determined by an appropriate wetland evaluation methodology acceptable to the director. Wetlands assigned to category 1 do not provide critical habitat for threatened or endangered species or contain rare, threatened or endangered species.

(b) Wetlands assigned to category 1 may be typified by some or all of the following characteristics: hydrologic isolation, low species diversity, a predominance of non-native species (greater than fifty per cent areal cover for vegetative species), no significant habitat or wildlife use, and limited potential to achieve beneficial wetland functions.

(c) Wetlands assigned to category 1 may include, but are not limited to, wetlands that are acidic ponds created or excavated on mined lands without a connection to other surface waters throughout the year and that have little or no vegetation and wetlands that are hydrologically isolated and comprised of vegetation that is dominated (greater than eighty per cent areal cover) by species including, but not limited to: Lythrum salicaria; Phalaris arundinacea; and Phragmites australis.

(2) Wetlands assigned to category 2.

(a) Wetlands assigned to category 2 support moderate wildlife habitat, or hydrological or recreational functions as determined by an appropriate wetland evaluation methodology acceptable to the director or his authorized representative.

(b) Wetlands assigned to category 2 may include, but are not limited to: wetlands dominated by native species but generally without the presence of, or habitat for, rare, threatened or endangered species; and wetlands which are degraded but have a reasonable potential for reestablishing lost wetland functions.

(3) Wetlands assigned to category 3.

(a) Wetlands assigned to category 3 support superior habitat, or hydrological or recreational functions as determined by an appropriate wetland evaluation methodology acceptable to the director or his authorized representative.

(b) Wetlands assigned to category 3 may be typified by some or all of the following characteristics: high levels of diversity, a high proportion of native species, or high functional values.

(c) Wetlands assigned to category 3 may include, but are not limited to: wetlands which contain or provide habitat for threatened or endangered species; high quality forested wetlands, including old growth forested wetlands, and mature forested riparian wetlands; vernal pools; and wetlands which are scarce regionally and/or statewide including, but not limited to, bogs and fens.

(4) In addition to assigning a wetland a category pursuant to this rule, the director may designate a wetland which has national ecological or recreational significance as an outstanding national resource water pursuant to rule 3745-1-05 of the Administrative Code. Requests to undertake activities which will result in short-term disturbances to water quality in wetlands which are designated as outstanding national resource waters shall be evaluated in accordance with rule 3745-1-05 of the Administrative Code.

(D) Wetland avoidance, minimization, and compensatory mitigation.

[Comment: the demonstrations and analysis required by paragraph (D) of this rule, will generally occur in the context of an application for a permit to install or plan approval, a section 401 water quality certification, or an Ohio NPDES permit pursuant to Chapter 3745-42, 3745-32, or 3745-33 of the Administrative Code.]

(1) Alternatives analysis.

(a) Category 1 wetlands. The wetland designated use shall be maintained and protected for wetlands assigned to category 1 unless the applicant demonstrates, to the satisfaction of the director the following:

(i) Avoidance. There is no practicable alternative which would have less adverse impact on the wetland ecosystem; and

(ii) Minimization. Storm water and water quality controls will be installed in accordance with paragraph (D)(3) of this rule; and

(iii) The impact would not result in significant degradation to the aquatic ecosystem, as determined consistent with 40 CFR part 230.10(c) (45 FR

85336, December 24, 1980); and

(iv) Compensatory mitigation. The designated use is replaced by a category 2 or category 3 wetland in accordance with paragraph (E) of this rule.

(b) Category 2 wetlands. The wetland designated use shall be maintained and protected for wetlands assigned to category 2, and no lowering of water quality shall be allowed, unless the applicant demonstrates to the satisfaction of the director:

(i) Avoidance. There is no practicable alternative, based on technical, social and economic criteria, which would have less adverse impact on the wetland ecosystem, so long as the alternative does not have other significant adverse environmental impacts as determined through an off-site and on-site alternatives analysis. Less damaging upland alternatives are presumed to be available for category 2 wetlands, unless clearly demonstrated otherwise; and

(ii) Minimization. Appropriate and practicable steps have been taken to minimize potential adverse impacts on the wetland ecosystem. For category 2 wetlands, the applicant shall minimize all potential adverse impacts forseeably caused by the project and each application shall include an evaluation of:

(a) The spatial requirements of the project;

(b) The location of existing structural or natural features that may dictate the placement or configuration of the proposed project;

(c) The overall and basic purpose of the project and how the purpose relates to the placement, configuration or density of the project;

(d) The sensitivity of the site design to the natural features of the site, including topography, hydrology, and existing flora and fauna;

(e) Direct and indirect impacts; and

(iii) The lowering of water quality is necessary to accommodate important social or economic development in the area in which the water body is located; and

(iv) Storm water and water quality controls will be installed in accordance with paragraph (D)(3) of this rule; and

(v) Compensatory mitigation. The designated use is replaced by a category 2 wetland, of equal or higher quality, or a category 3 wetland in accordance

with paragraph (E) of this rule. For projects which are linear projects, the designated use is replaced by a category 2 wetland, of equal or higher quality, or a category 3 wetland and the mitigation may take place in accordance with paragraph (D)(2) of this rule.

(c) Category 3 wetlands. The wetland designated use shall be maintained and protected in wetlands assigned to category 3, and no lowering of water quality shall be allowed, unless it is demonstrated to the satisfaction of the director that:

(i) Avoidance. There is no practicable alternative, based on technical, social and economic criteria, which would have less adverse impact on the wetland ecosystem, so long as the alternative does not have other significant adverse environmental impacts as determined through an off-site and on-site alternatives analysis. Less damaging upland alternatives are presumed to be available for category 3 wetlands, unless clearly demonstrated otherwise; and

(ii) Minimization. Appropriate and practicable steps have been taken to minimize potential adverse impacts on the wetland ecosystem. For category 3 wetlands, the applicant shall minimize all potential adverse impacts forseeably caused by the project and each application shall include an evaluation of:

(a) The spatial requirements of the project;

(b) The location of existing structural or natural features that may dictate the placement or configuration of the proposed project;

(c) The overall and basic purpose of the project and how the purpose relates to the placement, configuration or density of the project;

(d) The sensitivity of the site design to the natural features of the site, including topography, hydrology, and existing flora and fauna;

(e) Direct and in-direct impacts; and

(iii) The proposed activity is necessary to meet a demonstrated public need, as defined in rule 3745-1-50 of the Administrative Code; and

(iv) The lowering of water quality is necessary to accommodate important social or economic development in the area in which the water body is located; and

(v) Storm water and water quality controls will be installed in accordance with paragraph (D)(3) of this rule; and

(vi) The wetland is not scarce regionally and/or statewide, or if the wetland is scarce, the project will cause only a short-term disturbance of water quality that will not cause long-term detrimental effects; and

(vii) Compensatory mitigation. The designated use is replaced by a category 3 wetland, of equal or higher quality, in accordance with paragraph (E) of this rule. For projects which are linear projects, the designated use is replaced by a category 3 wetland, of equal or higher quality, and the mitigation may take place in accordance with paragraph (D)(2) of this rule.

(2) Compensatory mitigation for linear projects (e.g., highways) in wetlands, as allowed by paragraphs (D)(1)(b)(v) and (D)(1)(c)(vii) of this rule, may be mitigated for by the following, in descending order of practicability:

(a) In accordance with paragraph (E) of this rule; or

(b) Wetland impacts associated with a linear project may be mitigated at a single mitigation location or wetland mitigation bank, acceptable to the director, within each watershed in which such impacts occur; or

(c) If no wetland mitigation bank acceptable to the director is located within the watershed in which the impact occurs, then mitigation may occur in another watershed impacted by the linear project; at a single mitigation location, or a wetland mitigation bank, acceptable to the director; or

(d) If no wetland mitigation bank occurs within any of the watersheds connected with the linear project, then mitigation may occur within the watershed in which the largest impacts (in terms of area) occur.

(3) Appropriate storm water control measures shall be installed to ensure that peak post-development rates of surface water runoff from the impacted wetland site do not exceed the peak pre-development rates of runoff from the on-site wetlands, for all categories of wetlands. Water quality improvement measures shall be incorporated into the design of the storm water control measures to the maximum extent practicable. Examples of these measures include, but are not limited to, incorporating vegetated areas in the storm water control plans.

