ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATION NO. 2

REGULATION ESTABLISHING WATER QUALITY STANDARDS FOR SURFACE WATERS OF THE STATE OF ARKANSAS

Adopted by the Arkansas Pollution Control and Ecology Commission on April 23, 2004

Arkansas Pollution Control and Ecology Commission
Regulation No. 2, As Amended

Regulation Establishing Water Quality Standards for Surface Waters of the State of Arkansas

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ARKANSAS
POLLUTION CONTROL
AND ECOLOGY COMMISSION

Regulation No. 2, As Amended

Regulation Establishing
Water Quality Standard for Surface Waters
of the State of Arkansas

CHAPTER 1: AUTHORITY, GENERAL PRINCIPLES, AND COVERAGE

Reg. 2.101 Authority

Pursuant to the provisions of SubChapter 2 of the Arkansas Water and Air Pollution Control Act (Act 472 of the Acts of Arkansas for 1949, as amended; Ark. Code Ann. 8-4-101 et seq, and in compliance with the requirements of the Federal Water Pollution Control Act, as amended, the Arkansas Pollution Control and Ecology Commission, (hereinafter referred to as "Commission") hereby promulgates this Regulation No. 2, as amended, establishing water quality standards for all surface waters, interstate and intrastate, of the State of Arkansas.

Reg. 2.102 Purpose

The water quality standards herein set forth are based upon present, future and potential uses of the surface waters of the State and criteria developed from statistical evaluations of past water quality conditions and a comprehensive study of least-disturbed, ecoregion reference streams. The standards are designed to enhance the quality, value and beneficial uses of the water resources of the State of Arkansas, to aid in the prevention, control and abatement of water pollution, to provide for the protection and propagation of fish and wildlife and to provide for recreation in and on the water. In establishing these standards, the Commission has taken into consideration the use and value of the streams for public water supplies, commercial, industrial and agricultural uses, aesthetics, recreational purposes, propagation of fish and wildlife, other beneficial uses, and views expressed at public hearings. The State of Arkansas has an exceptionally large volume of high quality water. With few exceptions the streams and lakes of Arkansas contain waters of a quality suitable for all legitimate uses without the necessity of unreasonable water treatment. Where man-made pollution exists, substantial progress has been made in abatement. It is the purpose of these regulations to preserve and protect the quality of this water so that it shall be reasonably available for all beneficial uses and thus promote the social welfare and economic well-being of the people of the State. It is further the purpose of these regulations to designate the uses for which the various waters of the State shall be maintained and protected; to prescribe the water quality standards required to sustain the designated uses; and to prescribe regulations necessary for implementing, achieving and maintaining the prescribed water quality.

Reg. 2.103 Commission Review

The water quality standards herein established will be reviewed by the Commission at least once each three-year period beginning as of October 18, 1972, and revisions may be made to take into account changing technology of waste production, treatment and removal, advances in knowledge of water quality requirements, and other relevant factors.

Reg. 2.104 Policy for Compliance

It shall be the policy of the Department to provide, on a case-by-case basis, a reasonable time for an existing facility to comply with new or revised water quality based effluent limits. Consequently, compliance schedules may be included in NPDES permits at the time of renewal to require compliance with new water quality standards at the earliest practicable time; but not to exceed three years from effective date of permit.

Reg. 2.105 Environmental Improvement Projects

The Commission may, after consideration of the information provided pursuant to Appendix B, grant modifications to the General and Specific Standards (Chapters 4 and 5, herein) or establish a subcategory(ies) of use(s) (Reg. 2.307, herein) for completion of long-term Environmental Improvement Projects (EIP), as provided by Act 401 of 1997, codified at A.C.A. § 8-5-901 et seq.

Reg. 2.106 Definitions

304(a) Guidance: Refers to Section 304(a) of the Clean Water Act which requires the Environmental Protection Agency to publish and periodically update ambient water quality criteria which will be protective of human health and the environment.

Abatement: The reduction in degree or intensity of pollution.

Act: Clean Water Act, as amended (33 U.S.C. 1251, et. seq.)

Acute toxicity: A statistically significant difference (at the 95 percent confidence level) in mortality or immobilization between test organisms and a control measured during a specified period of time which is normally less than 96 hours.

Algae: Simple plants without roots, stems or leaves which contain chlorophyll and are capable of photosynthesis.

Aquatic biota: All those life forms which inhabit the aquatic environment.

Chronic Toxicity: A statistically significant difference (at the 95 percent confidence level) in mortality or immobilization, reduced reproduction or limited growth between test organisms and a control measured during a substantial segment of the life span of the test organism.

Commission: The Arkansas Pollution Control and Ecology Commission.

Continuing Planning Process (CPP): A document which describes the principal processes of the State's water quality management programs. The CPP is not a regulation.

Critical flows: The flow volume used as background dilution flows in calculating concentrations of pollutants from permitted discharges. These flows may be adjusted for mixing zones. The following critical flows are applicable:

For a seasonal fishery - 1 cfs minus the design flow of any point source discharge (may not be less than zero).

For human health criteria - harmonic mean flow or long term average flow.

For minerals criteria - harmonic mean flow or 4 cfs, except in those waters listed in Reg. 2.511. Those waters in Reg. 2.511 which are noted with an asterisk will have a critical flow of 4 cfs. (Also see minerals implementation procedure in CPP)

For all others - the critical flow will be Q7-10.

Critical season: That period of the year when water temperatures exceed 22°C. This is normally the hot, dry season and after the majority of the fish spawning activities have ceased. This season occurs during a different time frame in different parts of the state, but normally exists from about mid-May to mid-September.

Cumulative: Increasing by successive additions.

Department: The Arkansas Department of Environmental Quality (ADEQ).

Degradation: The act or process of causing any decrease in quality.

Design Flow: A facility discharge flow of process wastewater that is authorized in a NPDES permit

Designated Uses: Those uses specified in the water quality standards for each waterbody or stream segment whether or not they are being attained.

Discharge: A discrete point source of waste or wastewater entering into waters of the State.

Dissolved oxygen (DO): A measure of the concentration of oxygen in solution in a liquid.

Ecoregion: A large area of landscape with relatively homogenous physical, chemical and biological characteristics.

Endemic: Native to and confined to a specific region.

Existing Uses: Those uses listed in Section 303 (c)(2) of the Act (i.e., public water supplies, propagation of fish and wildlife, recreational uses, agricultural and industrial water supplies and navigation) which were actually attained in the waterbody on or after November 28, 1975, whether or not they are included in the water quality standards.

Fecal coliform bacteria: Gram-negative nonspore-forming rods that ferment lactose in 24 ± 2 hours at 44.5 ± 0.2°C with the production of gas in a multiple-tube procedure or produce acidity with blue colonies in a membrane filter procedure. For the purpose of this regulation, the genus *Klebsiella* is not included in this definition.

Fishable/swimmable: Refers to one of the national goals of the Clean Water Act as stated in Section 101(a)(2), "...provides for the protection and propagation of fish, shellfish and wildlife and provides for recreation in and on the water."

Fishery: The designated use of a waterbody determined by the fish community and other associated aquatic life.

Hardness: A measure of the sum of multivalent metallic cations expressed as calcium carbonate ($CaCO_3$).

Harmonic Mean Flow: The reciprocal of the mean of the reciprocals of daily flow measurements.

Headwater: The source of a stream.

Heavy metals: A general name given to the ions of metallic elements heavier than iron, such as cadmium, lead, mercury, copper, zinc and chromium.

Human Health Criteria: Levels of toxicants in ambient water which will not manifest adverse health effects in humans.

Hypolimnion: That portion of a thermally stratified lake or reservoir below the zone in which the rate of temperature change is greatest. An area of minimal circulation and mixing.

