

NATURAL RESOURCES

Division 20--Clean Water Commission

Chapter 7--Water Quality

**10 CSR 20-7.031 Water Quality Standards**

*PURPOSE: This rule identifies beneficial uses of waters of the state, criteria to protect those uses and defines the antidegradation policy. It is developed in response to the Missouri Clean Water Law and the federal Clean Water Act, Section 303(c)(1) and (2), which requires that state water quality standards be reviewed at least once every three years. These revisions are pursuant to the national goal of protection of fish, shellfish and wildlife and recreation in and on the water as outlined in Section 101(a)(2) of the Act.*

*PUBLISHER'S NOTE: The secretary of state has determined that the publication of the entire text of the material which is incorporated by reference as a portion of this rule would be unduly cumbersome or expensive. This material as incorporated by reference in this rule shall be maintained by the agency at its headquarters and shall be made available to the public for inspection and copying at no more than the actual cost of reproduction. This note applies only to the reference material. The entire text of the rule is printed here.*

(1) Definitions.

(A) Acute toxicity—Conditions producing adverse effects or lethality on aquatic life following short-term exposure. The acute criteria in Tables A and B are maximum concentrations which protect against acutely toxic conditions. Acute toxicity is also indicated by exceedence of whole-effluent toxicity (WET) test conditions of paragraph (3)(I)2. For substances not listed in Table A or B, 0.3 of the median lethal concentration, or the no observed acute effect concentration for representative species, may be used to determine absence of acute toxicity.

(B) Aquifer—A subsurface water-bearing bed or stratum which stores or transmits water in recoverable quantities that is currently being used or could be used as a water source for private or public use. It does not include water in the vadose zone.

(C) Beneficial or designated uses. These standards shall assign presumed uses, existing uses and designated uses to all waters of the state. Presumed uses for surface water are whole body contact recreation, general warm-water aquatic communities, human health protection-fish consumption and livestock/wildlife watering. Presumed use for groundwater is drinking water supply. These presumptions may be rebutted through a use attainability analysis (UAA) performed in accordance with subsection (W) of this rule. Existing uses are any uses actually occurring on or within a water body. Designated uses are the presumed uses and any use that appears in Table G or H. Uses other than the presumed uses that are designated following a UAA shall be identified in Tables G and H. The designation of uses shall take into consideration the water quality standards of downstream waters, including groundwater, and shall ensure that water quality standards provide for the attainment and maintenance of the water quality standards of downstream waters.

**Deleted:** Those uses specified in paragraphs 1.–15. of this subsection for each water body segment whether or not they are attained. Beneficial or designated uses (1)(C)1.–11. of classified waters are identified in Tables G and H. Beneficial or designated uses (1)(C)12.–15. of classified waters must be determined on a site-by-site basis and are therefore not listed in Tables G and H.

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1. Irrigation—Application of water to cropland or directly to plants that may be used for human or livestock consumption. Occasional supplemental irrigation, rather than continuous irrigation, is assumed.

2. Livestock and wildlife watering—Maintenance of conditions to support health in livestock and wildlife.

3. Cold-water aquatic community—Waters of the state in which naturally occurring water quality and habitat conditions allow the maintenance of a stocked trout fishery and indigenous, naturally reproducing cold-water dependent aquatic communities. Waters listed in Table C shall be assigned this designation.

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4. Cool-water aquatic community—Waters of the state in which naturally occurring water quality and habitat conditions allow the maintenance of a sensitive, high-quality sport fishery (including smallmouth bass and rock bass) and other indigenous, naturally reproducing cool-water dependent aquatic communities.

5. General warm-water aquatic community—Waters of the state in which naturally occurring water quality and habitat conditions allow the maintenance of a wide variety of warm-water biota, including naturally reproducing populations of recreationally important fish species. This use designation shall apply to all waters of the state, except groundwater, not designated to another aquatic community use unless an aquatic community use is shown unattainable through a use attainability analysis performed in accordance with subsection (W).

6. Limited aquatic community—Waters of the state in which conditions prevent the maintenance of a general warm-water aquatic community and such conditions are demonstrated through a use attainability analysis performed in accordance with subsection (W). This use designation may apply to ephemeral waters of the state, that as a result of insufficient flow, support temporary aquatic communities for a period of less than four (4) consecutive days.

7. Human health protection (Fish consumption)—Criteria to protect this use are based on the assumption of an average amount of fish or shell fish consumed on a long-term basis. Protection of this use includes compliance with Food and Drug Administration (FDA) limits for fish or shell fish tissue, maximum water concentrations corresponding to the 10<sup>-6</sup> cancer risk level and other human health fish consumption criteria.

