

CATEGORICAL USE ATTAINABILITY ANALYSIS FOR NEWLY CLASSIFIED EPHEMERAL & INTERMITTENT WATERS

Purpose

The purpose of this categorical Use Attainability Analysis is to provide the required demonstration and documentation necessary to accurately match recreational use attainability with use designations on newly classified ephemeral and intermittent waters. The methods proposed balance the requirement for a structured and scientific approach with the need to use state resources wisely. The categorical Use Attainability Analysis (UAA) process will rely on sound science, sufficient data, and meet all applicable UAA and public participation requirements. At the same time, the categorical UAA will result in cost savings to the state and reduce the need to address these waters on an individual basis.

Background

Section 101(a)(2) of the Clean Water Act (CWA) states the national interim goal of achieving "water quality which provides for the protection and propagation of fish, shellfish, and wildlife and . . . recreation in and on the water" by July 1, 1983. This interim goal is collectively referred to as the "fishable/swimmable" goal of the CWA. Clean Water Act section 303(c)(2)(A) requires water quality standards to "protect the public health and welfare, enhance the quality of water, and serve the purposes of this Chapter." The United States Environmental Protection Agency's (EPA) regulations at 40 CFR part 131 interpret and implement these provisions through a requirement that water quality standards protect section 101(a)(2) uses unless those uses have been shown to be unattainable. The State may demonstrate that a fishable/swimmable use is not attainable through a Use Attainability Analysis (UAA) pursuant to 40 CFR 131.10(j).

The designated uses found in state regulation at 10 CSR 20-7.031 that satisfy the fishable/swimmable "rebuttable presumption" are Protection of Warm Water Aquatic Life and Human Health-Fish Consumption (AQL) and Whole Body Contact Recreation (WBC), respectively. During the 2012 triennial review of Missouri's water quality standards, it is anticipated the Department will apply fishable/swimmable designations to over 159,034 miles of newly classified waters. The vast majority of these waters will be lower order ephemeral and intermittent headwater streams with individual drainage areas of approximately one to two square mile or less. Stream morphology data collected from water body segments of higher stream order indicate that much larger watershed areas and channel development are needed to support WBC based on depth. It is unlikely that many of these lower order ephemeral and intermittent headwater streams maintain depth sufficient to attain the WBC use during base flow conditions and individual UAAs would be largely academic. Therefore, the Department is proposing a categorical UAA to rebut the CWA 101(a)(2) presumption of WBC for these waters.

A Use Attainability Analysis is defined as "... a structured scientific assessment of the factors affecting the attainment of the use which may include physical, chemical, biological, and economic factors ..." [40 CFR 131.3(g)]. A UAA is required, in part, when "the State

wishes to remove a designated use that is specified in section 101(a)(2) of the Act ...” [40 CFR 131.10(j)(2)]. Federal regulation at 40 CFR 131.10(g) identifies six factors that must be considered in making such a determination. To date, the State has employed the “Natural, Ephemeral, Intermittent or Low Flow Conditions” factor at 40 CFR 131.10(g)(2) to demonstrate that ephemeral and intermittent waters do not maintain depth sufficient to attain the WBC use during base flow conditions. Under this factor states may remove a designated use which is not an existing use, as defined in §131.3, or establish sub-categories of a use if the State can demonstrate that attaining the designated use is not feasible because “Natural, ephemeral, intermittent, or low flow conditions or water levels prevent the attainment of the use, unless these conditions may be compensated for by the discharge of sufficient volume of effluent discharges without violating State water conservation requirements to enable uses to be met.”

The Missouri Clean Water Commission approved “Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol” (December 19, 2007) provides the framework for conducting Recreational UAAs pursuant to 40 CFR 131.10(g)(2). The protocol provides a structured, scientific means to demonstrate that naturally caused ephemeral or intermittent base flow conditions prevent the attainment of the WBC use during the recreational season (April 1 – October 31). The Department believes the quantity and quality of data gathered using the Recreational UAA protocol are sufficient to make a determination for waters that are similar (e.g. naturally ephemeral and intermittent) on a watershed basis. The Department also believes the methods and analyses described in this document will provide EPA sufficient information to determine the adequacy of the scientific basis for a categorical UAA as required by 40 CFR 131.6(b) and (f).