Impairment: Exceedences of the water quality standards by a frequency and/or magnitude which results in any designated use of a waterbody to fail to be met as a result of physical, chemical or biological conditions.

Indicator species: Species of fish which may not be dominant within a species group and may not be limited to one area of the state, but which, because of their presence, are readily associated with a specific ecoregion. All indicator species need not be present to establish a normal or representative fishery.

Indigenous: Produced, growing or living naturally in a particular region or environment.

Interstate: Of, connecting, or existing between two or more states.

Intrastate: Existing or occurring within a state.

Ionizing radiation: Gamma rays and x-rays; alpha and beta particles, high speed electrons, neutrons, protons and other nuclear particles; but not sound or radio waves, or visible, infrared or ultraviolet light.

Key species: Fishes which are normally the dominant species (except for some ubiquitous species) within the important groups such as fish families or trophic feeding levels. All specified key species need not be present to establish a normal or representative fishery.

Long Term Average Flow: An average annual stream flow based on a period of record which reflects the typical annual variability.

Milligrams per liter (mg/l): The concentration at which one milligram is contained in a volume of one liter; one milligram per liter is equivalent to one part per million (ppm) at unit density.

Mixing zone: An area where an effluent discharge undergoes mixing with the receiving waterbody. For toxic discharges a zone of initial dilution, (ZID) may be allowed within the mixing zone.

Mouth: The point of confluence where a stream enters a larger body of water.

Natural background: Ambient conditions or concentrations of a parameter due to non-anthropogenic sources; natural background does not typically interfere with support of designated uses nor the level of aquatic life expected to occur naturally at the site.

Naturally occurring excursions: Temporary deviation from natural background due to natural events such as severe storm events, drought, temperature extremes, etc.

Nonpoint source: A contributing factor to water pollution that is not confined to an end-of-the-pipe discharge, i.e., stormwater runoff, agricultural or silvicultural runoff, irrigation return flows, etc.

NTU (Nephelometric Turbidity Unit): A measure of turbidity based upon a comparison of the intensity of light scattered by a sample of water under defined conditions with the intensity of light scattered by a standard reference suspension; NTU are considered comparable to the previously reported JTU (Jackson Turbidity Units). May also be reported as FTU (Formazin Turbidity Units) in equivalent units.

Nuisance species: Those organisms capable of interfering with the beneficial use of water.

Nutrient: Any substance assimilated by an organism which promotes growth and replacement of cellular constituents. The usual nutrient components of water pollution are nitrogen, phosphorus and carbon.

Objectionable algal densities: Numbers of total algae which would interfere with a beneficial use.

Persistent: Degraded only slowly by the environment.

pH: The negative logarithm of the effective hydrogen-ion concentration in gram equivalents per liter.

Picocurie: One trillionth (10^{-13}) of a curie which is a unit of quantity of any radioactive nuclide in which 3.7×10^{10} disintegrations occur per second.

Point source: A discharge from a discrete point.

Q7-10: A flow volume equal to or less than the lowest mean discharge during 7 consecutive days of a year which, on the average, occurs once every 10 years.

Primary season: That period of the year when water temperatures are 22°C or below. This includes the major part of the year from fall through spring, including the spawning season of most fishes. It normally occurs from about mid-September to mid-May.

Primary Season Critical flow: A flow volume equal to the lowest mean discharge during 7 consecutive days during the period when stream flows increase substantially and water temperatures are cooler and, on the average, occurs once in every 10 years. In streams with watersheds less than 10 mi^2 this flow is one (1) CFS minus the design flow of any point source discharge.

Regulated-flow stream: Those streams restricted by structures which have the ability to control stream flow.

Seasonal fishery: The designated fishery use that occurs in some waterbodies only during the period when stream flows increase substantially and water temperatures are cooler. This is normally during the months of December through May.

Surface water: That water contained on the exterior or upper portion of the earth's surface as opposed to groundwater.

Synergism: Cooperative action of discrete agents such that the total effect is greater than the sum of the effects taken independently.

Total dissolved solids (TDS): The total soluble organic and inorganic material contained in water; includes those materials, both liquid and solid, in solution and otherwise, which pass through a standard glass fiber filter disk and are not volatilized during drying at 180°C.

Trout fishery: Water which is suitable for the growth and survival of trout, usually characterized as high quality water having a maximum summer temperature of 68°F or less.

Use attainability analysis: A structured scientific assessment of the factors affecting the attainment of the fishable/swimmable use which may include physical, chemical, biological and economic factors.

Waterbodies, waterways, waters: In this document, refers to surface waters of the state as described in Act 472.

Water Effects Ratio (WER): A specific pollutant's acute or chronic value measured from a specific site ambient water, divided by the respective acute or chronic toxicity of the same pollutant in laboratory water.

Zone of Initial Dilution (ZID): An area within the mixing zone where a toxic effluent discharge initiates mixing in the receiving waterbody. This is an area where acute water quality criteria may be exceeded, but acute toxicity may not occur.

CHAPTER 2: ANTIDEGRADATION POLICY

Reg. 2.201 Existing Uses

Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected.

Reg. 2.202 High Quality Waters

Where the quality of the waters exceeds levels necessary to support propagation of fish, shellfish and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State's continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located. In allowing such degradation or lower water quality, the State shall assure water quality adequate to protect existing uses fully. Further, the State shall assure that (1) there shall be achieved the highest statutory and regulatory requirements for all new and existing point sources and (2) that the provisions of the Arkansas Water Quality Management Plan be implemented with regard to nonpoint sources.

Reg. 2.203 Outstanding Resource Waters

Where high quality waters constitute an outstanding state or national resource, such as those waters designated as extraordinary resource waters, ecologically sensitive or natural and scenic waterways, those uses and water quality for which the outstanding waterbody was designated shall be protected by (1) water quality controls, (2) maintenance of natural flow regime, (3) protection of instream habitat, and (4) encouragement of land management practices protective of the watershed. It is not the intent of the ERW designated use definition to imply that ERW status dictates regulatory authority over private land within the watershed, other than what exists under local, state, or federal law. The Arkansas Soil and Water Conservation Commission has responsibility for the regulation of the withdrawal of water from streams and reservoirs, and such withdrawals are not within the jurisdiction of this regulation.

Reg. 2.204 Thermal Discharges

In those cases where potential water quality impairment associated with a thermal discharge is involved, the antidegradation policy and implementing method shall be consistent with Section 316 of the Act.

CHAPTER 3: WATERBODY USES

Reg. 2.301 Introduction

Substantially all the waters of the State have been designated for specific uses as shown in Appendix A. In those instances where waters are classified for multiple uses and different criteria are specified for each use, the criteria to protect the most sensitive use shall be applicable.

Reg. 2.302 Designated Uses

The designated uses are defined as follows:

(A) Extraordinary Resource Waters - This beneficial use is a combination of the chemical, physical and biological characteristics of a waterbody and its watershed which is characterized by scenic beauty, aesthetics, scientific values, broad scope recreation potential and intangible social values.

(B) Ecologically Sensitive Waterbody - This beneficial use identifies segments known to provide habitat within the existing range of threatened, endangered or endemic species of aquatic or semi-aquatic life forms.

(C) Natural and Scenic Waterways - This beneficial use identifies segments which have been legislatively adopted into a state or federal system.

(D) Primary Contact Recreation - This beneficial use designates waters where full body contact is involved. Any streams with watersheds of greater than 10 mi^2 are designated for full body contact. All streams with watersheds less than 10 mi^2 may be designated for primary contact recreation after site verification.

(E) Secondary Contact Recreation - This beneficial use designates waters where secondary activities like boating, fishing or wading are involved.