8. Whole body contact recreation—Activities in which there is direct human contact with the raw surface water to the point of complete body submergence. The raw water may be ingested accidentally and certain sensitive body organs, such as the eyes, ears and the nose, will be exposed to the water. Although the water may be ingested accidentally, it is not intended to be used as a potable supply unless acceptable treatment is applied. Water so designated is intended to be used for swimming, water skiing or skin diving. Assignment of this use does not grant an individual the right to trespass when a land is not open to and accessible by the public through law or written permission of the landowner.

A. Category A—This category applies to those water segments that have been established by the property owner as public swimming areas allowing full and free access by the public for swimming purposes and waters with existing whole body contact recreational use(s). Examples of this category include, but are not limited to, public swimming beaches and property where whole

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body contact recreational activity is open to and accessible by the public through law or written permission of the landowner.

B. Category B—This category applies to waters designated for whole body contact recreation not contained within category A.

9. Secondary contact recreation—Uses include fishing, wading, commercial and recreational boating, any limited contact incidental to shoreline activities, and activities in which users do not swim or float in the water. These recreational activities may result in contact with the water that is either incidental or accidental and the probability of ingesting appreciable quantities of water is minimal. Assignment of this use applies to any waters of the state, except groundwater where Whole Body Contact Recreation is unattainable and does not grant an individual the right to trespass when a land is not open to and accessible by the public through law or written permission of the landowner.

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10. Drinking water supply—Maintenance of a raw water supply which will yield potable water after treatment by public water treatment facilities.

11. Industrial process water and industrial cooling water—Water to support various industrial uses; since quality needs will vary by industry, no specific criteria are set in these standards.

12. Storm- and flood-water storage and attenuation—Waters which serve as overflow and storage areas during flood or storm events slowly release water to downstream areas, thus lowering flood peaks and associated damage to life and property.

13. Habitat for resident and migratory wildlife species, including rare and endangered species—Waters that provide essential breeding, nesting, feeding and predator escape habitats for wildlife including waterfowl, birds, mammals, fish, amphibians and reptiles.

14. Exceptional Waters—Waters that serve as unique recreational sites for fishing, hunting and observing wildlife; waters of historic or archaeological significance; waters which provide great diversity for nature observation, educational opportunities and scientific study. Waters with this designation shall include, but shall not be limited to, the biocriteria reference waters in Table I.

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15. Hydrologic cycle maintenance—Waters hydrologically connected to rivers and streams serve to maintain flow conditions during periods of drought. Waters that are connected hydrologically to the groundwater system recharge groundwater supplies and assume an important local or regional role in maintaining groundwater levels.

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(D) Biocriteria—Numeric values or narrative expressions that describe the reference biological integrity of aquatic communities inhabiting waters that have been designated for aquatic-life protection.

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(E) Chronic toxicity—Conditions producing adverse effects on aquatic life or wildlife following long-term exposure but having no readily observable effect over a short time period. Chronic numeric criteria in Tables A and B are maximum concentrations which protect against chronic toxicity; these values shall be considered four (4)-day averages. Chronic toxicity is also indicated by ex-ceedence of WET test conditions of subsection (4)(P). For substances not listed in Table A or B, commonly used endpoints such as the no-observed effect concentration or inhibition concentration of representative species may be used to demonstrate absence of toxicity.

(F) Classified waters—All waters of the state shall be designated to one of the classifications below. During normal flow periods, some rivers back water into tributaries which are not otherwise classified. These permanent backwater areas are considered to have the same classification as the water body into which the tributary flows.

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1. Class L1—Lakes used primarily for public drinking water supply.

2. Class L2—Major reservoirs.

3. Class L3—Other lakes which are waters of the state.

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4. Class P—Streams that maintain permanent flow even in drought periods.

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5. Class P1—Standing-water reaches of Class P streams.

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6. Class C—Streams that may cease flow in dry periods but maintain permanent pools which support aquatic life.

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7. Class W—Wetlands that are waters of the state that meet the criteria in the *Corps of Engineers Wetlands Delineation Manual* (January 1987), and subsequent federal revisions. Class W waters do not include wetlands that are artificially created on dry land and maintained for the treatment of mine drainage, stormwater control, drainage associated with road construction, or industrial, municipal or agricultural waste. Class W determination on any specific site shall be consistent with federal law.

(G) Early life stages of fish—The pre-hatch embryonic period, the post-hatch free embryo or yolk-sac fry, and the larval period during which the organism feeds. Juvenile fish, which are anatomically rather similar to adults, are not considered an early life stage.

(H) Existing uses—Those uses actually attained in the water body on or after November 28, 1975, whether or not they are identified in the water quality standards.

(I) Ecoregion—A major region within the state which contains waters with similar geological, hydrological, chemical and biological characteristics.

(J) Epilimnion—Zone of atmospheric mixing in a thermostratified lake.