Methods and Analyses

The following methods and analyses are directed at developing a categorical UAA for waters that are sufficiently similar (e.g., naturally ephemeral and intermittent) on a watershed basis. The categorical UAA will constitute a comprehensive demonstration of why the WBC use is not feasible for a water body based on data and information gathered using the “Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol” (December 19, 2007) and the UAA factor found at 40 CFR 131.10(g)(2). The categorical UAA will also address the general similarities and differences between ephemeral and intermittent surface water bodies within and between watersheds. Lastly, the categorical UAA will include all information and data required by 40 CFR parts 131.6(b) and (f) for state submissions of water quality standards revisions where Section 101(a)(2) uses are not designated.

Recreational UAA Data

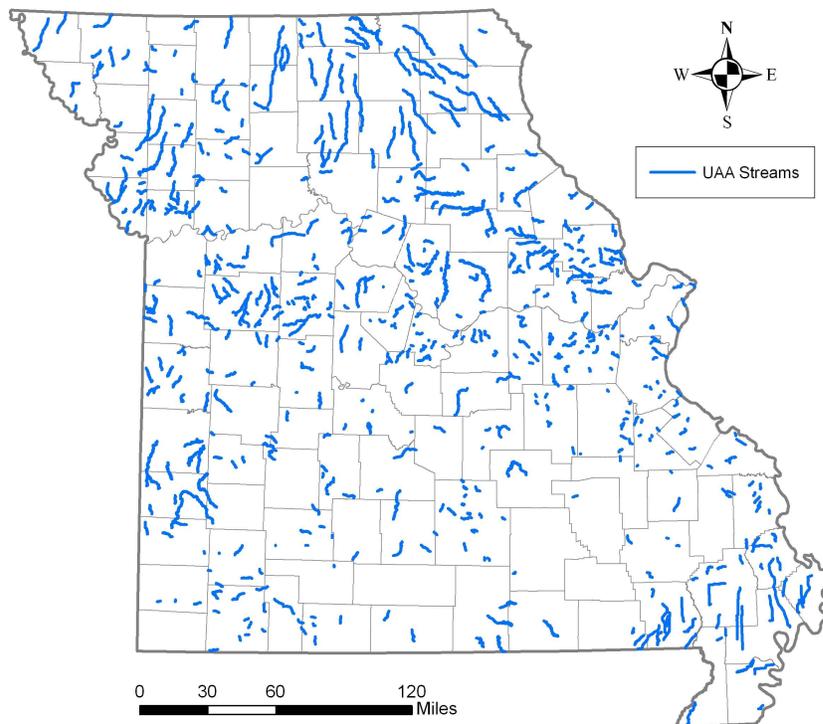
The “Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol” (December 19, 2007) employs methods for gathering stream morphology data similar to those found in the United States Geological Survey (USGS) Water-Resources Investigations Report “Revised Methods for Characterizing Stream Habitat in the National Water-Quality Assessment Program” (USGS, WRI 98-4052). The research used to support

the USGS method of habitat characterization indicates the method ensures that all habitat types (i.e. morphological features, such as riffles, pools, and runs) are surveyed. The equidistant spacing of survey sites along the segment and the number, distribution, and amount of segment surveyed provide a statistically representative characterization of the reach. It is for these reasons the Department chose the USGS methodology as the foundation for structured, scientific recreational UAAs under 40 CFR 131.10(g)(2).

At the direction of the Missouri Clean Water Commission, the Department conducted **(681)** Recreational UAAs that conform with the “Missouri Recreational Use Attainability Analyses: Water Body Survey and Assessment Protocol” (December 19, 2007). Each UAA contained a minimum of three survey sites equidistantly spaced along the water body segment. Additional survey sites were added, as needed, to ensure spatial coverage of the entire segment. Each survey site contained eleven cross-sections of stream morphology equidistantly spaced over a segment length of at least 150 meters to a maximum of 300 meters. Each cross-section contained ten individual measurements of stream water depth. Given each water body contained a minimum of three survey sites, and many segments contained more than the minimum, the Department has accumulated over **(225,000)** individual depth measurements from streams across the state (Figure 1).