(F) Fisheries - This beneficial use provides for the protection and propagation of fish, shellfish and other forms of aquatic life. It is further subdivided into the following subcategories:

(1) <u>Trout</u> - water which is suitable for the growth and survival of trout (Family: Salmonidae).

(2) <u>Lakes and Reservoirs</u> - water which is suitable for the protection and propagation of fish and other forms of aquatic

life adapted to impounded waters. Generally characterized by a dominance of sunfishes such as bluegill or similar species, black basses and crappie. May include substantial populations of catfishes such as channel, blue and flathead catfish and commercial fishes including carp, buffalo and suckers. Forage fishes are normally shad or various species of minnows. Unique populations of walleye, striped bass and/or trout may also exist.

(3) Streams - water which is suitable for the protection and propagation of fish and other forms of aquatic life adapted to flowing water systems whether or not the flow is perennial.

(a) Ozark Highlands Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a preponderance of sensitive species and normally dominated by a diverse minnow community followed by sunfishes and darters. The community may be generally characterized by the following fishes:

Key Species	**Indicator Species**
Duskystripe, Bleeding or Cardinal shiner	Banded sculpin
Northern hogsucker	Ozark madtom
Slender madtom	Southern redbelly dace
"Rock" basses	Whitetail shiner
Rainbow and/or Orangethroat darters	Ozark minnow
Smallmouth bass	

(b) Boston Mountains Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a major proportion of sensitive species; a diverse, often darter-dominated community exists but with nearly equal proportions of minnows and sunfishes. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Bigeye shiner	Shadow bass
Black redhorse	Wedgespot shiner
Slender madtom	Longnose darter
Longear sunfish	Fantail darter
Greenside darter	
Smallmouth bass	

(c) Arkansas River Valley Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a substantial proportion of sensitive species; a sunfish- and minnow-dominated community exists but with substantial proportions of darters and catfishes (particularly madtoms). The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Bluntnose minnow	Orangespotted sunfish
Golden redhorse	Blackside darter
Yellow bullhead	Madtoms
Longear sunfish	
Redfin darter	
Spotted bass	

(d) Ouachita Mountains Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. The fish community is characterized by a major proportion of sensitive species; a minnow-sunfish-dominated community exists, followed by darters. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Bigeye shiner	Shadow bass
Northern hogsucker	Gravel chub
Freckled madtom	Northern studfish
Longear sunfish	Striped shiner
Orangebelly darter	
Smallmouth bass	

(e) Typical Gulf Coastal Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a limited proportion of sensitive species; sunfishes are distinctly dominant followed by darters and minnows. The community may be generally characterized by the following fishes:

Key Species	**Indicator Species**
Redfin shiner	Pirate perch
Spotted sucker	Flier
Yellow bullhead	Spotted sunfish
Warmouth	Dusky darter
Slough darter	Creek chubsucker
Grass pickerel	Banded pygmy sunfish

(f) Springwater-influenced Gulf Coastal Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by a substantial proportion of sensitive species; sunfishes normally dominate the community and are followed by darters and minnows. The community may be generally characterized by the following fishes:

Key Species	**Indicator Species**
Redfin shiner	Pirate perch
Blacktail redhorse	Golden redhorse
Freckled madtom	Spotted bass
Longear sunfish	Scaly sand darter
Creole darter	Striped shiner
Grass pickerel	Banded pygmy sunfish

(g) Least-altered Delta Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by an insignificant proportion of sensitive species; sunfishes are distinctly dominant followed by minnows. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Ribbon shiner	Pugnose minnow
Smallmouth buffalo	Mosquitofish
Yellow bullhead	Pirate perch
Bluegill	Tadpole madtom
Bluntnose darter	Banded pygmy sunfish
Largemouth bass	

(h) Channel-altered Delta Ecoregion - Streams supporting diverse communities of indigenous or adapted species of fish and other forms of aquatic life. Fish communities are characterized by an absence of sensitive species; sunfishes and minnows dominate the population followed by catfishes. The community may be generally characterized by the following fishes:

Key Species	Indicator Species
Blacktail shiner	Mosquitofish
Drum	Gizzard shad
Carp	Emerald shiner
Channel catfish	
Green sunfish	
Spotted gar	

(G) Domestic Water Supply - This beneficial use designates water which will be protected for use in public and private water supplies. Conditioning or treatment may be necessary prior to use.

(H) Industrial Water Supply - This beneficial use designates water which will be protected for use as process or cooling water. Quality criteria may vary with the specific type of process involved and the water supply may require prior treatment or conditioning.

(I) Agricultural Water Supply - This beneficial use designates waters which will be protected for irrigation of crops and/or consumption by livestock.

(J) Other Uses - This category of beneficial use is generally used to designate uses not dependent upon water quality, such as hydroelectric power generation and navigation.

Reg. 2.303 Use Attainability Analysis

(A) A use attainability analysis must be conducted to justify the following conditions:

(1) Removing a fishable/swimmable designated use, which is not an existing use, from a waterbody; or

(2) To identify a subcategory of a fishable/swimmable use which requires less stringent criteria.

(B) In order to remove a designated fishable/swimmable use which is not an existing use, or identify subcategories of a fishable/swimmable use which require less stringent criteria, it must be demonstrated that the designated use is not attainable because:

(1) naturally occurring pollutant concentrations prevent the attainment of the use; or

(2) 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; or

(3) human caused conditions or sources of pollution prevent attainment of the use and cannot be remedied or would cause more environmental damage to correct than leave in place; or

(4) dams, diversions or other types of hydrologic modifications preclude the attainment of the use, and it is not feasible to restore the water body to its original condition or to operate such modification in a way that would result in the attainment of the use; or

(5) physical conditions related to the natural features of a water body, such as lack of a proper substrate, cover, flow, depth, pools, riffles, and the like, unrelated to water quality, preclude attainment of aquatic life protection uses; or

(6) controls more stringent than those required by Section 301(b) and 306 of the Act would result in substantial and widespread economic and social impact.

The scope of a use attainability analysis shall be in direct proportion to the project involved and the resource value of the receiving stream. Methods for conducting a use attainability analysis

may be found in the November 1983 EPA publication entitled *Technical Support Manual: Waterbody Surveys and Assessments for Conducting Use Attainability Analyses*. Other scientific methods, including the use of existing technical data, may be used for justifying the removal of a designated use; provided the methods are agreed upon prior to the study. Such other methods may include the use of information previously gathered through technical studies and/or use attainability analysis. Use attainability analysis procedures may be found in the State of Arkansas Continuing Planning Process document (CPP). Any waterbody on which a use attainability analysis is approved shall be so listed in Appendix A with appropriate criteria.

Reg. 2.304 Physical Alteration of Habitat

Significant physical alterations of the habitat within extraordinary resource waters, ecologically sensitive waterbodies or natural and scenic waterways are not allowed. In other waters, where significant physical alterations of the habitat are proposed, the Department must be assured that no significant degradation of any existing use or water quality necessary to protect that use will occur. In order to make such determinations, the Department may require an evaluation of all practicable alternatives to the project including: an environmental assessment of the impacts of each alternative, an engineering and economic analysis, and a socio-economic evaluation of the project in the local area.

Reg. 2.305 Short Term Activity Authorization

The Director may authorize, with whatever conditions deemed necessary and without public notice, short term activities which might cause a violation of the Arkansas Water Quality Standards. This authorization is subject to the provisions that such activity is essential to the protection or promotion of the public interest and that no permanent or long-term impairment of beneficial uses is likely to result from such activity. Nothing herein shall be intended to supersede existing state and federal permitting processes or requirements.