(E) Compensatory mitigation ratio, replacement category, and mitigation location requirements. Compensatory mitigation ratio, replacement category, and mitigation location requirements for antidegradation categories 1 to 3 are listed in the table 1 of this rule. Options for mitigation projects which may be acceptable to the director are described in paragraphs (E)(3) to (E)(6) of this rule.

(1) When compensatory mitigation is approved.

(a) For category 2 wetlands and category 3 wetlands, if compensatory mitigation is to be off-site, the applicant shall demonstrate the impracticability of mitigating on-site.

(b) Compensatory mitigation shall be in-kind unless there is a compelling ecological reason that it should not be.

(c) The mitigation location shall be as defined in paragraph (F) of this rule unless the applicant demonstrates:

(i) The mitigation is located at a mitigation bank, acceptable to the director, and the wetland which is proposed to be impacted is within the mitigation service area for the mitigation bank, and the director determines that mitigation at the mitigation bank is acceptable; or

(ii) There is a significant ecological reason that the mitigation location should not be limited to the mitigation location specified in table 1 and the proposed mitigation will result in a substantially greater ecological benefit. Generally, if compensatory mitigation is approved to occur outside of the watershed specified in paragraph (F) of this rule, it shall be located in a watershed which is adjacent to the watershed where the impact is proposed to occur, or has occurred.

(d) Restoration or creation of wetlands as the sole component of compensatory mitigation shall be in accordance with the ratios and other provisions in paragraph (F) of this rule.

(e) The director shall require the applicant to conduct ecological monitoring of the compensatory mitigation project and submit annual reports detailing the results of the ecological monitoring for a period of at least five years following construction of the compensatory mitigation. The ecological monitoring may include, but is not limited to, collection of data on hydrologic characteristics, vegetation communities and soils at the compensatory mitigation site and conducting an assessment of the compensatory mitigation wetlands using an appropriate wetland evaluation method acceptable to the director. The director may reduce or increase the number of years for which ecological monitoring is required to be conducted based on the effectiveness of the compensatory mitigation project.

(f) The applicant must demonstrate that the compensatory mitigation site will be protected in perpetuity and that appropriate management measures are, or will be, in place to restrict harmful activities that may jeopardize the mitigation wetland.

(2) Wetland restoration shall be the form of compensatory mitigation unless it can be demonstrated by the applicant that wetland restoration is impracticable. Alternative

compensatory mitigation options include wetland creation, and wetland enhancement. These and other alternative compensatory mitigation options, including preservation of high quality wetlands and non-wetland buffers adjacent to wetlands assigned to category 2 or category 3 which have been avoided in accordance with other provisions of this rule, may be considered on a case-by-case basis.

(3) Restoration or creation of wetlands as compensatory mitigation shall replace the impacted wetland with an equivalent or higher quality wetland.

(4) Wetland enhancement.

(a) Wetland enhancement may be a component of acceptable compensatory mitigation. In determining the acceptability of wetlands enhancement as compensatory mitigation, the director shall consider the extent to which the enhancement activities will improve or repair the existing or natural functions and values of the wetland.

(b) Wetland enhancement will be considered most favorably as a component of compensatory mitigation when it is located adjacent to a wetlands restoration project.

(c) When wetland enhancement is a component of acceptable compensatory mitigation, wetlands restoration or creation must also be a component of the compensatory mitigation and shall result in at least one acre of restored or created wetland for each acre of wetland that is impacted. Wetland enhancement must occur at a rate of at least two acres of wetland enhancement for every remaining acre of the compensatory wetland mitigation requirement. The wetland enhancement requirement can be calculated using the following equation:

$E = [(LMR - 1) \times 2] \times N$; where

E = minimum number of acres of wetlands required to be enhanced;

LMR = left side of mitigation ratio, from the wetland mitigation table of paragraph (F)(1) of this rule; and

N = number of acres of impacted wetlands.

For example, if the required mitigation ratio is 3:1 for an impact to two acres of wetland, an acceptable mitigation plan may include at least two acres of restored or created wetlands and at least eight acres of enhanced wetlands.

(5) Wetland preservation.