(K) Fecal coliform bacteria—A group of bacteria originating in intestines of warm-blooded animals which indicates the possible presence of pathogenic organisms in water.

(L) Hypolimnion—Zone beneath the zone of atmospheric mixing in a thermostratified lake.

(M) Lethal concentration<sub>50</sub> (LC<sub>50</sub>)—Concentration of a toxicant which would be expected to kill fifty percent (50%) of the individuals of the test species organisms in a test of specified length of time.

(N) Losing stream—A stream which distributes thirty percent (30%) or more of its flow during low flow conditions through natural processes, such as through permeable geologic materials into a bedrock aquifer within two (2) miles' flow distance downstream of an existing or proposed discharge. Flow measurements to determine percentage of water loss must be corrected to approximate the seven (7)-day  $Q_{10}$  stream flow. If a stream bed or drainage way has an intermittent flow or a flow insufficient to measure in accordance with this rule, it may be determined to be a losing stream on the basis of channel development, valley configuration, vegetation development, dye tracing studies, bedrock characteristics, geographical data and other geological factors. Losing streams are listed in Table J; additional streams may be determined to be losing by the Missouri Department of Natural Resources.

(O) Low-flow conditions—Where used in this regulation in the context of mixing zones, the low-flow conditions shall refer to the minimum amount of stream flow occurring immediately upstream of a wastewater discharge and available, in whole or in part, for attenuation of wastewater pollutants.

1. Seven (7)-day, one (1)-in-ten (10)-year low flow (7-day  $Q_{10}$ )—The lowest average flow for seven (7) consecutive days that has a probable recurrence interval of once-in-ten (10) years.

2. Sixty (60)-day, one (1)-in-two (2)-year low flow (60-day  $Q_2$ )—The lowest average flow for sixty (60) consecutive days that has a probable recurrence interval of once-in-two (2) years.

3. Thirty (30)-day, one (1)-in-ten (10)-year low flow (30-day  $Q_{10}$ )—The lowest average flow for thirty (30) consecutive days that has a probable recurrence interval of once-in-ten (10) years.

4. One (1)-day, one (1)-in-ten (10)-year low flow (1-day  $Q_{10}$ )—The lowest average flow for one (1) day that has a probable recurrence interval of once-in-ten (10) years.

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(P) Mixing zone—An area of dilution of effluent in the receiving water beyond which chronic toxicity criteria must be met.

(Q) Outstanding national resource waters—Waters which have outstanding national recreational and ecological significance. These waters shall receive special protection against any degradation in quality. Congressionally designated rivers, including those in the Ozark national scenic riverways and the wild and scenic rivers system, are so designated (see Table D).

(R) Outstanding state resource waters—High quality waters with a significant aesthetic, recreational or scientific value which are specifically designated as such by the Clean Water Commission (see Table E).

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(S) Ozark streams—Streams lying within the Ozark faunal region as described in the *Aquatic Community Classification System for Missouri*, Missouri Department of Conservation, 1989.

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(T) Reference lakes or reservoirs—Lakes or reservoirs determined by Missouri Department of Natural Resources to be the best available representatives of ecoregion waters in a natural condition with respect to habitat, water quality, biological integrity and diversity, watershed land use, and riparian conditions.

(U) Reference stream reaches—Stream reaches determined by the department to be the best available representatives of ecoregion waters in a natural condition, with respect to habitat, water quality, biological integrity and diversity, watershed land use and riparian conditions.

(V) Regulated-flow streams—A stream that derives a majority of its flow from an impounded area with a flow-regulating device.

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(W) Use Attainability Analysis (UAA)—A structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors as described in 40 CFR 131.10(g).

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(X) Water effect ratio—Appropriate measure of the toxicity of a material obtained in a site water divided by the same measure of the toxicity of the same material obtained simultaneously in a laboratory dilution water.

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(Y) Water hardness—The total concentration of calcium and magnesium ions expressed as calcium carbonate. For purposes of this rule, hardness will be determined by the lower twenty-fifth percentile value of a representative number of samples from the water body in question or from a similar water body at the appropriate stream flow conditions.

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(Z) Water quality criteria—Chemical, physical and biological properties of water that are necessary to protect beneficial water uses.



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natural water quality and/or habitat

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populations of recreationally important fish species. This includes non-Ozark Class C streams and non-Ozark Class P streams with seven (7)-day Q<sub>10</sub> low flows equal to or less than 0.1 cfs and Ozark Class C streams with the characteristics outlined in paragraph (1)(C)5

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All waters in Tables G and H of this rule are presumed to support whole body contact recreation unless a Use Attainability Analysis (UAA) has shown that the use is unattainable. The use designation for whole body contact recreation may be removed or modified through a UAA for only those waters where whole body contact is not an existing use.