Activities eligible for authorization include, but are not limited to:

(A) wastewater treatment facility maintenance;

(B) fish eradication projects;

(C) mosquito abatement projects;

(D) algae and weed control projects;

(E) dredge and fill projects;

(F) construction activities;

(G) tracers used in hydrological studies; or

(H) activities which result in overall enhancement or maintenance of beneficial uses.

The Director shall specify the degree of variance from the standards, the time limit of activity and restoration procedures where applicable.

Such authorization shall not be granted for activities which result in the adverse impact on any federally threatened or endangered species or on critical habitat of such species.

Reg. 2.306 Procedures for Removal of Any Designated Use Except Fishable/Swimmable, and Modification of Water Quality Criteria not Related to Fishable/Swimmable Uses

This procedure is applicable in those cases where the Commission chooses to establish less stringent water quality criteria without affecting a fishable/swimmable use or when the Commission chooses to remove a use other than fishable/swimmable which is not an existing use.

The Commission may allow a modification of the water quality criteria or the removal of a use which is not a fishable/swimmable use to accommodate important economic or social development in a local area, if existing uses are maintained and protected fully and the requirements for public participation in the Continuing Planning Process are met. As a minimum, the following information shall be submitted to the Department Director before initiation of the public participation process:

(A) Technological or economic limits of treatability.

(B) Economic analysis of the impact on the local area.

(C) Documentation that the use being removed is not an existing use and that all other designated uses will be protected.

Modifications made pursuant to this section may be required to be rejustified for continued support. As community water needs change, or technological advancement, including long-term environmental improvement projects, make treatment options more practicable, the Commission may reevaluate the need for the reestablishment of the more stringent water quality criteria or the removed use.

Any waterbody on which such alterations are approved will be so listed in Appendix A with the applicable changes noted.

Reg. 2.307 Use Subcategories

The Commission may adopt sub-categories of a use and set the appropriate criteria to reflect varying needs of such sub-categories of uses, for instance, to differentiate between cold and warm water fisheries or agricultural and domestic water supply.

Reg. 2.308 Site Specific Criteria

In establishing criteria:

(A) Establish numerical criteria values based on:

(1) 304(a) Guidance; or

(2) 304(a) Guidance modified to reflect site conditions [WER] or

(3) other scientifically defensible methods;

(B) Establish narrative criteria or criteria based upon biomonitoring methods where numerical criteria cannot be established or to supplement numerical criteria.

Reg. 2.309 Temporary Variance

A temporary variance to the water quality standards may be allowed for an existing permitted discharge facility. The variance will be for specified constituents and shall be no longer than a three year period. A variance must be approved by the Arkansas Pollution Control and Ecology Commission and the U.S. Environmental Protection Agency. A variance will be considered when it is determined that a standard, including designated use, can ultimately be attained or when preliminary evidence indicates that a site specific amendment of the standards may be appropriate. A variance may be granted only to the applicant and will not apply to other discharges into the specified waterbody.

CHAPTER 4: GENERAL STANDARDS

Reg. 2.401 Applicability

The general standards outlined below are applicable to all surface waters of the State at all times. They apply specifically with regard to substances attributed to discharges, nonpoint sources or instream activities as opposed to natural phenomena. Waters may, on occasion, have natural background levels of certain substances outside the limits established by these criteria, in which case these criteria do not apply.

Reg. 2.402 Nuisance Species

All waters shall be free from substances attributed to man-caused point or nonpoint source discharges in concentrations that produce undesirable aquatic life or result in the dominance of nuisance species.

Reg. 2.403 Methods

The methods of sample collection, preservation, measurements and analyses shall be in accordance with the EPA's *Guidelines Establishing Test Procedures for the Analysis of Pollutants* (40 CFR, Part 136) or other proven methods acceptable to the Department.

Reg. 2.404 Mixing Zones

Mixing zones are allowed for all parameters not specifically excluded in Reg. 2.404 and the effects of wastes on the receiving stream shall be determined after the wastes have been thoroughly mixed with the mixing zone volume. Outfall structures should be designed to minimize the extent of mixing zones to ensure rapid and complete mixing.

For aquatic life toxic substances in larger streams,(those with Q7-10 flows equal to or greater than 100 cfs), the zone of mixing shall not exceed 1/4 of the cross-sectional area and/or critical flow volume of the stream. The remaining 3/4 of the stream shall be maintained as a zone of passage for swimming and drifting organisms, and shall remain of such quality that stream ecosystems are not significantly affected. In the smaller streams, (Q7-10 flows less than 100 cfs), because of varying local physical and chemical conditions and biological phenomena, a site-specific determination shall be made on the percentage of river width necessary to allow passage of critical free-swimming and drifting organisms so that negligible or no effects are produced on their populations. As a guideline, no more than 2/3 of the cross-sectional area and/or critical flow volume of smaller streams should be devoted to mixing zones thus leaving at least 1/3 of the cross-sectional area free as a zone of passage.

Mixing zones are not allowed for the parameters of bacteria or oil and grease, or where the background flow is less than the critical flow or where the background concentration of a waste parameter exceeds the specific criteria for that waste parameter.

In lakes and reservoirs the size of mixing zones shall be defined by the Department on an individual basis, and the area shall be kept at a minimum.

Mixing zones shall not prevent the free passage of fish or significantly affect aquatic ecosystems.

A mixing zone shall not include any domestic water supply intake.

Reg. 2.405 Biological Integrity

For all waters with specific fisheries use designated in Appendix A, aquatic biota should not be impacted. Aquatic biota should be representative of streams that have the ability to support the designated fishery, taking into consideration the seasonal and natural variability of the aquatic biota community under naturally varying habitat and hydrological conditions; the technical and economic feasibility of the options available to address the relevant conditions; and other factors. An aquatic biota assessment should compare biota communities that are similar in variety and abundance, based upon either an in-stream study including an upstream and downstream comparison, a comparison to a reference water body within the same ecoregion, or a comparison to community characteristics from a composite of reference waters. The reference stream should have similar habitat and hydrologic conditions. Such a comparison should consider the seasonal and natural variability of the aquatic biota community. It is the responsibility of the Department to collect and evaluate the data for an aquatic biota assessment and such data will not be used to develop or impose permit limits.

Reg. 2.406 Color

True color shall not be increased in any waters to the extent that it will interfere with present or projected future uses of these waters.

Reg. 2.407 Taste and Odor

Taste and odor producing substances shall be limited in receiving waters to concentrations that will not interfere with the production of potable water by reasonable water treatment processes, or impart unpalatable flavor to food, fish or result in offensive odors arising from the waters or otherwise interfere with the reasonable use of the water.

Reg. 2.408 Solids, Floating Material and Deposits

Receiving waters shall have no distinctly visible solids, scum or foam of a persistent nature, nor shall there be any formation of slime, bottom deposits or sludge banks.

Reg. 2.409 Toxic Substances

Discharges shall not be allowed into any waterbody which, after consideration of the zone of initial dilution, the mixing zone and critical flow conditions, will cause toxicity to human, animal, plant or aquatic life or interfere with normal propagation, growth, and survival of aquatic biota.

Reg. 2.410 Oil and Grease

Oil, grease or petrochemical substances shall not be present in receiving waters to the extent that they produce globules or other residue or any visible, colored film on the surface or coat the banks and/or bottoms of the waterbody or adversely affect any of the associated biota.

CHAPTER 5: SPECIFIC STANDARDS

Reg. 2.501 Applicability

The following specific standards shall apply to all surface waters of the state at all times except during periods when flows are less than the applicable critical flow. Streams with regulated flow will be addressed on a case-by-case basis to maintain designated instream uses. These standards apply outside the applicable mixing zone. Waters may, on occasion have natural background levels of certain substances outside the limits established by these criteria, in which case these criteria do not apply to the naturally occurring excursions.