(a) The director may, in exceptional circumstances, consider wetland preservation, as defined in rule 3745-1-50 of the Administrative Code, for mitigation if the applicant can demonstrate the following:

(i) The wetland to be preserved is a category 3 wetland which will be preserved in perpetuity, or the wetland to be preserved is pivotal in protecting a category 3 wetland and both wetlands will be preserved in perpetuity; and

(ii) There is concurrence with the decision to accept the wetland to be preserved for mitigation purposes by the Ohio department of natural resources, and other environmental resource agencies the director deems necessary; and

(iii) The wetland to be preserved for mitigation purposes should have important habitat and/or water quality characteristics which are imminently threatened; and

(iv) The wetland to be preserved for mitigation purposes shall be deeded to a responsible party for management and/or enhancement in accordance with a plan approved by the director; and

(v) Purchase and transfer of the deed for the wetland to be preserved for mitigation purposes shall occur prior to any filling of wetlands at the project site.

(b) When preservation is a component of acceptable compensatory mitigation, wetlands restoration or creation must also be a component of the mitigation and shall result in at least one acre of restored or created wetland for each acre of wetland that is impacted, unless the director determines that restoration or creation need not be a component of compensatory mitigation based on significant ecological reasons. Wetland preservation must occur at a rate of two acres of preservation for every remaining acre of the compensatory wetland mitigation requirement. The wetland preservation requirement can be calculated using the following equation:

$P = [(LMR - 1) \times 2] \times N$, where

P = minimum number of acres of wetlands required to be preserved;

LMR = left side of mitigation ratio, from wetland mitigation table in paragraph (F)(1) of this rule; and

N = number of acres of impacted wetlands.

For example, if the required mitigation ratio is 3:1 for an impact to two acres of

wetland, an acceptable mitigation plan may include at least two acres of restored wetlands and at least eight acres of preserved wetlands.

(6) Non-wetland buffers which are adjacent to wetlands assigned to category 2 or category 3 and which are avoided in accordance with the requirements of paragraph (D)(1)(b)(i) or (D)(1)(c)(i) of this rule, may be a component of acceptable compensatory mitigation, if the applicant can demonstrate the following:

(a) The non-wetland buffer and the wetland are preserved in perpetuity;

(b) The non-wetland buffer consists of natural vegetation which is not maintained through mowing, application of herbicide or other means which would result in deleterious effects to either the non-wetland buffer or the adjacent wetland; and

(c) When non-wetland buffers are a component of acceptable compensatory mitigation, the buffers shall not be considered to fulfill more than 0.5 units of the required mitigation ratio, as identified in table 1 of this rule. For example, non-wetland buffers could be used to reduce the mitigation requirement from 2.0:1 to 1.5:1.