Figure 1.

Recreational Use Attainability Analyses 2007 and 2008



 Missouri
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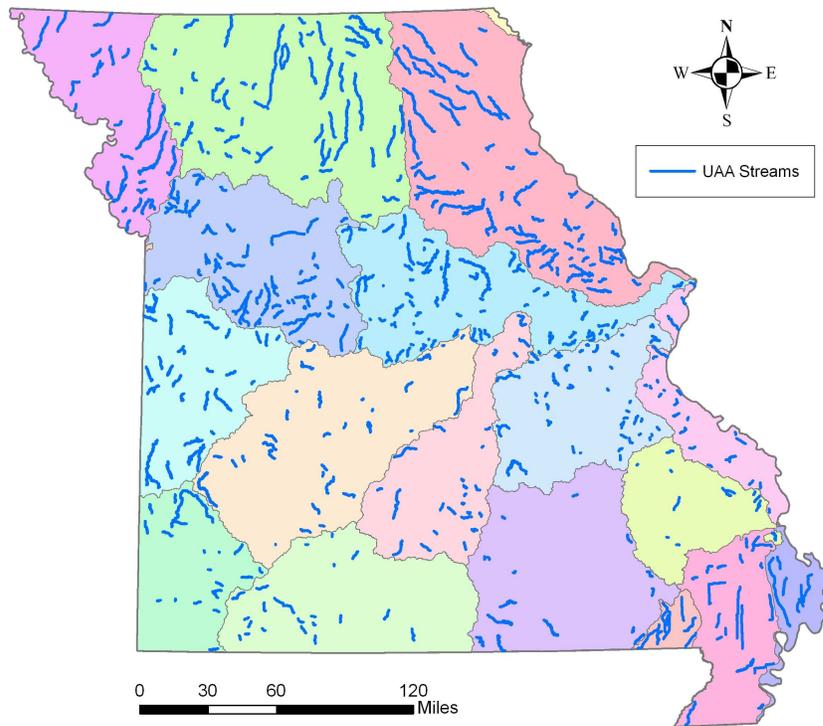
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Watershed-based Approach

The number and distribution of UAA stream depth measurements make it possible to quantitatively assess the probability that WBC criteria will be attained within the headwaters of every major watershed in the state. For the categorical UAA process, the Department has chosen Ecological Drainage Units (EDUs) as the basis for analysis of stream morphology by watershed (Figure 2). EDUs are distinct watersheds that share similar aquatic ecosystems, physiography, and climate. Because physiography and climate can influence in-stream habitat available for aquatic ecosystems, EDUs offer a platform for determining the threshold for development of morphologic features (e.g. 1 meter pools) within a watershed. The differences between physiography and climate between individual EDUs allows for further refinement of the watershed attributes necessary to attain depths sufficient to meet WBC criteria within each EDU.

Figure 2.

**Recreational Use Attainability Analyses
2007 and 2008
by Ecological Drainage Units (EDU)**



Public Participation

The department recognizes the public best knows how their local streams are used and values detailed comments pertaining to recreational and other uses. All work products associated with the categorical UAA process will be open to the public. The Department maintains records of all information used and will make this information available upon request. The completed categorical UAA will be posted on the Department's web site. Any removal or modification of designated recreational uses will include an opportunity for public participation.

A brief description (notice) of the designated use change for a particular water body will be circulated within the geographic area of the water body segment by posting the notice in post offices and public places. Where available, notification will also be provided via a Department new release to media outlets in the geographic area. The notice will also be mailed to those persons who have notified the department of their interest or who have requested the findings of the categorical UAA. Public review and comment on the categorical UAA findings and the proposed removal or modification of recreational designated uses will also be sought during the rulemaking process.

Consistency and Confidence

Using a categorical UAA approach for newly classified ephemeral and intermittent waters will allow the Department to capture a larger percentage of these waters and promote consistency in how water quality standards are applied state-wide. Within the categorical UAA process, the Department will strive for statistically significant confidence in the conclusions reached for these waters (e.g. 95% statistical confidence level). Also, as a core component of the process, the Department will field verify the results of the categorical approach by watershed to confirm confidence in the process.