Reg. 2.502 Temperature

Heat shall not be added to any waterbody in excess of the amount that will elevate the natural temperature, outside the mixing zone, by more than 5°F (2.8°C) based upon the monthly average of the maximum daily temperatures measured at mid-depth or three feet (whichever is less) in streams, lakes or reservoirs. Maximum allowable temperatures from man-induced causes in the following waters are:

Waterbodies	**Limit °C (°F)**
Streams	
Ozark Highlands	29 (84.2)
Boston Mountains	31 (87.8)
Arkansas River Valley	31 (87.8)
Ouachita Mountains	30 (86.0)
Springwater-influenced Gulf Coastal	30 (86.0)
Typical Gulf Coastal	30 (86.0)
Least-Altered Delta	30 (86.0)
Channel-Altered Delta	32 (89.6)
White River (Dam #1 to mouth)	32 (89.6)
St.Francis River	32 (89.6)
Mississippi River	32 (89.6)
Arkansas River	32 (89.6)
Ouachita River (L. Missouri R.to state line)	32 (89.6)
Red River	32 (89.6)
Lakes and Reservoirs	32 (89.6)
Trout waters	20 (68.0)

Temperature requirements shall not apply to off-stream privately-owned reservoirs constructed primarily for industrial cooling purposes and financed in whole or in part by the entity or successor entity using the lake for cooling purposes.

Reg. 2.503 Turbidity

There shall be no distinctly visible increase in turbidity of receiving waters attributable to municipal, industrial, agricultural, other waste discharges or instream activities. Specifically, in no case shall any such waste discharge or instream activity cause turbidity values to exceed the primary values listed below. Additionally, the non-point source runoff shall not result in the exceedance of the in stream storm-flow values in more than 20% of the ADEQ ambient monitoring network samples taken in not less than 24 monthly samples.

Waterbodies	**Primary Values (NTU)**	**Storm-Flow Values(NTU)**
Streams		
Ozark Highlands	10	17
Boston Mountains	10	19
Arkansas River Valley	21	40
Ouachita Mountains	10	18
Springwater-influenced Gulf Coastal	21	32
Typical Gulf Coastal	21	32
Least-Altered Delta	45	84
Channel-Altered Delta	75	250
Arkansas River	50	52
Mississippi River	50	75
Red River	50	150
St. Francis River	75	100
Trout	10	15
Lakes and Reservoirs	25	45

Reg. 2.504 pH

As a result of waste discharges, the pH of water in streams or lakes must not fluctuate in excess of 1.0 unit over a period of 24 hours and pH values shall not be below 6.0 or above 9.0.

Reg. 2.505 Dissolved Oxygen

In streams with watersheds of less than 10 mi^2, it is assumed that insufficient water exists to support a fishery during the critical season. During this time, a D.O. standard of 2 mg/l will apply to prevent nuisance conditions. However, field verification is required in areas suspected of having significant groundwater flows or enduring pools which may support unique aquatic biota. In such waters the critical season standard for the next size category of stream shall apply.

All streams with watersheds of less than 10 mi^2 are expected to support a fishery during the primary season when stream flows, including discharges, equal or exceed 1 cubic foot per second (CFS); however, when site verification indicates that a fishery exists at flows below 1 CFS, such fishery will be protected by the primary standard.

Also, in these streams with watersheds of less than 10 mi^2, where waste discharges are 1 CFS or more, they are assumed to provide sufficient water to support a perennial fishery and, therefore, must meet the dissolved oxygen standards of the next size category of streams.

For purposes of determining effluent discharge limits, the following conditions shall apply:

(A) The primary season dissolved oxygen standard is to be met at a water temperature of 22°C (71.5°F) and at the minimum stream flow for that season. At water temperatures of 10°C (50°F), the dissolved oxygen standard is 6.5 mg/l.

(B) During March, April and May, when background stream flows are 15 CFS or higher, the D.O. standard is 6.5 mg/l in all areas except the Delta Ecoregion, where the primary season D.O. standard will remain at 5 mg/l.

(C) The critical season dissolved oxygen standard is to be met at maximum allowable water temperatures and at Q7-10 flows. However, when water temperatures exceed 22°C (71.6°F), a 1 mg/l diurnal depression will be allowed below the applicable critical standard for no more than 8 hours during any 24-hour period.

The following dissolved oxygen standards must be met:

Waterbodies	**Limit (mg/l)**	
Streams	Primary	Critical
Ozark Highlands		
<10 mi^2 watershed	6	2
10 to 100 mi^2	6	5
>100 mi^2 watershed	6	6
Boston Mountains		
<10 mi^2 watershed	6	2
>10 mi^2 watershed	6	6
Arkansas River Valley		
<10 mi^2 watershed	5	2
10 mi^2 to 150 mi^2	5	3
151 mi^2 to 400 mi^2	5	4
>400 mi^2 watershed	5	5
Ouachita Mountains		
<10 mi^2 watershed	6	2
>10 mi^2 watershed	6	6
Typical Gulf Coastal		

Waterbodies	Limit (mg/l)	
<10 mi^2 watershed	5	2
10 mi^2 to 500 mi^2	5	3
>500 mi^2 watershed	5	5
Springwater-influenced Gulf Coastal		
All size watersheds	6	5
Delta (least-altered and channel altered)		
<10 mi^2 watershed	5	2
10 mi^2 to 100 mi^2	5	3
>100 mi^2 watershed	5	5
Trout Waters		
All size watersheds	6	6

Lakes and Reservoirs

Specific dissolved oxygen standards for lakes and reservoirs shall be 5 mg/l. Effluent limits for oxygen-demanding discharges into impounded waters are promulgated in Regulation #6 of the Arkansas Pollution Control and Ecology Commission. However, the Commission may, after full satisfaction of the intergovernmental coordination and public participation provisions of the state's continuing planning process, establish alternative limits for dissolved oxygen in lakes and reservoirs where studies and other relevant information can demonstrate that predominant ecosystem conditions may be more accurately reflected by such alternate limits; provided that these limits shall be compatible with all designated beneficial uses of named lakes and reservoirs.

Reg. 2.506 Radioactivity

The Rules and Regulations for the Control of Sources of Ionizing Radiation of the Division of Radiological Health, Arkansas Department of Health, limits the maximum permissible levels of radiation that may be present in effluents to surface waters in uncontrollable areas. These limits shall apply for the purposes of these standards, except that in no case shall the levels of dissolved radium-226 and strontium-90 exceed 3 and 10 picocuries/liter, respectively, in the receiving water after mixing, nor shall the gross beta concentration exceed 1000 picocuries/liter.

Reg. 2.507 Bacteria

The Arkansas Department of Health has the responsibility of approving or disapproving surface waters for public water supply and of approving or disapproving the suitability of specifically delineated outdoor bathing places for body contact recreation, and it has issued rules and regulations pertaining to such uses.

For the purposes of this regulation, all streams with watersheds less than 10 mi^2 shall not be designated for primary contact unless and until site verification indicates that such use is attainable. No mixing zones are allowed for discharges of bacteria.

(A) Primary Contact Waters - Between May 1 and September 30, the fecal coliform content shall not exceed a geometric mean of 200 col/100 ml nor a monthly maximum of 400 col/100 ml. Alternatively, in these waters, *Escherichia coli* colony counts shall not exceed a geometric mean of more than 126 col/100 ml. or a monthly maximum value of not more than 298 col/100 ml in lakes, reservoirs and Extraordinary Resource Waters or 410 col/100 ml in other rivers and streams. During the remainder of the calendar year, these criteria may be exceeded, but at no time shall these counts exceed the level necessary to support secondary contact recreation (below).