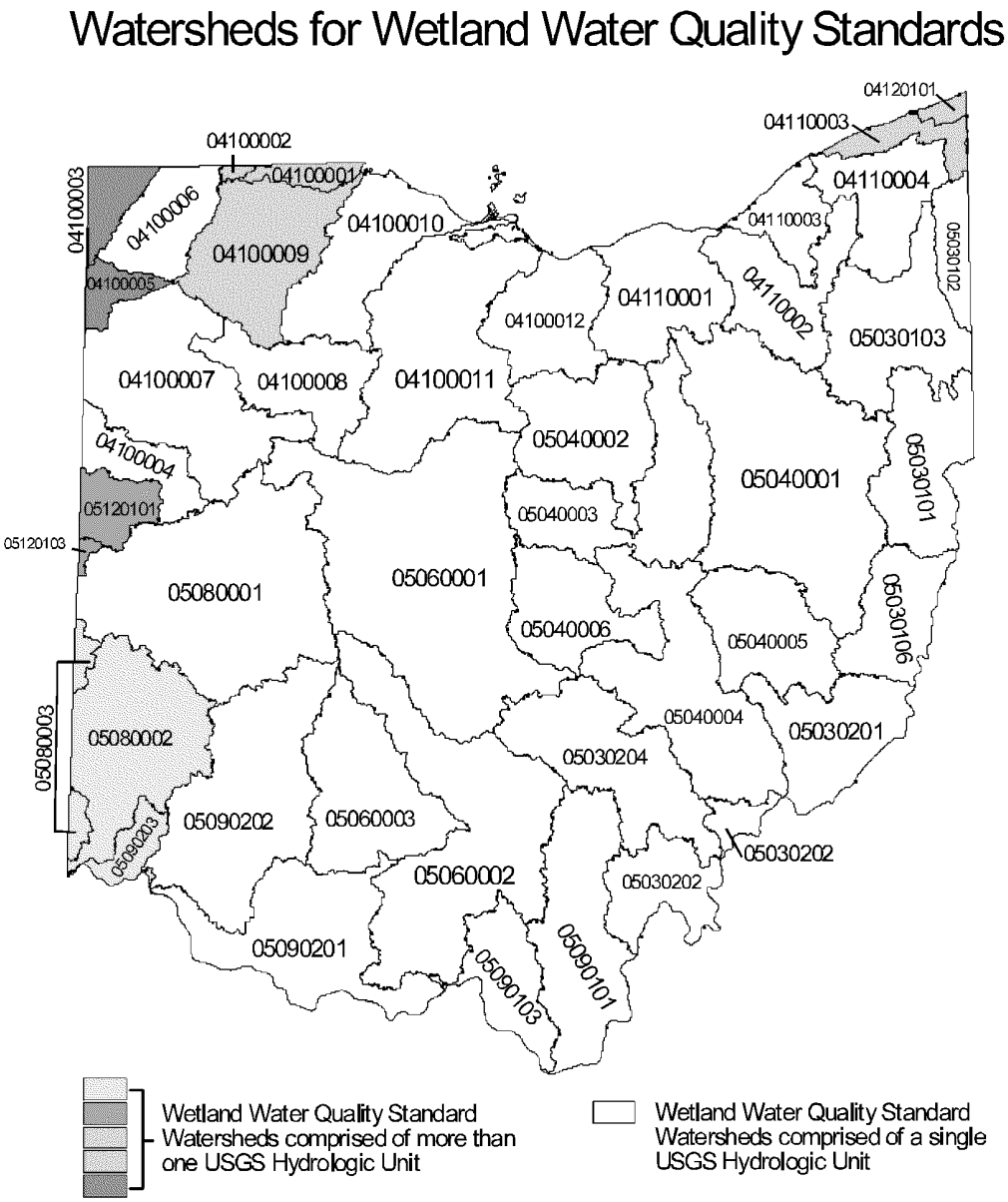
(F) Wetland compensatory mitigation criteria for mitigation ratio, replacement category, and location for antidegradation categories 1 to 3. Note "mitigation ratio," "compensatory mitigation," "forested wetland," "off-site mitigation," "on-site mitigation," and "watershed" are defined in rule 3745-1-50 of the Administrative Code. Wetland categories are discussed in paragraph (C) of this rule.

(1) Wetland mitigation table.