(B) Secondary Contact Waters - The fecal coliform content shall not exceed a geometric mean of 1000 col/100 ml, nor a monthly maximum of 2000 col/100 ml. E. coli values shall not exceed the geometric mean of 630 col/100 ml or a monthly maximum of 1490 col/100 ml for lakes, reservoirs and Extraordinary Resource Waters and 2050 col/100 ml for other rivers and streams.

(C) For assessment of ambient waters as impaired by bacteria, the above listed applicable values shall not be exceeded in more than 25% of samples in no less than eight (8) samples taken during the primary contact season or during the secondary contact season.

Reg. 2.508 Toxic Substances

Toxic substances shall not be present in receiving waters, after mixing, in such quantities as to be toxic to human, animal, plant or aquatic life or to interfere with the normal propagation, growth and survival of the indigenous aquatic biota. Acute toxicity standards may not be exceeded outside the zone of initial dilution. Within the ZID acute toxicity standards may be exceeded but acute toxicity may not occur. Chronic toxicity and chronic numeric toxicity standards shall not be exceeded at, or beyond, the edge of the mixing zone. Permitting of all toxic substances shall be in accordance with the toxic implementation strategy found in the Continuing Planning Process. For non permit issues and as a guideline for evaluating toxic substances not listed in the following tables, the Department may consider No Observed Effect Concentrations (NOECs) or other literature values as appropriate. For the substances listed below, the following standards shall apply:

ALL WATERBODIES - AQUATIC LIFE CRITERIA

Substance	Acute Values (µg/l)	Chronic Values (µg/l)

	(Never to Exceed)	(24-hr Average)
PCBs		0.0140
Aldrin	3.0	
Dieldrin	2.5	0.0019
DDT (& metabolites)	1.1	0.0010
Endrin*	0.18	0.0023
Toxaphene	0.73	0.0002
Chlordane	2.4	0.0043
Endosulfan*	0.22	0.056
Heptachlor	0.52	0.0038
Hexachlorocyclohexane*	2.0	0.080
Pentachlorophenol	$e^{[1.005(pH)-4.869]}$	$e^{[1.005(pH)-5.134]}$
Chlorpyrifos	0.083	0.041

* Total of all isomers

DISSOLVED METALS *

	Acute Criteria (CMC) - µg/L(ppb)		Chronic Criteria (CCC) - ug/L(ppb)	
Substance	Formula	X Conversion	Formula	X Conversion
Cadmium	$e^{[1.128(lnhardness)]-3.828}$	(a)	$e^{[0.7852(lnhardness)]-3.490}$	(c)
Chromium(III)	$e^{[0.819(lnhardness)]+3.688}$	0.316	$e^{[0.8190(lnhardness)]+1.561}$	0.860
Chromium (VI)	16	0.982	11	0.962
Copper	$e^{[0..9422(lnhardness)]-1.464}$	0.960	$e^{[0.8545(lnhardness)]-1.465}$	0.960
Lead	$e^{[1.273(lnhardness)]-1.460}$	(b)	$e^{[1.273(lnhardness)]-4.705}$	(b)
Mercury**	2.4	0.85	0.012**	NONE
Nickel	$e^{[0.8460(lnhardness)]+3.3612}$	0.998	$e^{[0.8460(lnhardness)]+1.1645}$	0.997
Selenium**	20	NONE	5	NONE
Silver	$e^{[1.72(lnhardness)]-6.52}$	0.85	----------	NONE
Zinc	$e^{[0.8473(lnhardness)]+0.8604}$	0.978	$e^{[0.8473(lnhardness)]+0.7614}$	0.986
Cyanide**	22.36	NONE	5.2	NONE

* These values may be adjusted by a site specific Water Effects Ratio(WER) as defined in 40 CFR Part 31.36 (c).

(a) Calculated as: 1.136672 - [(ln hardness)(0.041838)]

(b) Calculated as: 1.46203 - [(ln hardness)(0.145712)]

(c) Calculated as: 1.101672 - [(ln hardness)(0.041838)]

* * Expressed as total recoverable. Mercury based on bioaccumulation of residues in aquatic organisms, rather than toxicity.

ALL WATERBODIES - HUMAN HEALTH CRITERIA

Substance	Criteria (ng/l)*
Dioxin (2,3,7,8 TCDD)	0.001
Chlordane	5.0
PCBs (polychlorinated biphenyls)	0.4
alpha Hexachlorocyclohexane	37.3
Beryllium	76.0
Dieldrin	1.2
Toxaphene	6.3

* Criteria based on a lifetime risk factor of 10^{-5}.

The permittee shall have the option to develop site-specific numerical standards for toxic substances using EPA approved bioassay methodology and guidance. Such guidance may include but may not be limited to *Water Quality Standards Handbook*; *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses* (August, 1994); *Methods for Measuring the Acute Toxicity of Effluents to Freshwater and Marine Organisms* (EPA 600/4-90/027F. 5th ed. December 2002); *Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/600/4-91/002. 4th ed. October 2002) or most recent update thereof.

Only ambient water quality data for dissolved metals generated or approved by ADEQ after March 1, 1993 will be considered in the documentation of background concentrations for the purpose of developing permit limitations.

Reg. 2.509 Nutrients

Materials stimulating algal growth shall not be present in concentrations sufficient to cause objectionable algal densities or other nuisance aquatic vegetation or otherwise impair any designated use of the waterbody. Impairment of a waterbody from excess nutrients are dependent on the natural waterbody characteristics such as stream flow, residence time, stream slope, substrate type, canopy, riparian vegetation, primary use of waterbody, season of the year and ecoregion water chemistry. Because nutrient water column concentrations do not always correlate directly with stream impairments, impairments will be assessed by a combination of factors such as water clarity, periphyton or phytoplankton production, dissolved oxygen values, dissolved oxygen saturation, diurnal dissolved oxygen fluctuations, pH values, aquatic-life community structure and possibly others. However, when excess nutrients result in an

impairment, based upon Department assessment methodology, by any established, numeric water quality standard, the waterbody will be determined to be impaired by nutrients.

All point source discharges into the watershed of waters officially listed on Arkansas' impaired waterbody list (303d) with phosphorus as the major cause shall have monthly average discharge permit limits no greater than those listed below. Additionally, waters in nutrient surplus watersheds as determined by Act 1061 of 2003 Regular Session of the Arkansas 84th General Assembly and subsequently designated nutrient surplus watersheds may be included under this Reg. if point source discharges are shown to provide a significant phosphorus contribution to waters within the listed nutrient surplus watersheds.

Facility Design Flow – mgd	Total Phosphorus discharge limit – mg/L
= or > 15	Case by case
3 to <15	1.0
1 to <3	2.0
0.5 to <1.0	5.0
<0.5	Case by Case

For discharges from point sources which are greater than 15 mgd, reduction of phosphorus below 1 mg/L may be required based on the magnitude of the phosphorus load (mass) and the type of downstream waterbodies (e.g., reservoirs, Extraordinary Resource Waters). Additionally, any discharge limits listed above may be further reduced if it is determined that these values are causing impairments to special waters such as domestic water supplies, lakes or reservoirs or Extraordinary Resource Waters.

Reg. 2.510 Oil and Grease

Oil, grease or petrochemical substances shall not be present in receiving waters to the extent that they produce globules or other residue or any visible, colored film on the surface, or coat the banks and/or bottoms of the watercourses or adversely affect any of the associated biota. As a guideline, oil and grease shall not exceed 10 mg/l average or 15 mg/l maximum when discharging to surface waters. No mixing zones are allowed for discharges of oil and grease.

Reg. 2.511 Mineral Quality

Mineral quality shall not be altered by municipal, industrial, other waste discharges or instream activities so as to interfere with designated uses. The following limits apply to the streams indicated, and represent concentrations of chloride (Cl^-), sulfate ($SO_4^=$) and total dissolved solids (TDS) not to be exceeded in more than one (1) in ten (10) samples collected over a period of not less than 30 days or more than 360 days.

Stream	Concentration-mg/L		
	Cl^-	$SO_4^=$	TDS
Arkansas River Basin			
Arkansas River (Mouth to L&D #7)	250	100	500

Stream	Concentration-mg/L		
	Cl^-	$SO_4^=$	TDS
Bayou Meto (Rocky Branch to Bayou Two Prairie)	64*	ER	ER
Rocky Branch Creek	64*	ER	ER
Arkansas River (L&D #7 to L&D #10)	250	100	500
Cadron Creek	20	20	100
Arkansas River (L&D #10 to Oklahoma line, including Dardanelle Reservoir)	250	120	500
James Fork	20	100	275
Illinois River	20	20	300
Poteau River from Business Hwy 71to Stateline	120	60	500
Unnamed trib at Waldron	150	70	660
White River Basin			
White River (Mouth to Dam #3)	20	60	430
Big Creek	20	30	270
Unnamed trib from Frit Ind.	ER	48*	ER
Cache River	20	30	270
Bayou DeView	20	30	270
Little Red River (including Greers Ferry Reservoir)	20	30	100
Black River	20	30	270
Strawberry River	20	30	270
Spring River	20	30	290
Eleven Point River	20	30	270
Stennitt Creek	ER	ER	456*
South Fork Spring River	20	30	270
Myatt Creek	20	30	270
Current River	20	30	270
White River (Dam #3 to Missouri line, including Bull Shoals Reservoir)	20	20	180
Buffalo River	20	20	200
Crooked Creek	20	20	200
White River (Missouri line to headwaters, including Beaver Reservoir)	20	20	160
Kings River	20	20	150
West Fork White River	20	20	150
St. Francis River Basin			
St. Francis River (Mouth to 36° N. Lat.)	10	30	330
L'Anguille River	20	30	235
Tyronza River	20	30	350
Little River	20	30	365
Pemiscot Bayou	20	30	380
St. Francis River (36° N. Lat. to 36° 30' N. Lat.)	10	20	180
Ouachita River Basin			

Stream	Concentration-mg/L		
	Cl^-	$SO_4^=$	TDS
Bayou Bartholomew	30	30	220
Chemin-A-Haut Creek	50	20	500
Overflow Creek	20	30	170
Bayou Macon	30	40	330
Boeuf River	90	30	460
Big Cornie Creek	230	30	500
Little Cornie Creek	200	10	400
Three Creeks	250	10	500
Little Cornie Bayou	200	20	500
Walker Branch	180	ER	970
Gum Creek	104*	ER	311*
Bayou de L'Outre above Gum Creek	250	90	500
Bayou de L'Outre below Gum Creek	250	90	750
Ouachita River (Louisiana line to Camden)	160	40	350
Saline River	20	40	120
Saline River east bifurcation at Holly Creek	ER	250	500
Hurricane Cr above Hurricane Lake Dam	20	250	500
Hurricane Cr from Hurricane Lk. Dam to Ben Ball Brdg	125	730	1210
Ben Ball Bridge to Hwy.270	125	700	1200
Hwy 270 to Saline River	100	500	1000
Alcoa unnamed tribs to Hurricane Cr.	125	700	1100
Dry Lost Creek and tribs	ER	560	880
Lost Creek to Little Lost Creek	ER	510	820
Lost Creek below Little Lost Creek	ER	300	550
Holly Creek	30	860	1600
Moro Creek	30	20	260
Smackover Creek	250	30	500
Ouachita River (Camden to Carpenter Dam)	50	40	150
Town Creek below Acme tributary	ER	200	700
Unnamed trib from Acme	ER	330	830
Little Missouri River	10	90	180
Muddy Fork Little Missouri	ER	250	500
Bluff Creek and unnamed trib.	ER	651*	1033*
Garland Creek	250	250	500
South Fork Caddo	ER	60	128
Back Valley Creek	ER	250	500
Ouachita River (Carpenter Dam to Headwaters, including Lake Ouachita tributaries)	10	10	100
Red River Basin			
Bayou Dorcheat	100	16*	250
Albemarle unnamed trib (AUT) to Horsehead Creek	137*	ER	383*
Horsehead Creek from AUT to mouth	85*	ER	260*
Cypress Creek	250	70	500

Stream	Concentration-mg/L		
	Cl^-	$SO_4^=$	TDS
Crooked Creek	250	10	500
Dismukes Creek	26	ER	157
Big Creek from Dismukes to Bayou Dorcheat	20	ER	200
Bois d'Arc Creek from Caney Creek to Red River	113*	283*	420*
Caney Creek	113*	283*	420*
Bodcau Creek	250	70	500
Poston Bayou	120	40	500
Kelley Bayou	90	40	500
Red River from Oklahoma to confluence with Little River	250	200	850
Red River from Little River to Louisiana	250	200	500
Sulphur River	120	100	500
Days Creek	250	250	500
McKinney Bayou	180	60	480
Little River	20	20	100
Saline River	20	10	90
Mine Creek from Hwy 27 to Millwood Lake	90	65	700
Cossatot River	10	15	70
Upper Rolling Fork	20	20	100
Rolling Fork from unnamed trib A to DeQueen Lake	130	70	670
Unnamed tribs A and A1 at Grannis	135	70	700
Mountain Fork	20	20	110
Mississippi River (Louisiana line to Arkansas River)	60	150	425
Mississippi River (Arkansas River to Missouri line)	60	175	450

ER - ecoregion standard
* - based on critical background flow of 4 cfs
Any modification of these values must be made in accordance with Reg. 2.306.

The following values determined from Arkansas' least-disturbed ecoregion reference streams are considered to be the maximum naturally occurring levels. For waterbodies not listed above, any discharge which results in instream concentrations more than 1/3 higher than these values for Cl and $SO_4^=$ or more than 15 mg/l, whichever is greater, is considered to be a significant modification of the water quality. Similarly, such modification exists if the following TDS values are exceeded after being increased by the sum of the increases to Cl and SO_4. Such modifications may be made only in accordance with Reg. 2.306.

ECOREGION REFERENCE STREAM DATA (mg/l)

	Cl^-	$SO_4^=$	TDS
Ozark Highlands	13	17	240
Boston Mountains	13	9	85
Arkansas River Valley	10	13	103
Ouachita Mountains	6	15	128

	Cl^-	$SO_4^=$	TDS
Gulf Coastal Plains	14	31	123
Delta	36	28	390

In no case shall discharges cause concentrations in any waterbody to exceed 250, 250 and 500 mg/l of chlorides, sulfates and total dissolved solids, respectively, or cause concentrations to exceed the applicable limits in the streams to which they are tributary, except in accordance with Reg. 2.306.