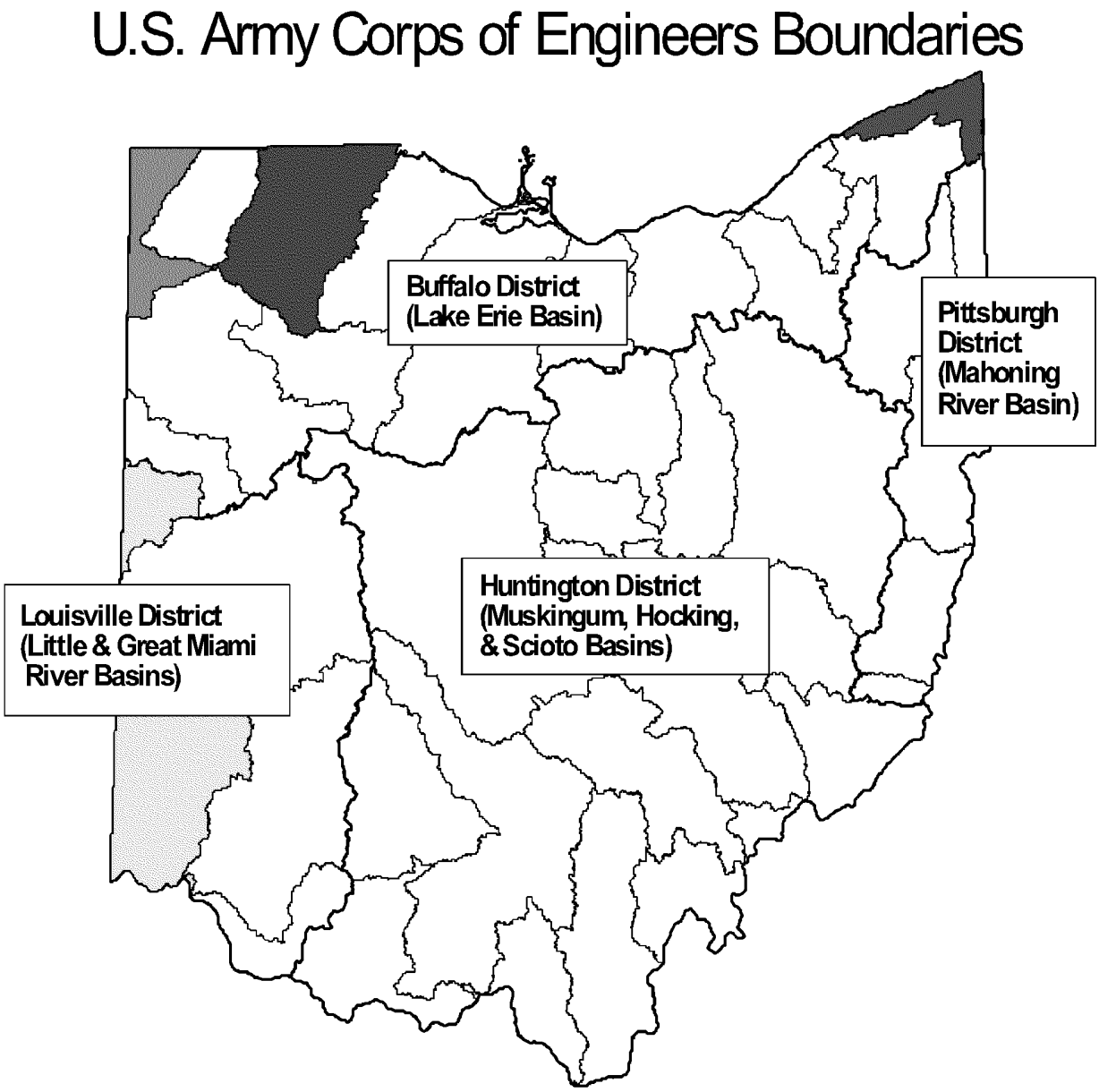
Wetland category	On-site mitigation ratio	Off-site mitigation ratio	Replacement category	Compensatory Mitigation location (Off-site)
1	1.5:1 Non-forested & Forested	1.5:1 Non-forested & Forested	2 and 3	Within the U.S. army corps of engineers district
2	1.5:1 Non-forested 2.0:1 Forested	2.0:1 Non-forested 2.5:1 Forested	2 and 3	Within watershed
3	2.0:1 Non-forested 2.5:1 Forested	2.5:1 Non-forested 3.0:1 Forested	3	Within watershed

(2) The following thirty-seven groupings of cataloging units from the hydrologic unit map of Ohio, U.S. geological survey, 1988, shall be the watersheds for the purposes of location of compensatory mitigation for impacts to category 2 and 3 wetlands: (04100001, 04100002, and 04100009 - combined); (0410003, 04100005 - combined); 04100004; 04100006; 04100007; 04100008; 04100010; 04100011; 04100012; 04110001; 04110002; (04110003 (minus the Chagrin river watershed) and 04110101 - combined); 04110003 (Chagrin river watershed only); 04110004; 05030101; 05030102; 05030103; 05030106; 05030201; 05030202; 05030204; 05040001; 05040002; 05040003; 05040004; 05040005; 05040006; 05060001; 05060002; 05060003; 05080001; (05080002, 05080003, and 05090203 - combined); 05090101; 05090103; 05090201; 05090202; and (05120101 and 05120103 - combined). This information is also depicted in map 1 of this rule.

Map 1. Hydrologic unit map of Ohio, U.S. geological survey, 1988, as modified by Ohio EPA 1997.



Map 2. U.S. army corps of engineers district boundaries map, prepared by Ohio EPA, May 1997.



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