Reg. 2.512 Ammonia

Total ammonia nitrogen (N) shall not exceed those values and frequency of occurrence established in the following tables:

(A) The one-hour average concentration of total ammonia nitrogen shall not exceed, more than once every three years on the average, the acute criterion as shown in the following table:

pH-Dependent Values of the CMC (Acute Criterion)- mg/L

pH	Salmonids* Present	Salmonids Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.1	42.0
6.9	26.2	39.1
7.0	24.1	36.1
7.1	22.0	32.8
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.4	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.65	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.40
8.1	4.64	6.95
8.2	3.83	5.72
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20

pH	Salmonids* Present	Salmonids Absent
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

* Family of fishes which includes trout

(B) The thirty-day average concentration of total ammonia nitrogen shall not exceed those values shown as the chronic criterion in the following tables:

Temperature and pH-Dependent Values of the CCC (Chronic Criterion) for Fish Early Life Stages Present – mg/L

	Temperature, °C									
pH	0	14	16	18	20	22	24	26	28	30
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

Temperature and pH-Dependent Values of the CCC (Chronic Criterion)

for Fish Early Life Stages Absent – mg/L

	Temperature, °C									
pH	**0-7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15***	**16***
6.5	10.8	10.1	9.51	8.92	8.36	7.84	7.35	6.89	6.46	6.06
6.6	10.7	9.99	9.37	8.79	8.24	7.72	7.24	6.79	6.36	5.97
6.7	10.5	9.81	9.20	8.62	8.08	7.58	7.11	6.66	6.25	5.86
6.8	10.2	9.58	8.98	8.42	7.90	7.40	6.94	6.51	6.10	5.72
6.9	9.93	9.31	8.73	8.19	7.68	7.20	6.75	6.33	5.93	5.56
7.0	9.60	9.00	8.43	7.91	7.41	6.95	6.52	6.11	5.73	5.37
7.1	9.20	8.63	8.09	7.58	7.11	6.67	6.25	5.86	5.49	5.15
7.2	8.75	8.20	7.69	7.21	6.76	6.34	5.94	5.57	5.22	4.90
7.3	8.24	7.73	7.25	6.79	6.37	5.97	5.60	5.25	4.92	4.61
7.4	7.69	7.21	6.76	6.33	5.94	5.57	5.22	4.89	4.59	4.30
7.5	7.09	6.64	6.23	5.84	5.48	5.13	4.81	4.51	4.23	3.97
7.6	6.46	6.05	5.67	5.32	4.99	4.68	4.38	4.11	3.85	3.61
7.7	5.81	5.45	5.11	4.79	4.49	4.21	3.95	3.70	3.47	3.25
7.8	5.17	4.84	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89
7.9	4.54	4.26	3.99	3.74	3.51	3.29	3.09	2.89	2.71	2.54
8.0	3.95	3.70	3.47	3.26	3.05	2.86	2.68	2.52	2.36	2.21
8.1	3.41	3.19	2.99	2.81	2.63	2.47	2.31	2.17	2.03	1.91
8.2	2.91	2.73	2.56	2.40	2.25	2.11	1.98	1.85	1.74	1.63
8.3	2.47	2.32	2.18	2.04	1.91	1.79	1.68	1.58	1.48	1.39
8.4	2.09	1.96	1.84	1.73	1.62	1.52	1.42	1.33	1.25	1.17
8.5	1.77	1.66	1.55	1.46	1.37	1.28	1.20	1.13	1.06	0.990
8.6	1.49	1.40	1.31	1.23	1.15	1.08	1.01	0.951	0.892	0.836
8.7	1.26	1.18	1.11	1.04	0.976	0.915	0.858	0.805	0.754	0.707
8.8	1.07	1.01	0.944	0.885	0.829	0.778	0.729	0.684	0.641	0.601
8.9	0.917	0.860	0.806	0.756	0.709	0.664	0.623	0.584	0.548	0.513
9.0	0.790	0.740	0.694	0.651	0.610	0.572	0.536	0.503	0.471	0.442

* At 15 C and above, the criterion for fish ELS absent is the same as the criterion for fish ELS present.

(C) The highest four-day average within a 30-day period should not exceed 2.5 times the chronic values shown above.

(D) For permitted discharges, the daily maximum or 7-day average permit limit shall be calculated using the four-day average value described above as an instream value, after mixing and based on a season when fish early life stages are present and a season when fish early life stages are absent. Temperature values used will be 14° C when fish early life stages are absent and the ecoregion temperature standard for the season when fish early life stages are present. The pH values will be the ecoregion mean value from least-disturbed stream data.

CHAPTER 6: EFFECTIVE DATE

This regulation is effective ten (10) days after filing with the Secretary of State,The State Library, and the Bureau of Legislative Research.

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

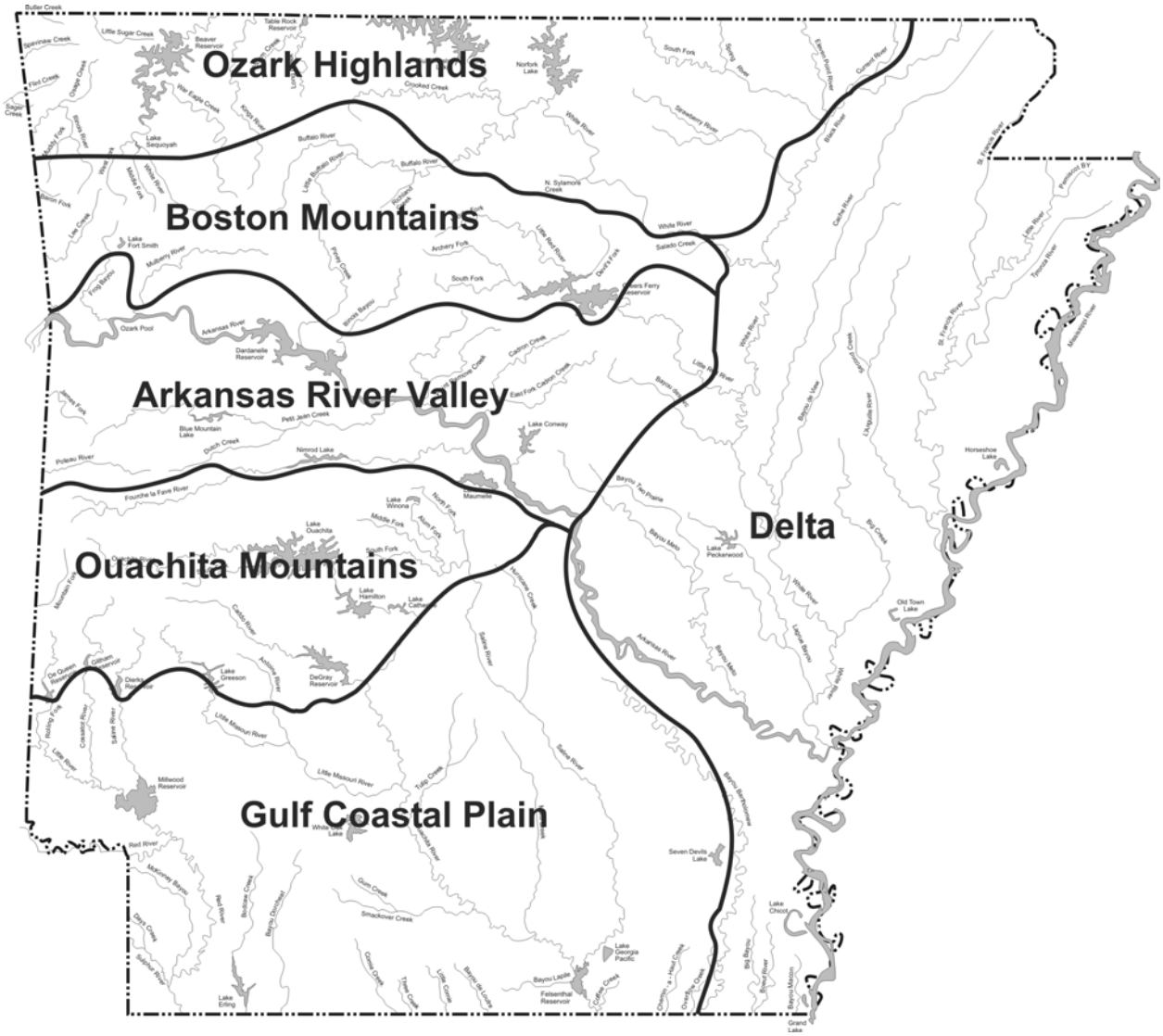
REGULATION NO. 2

APPENDIX A

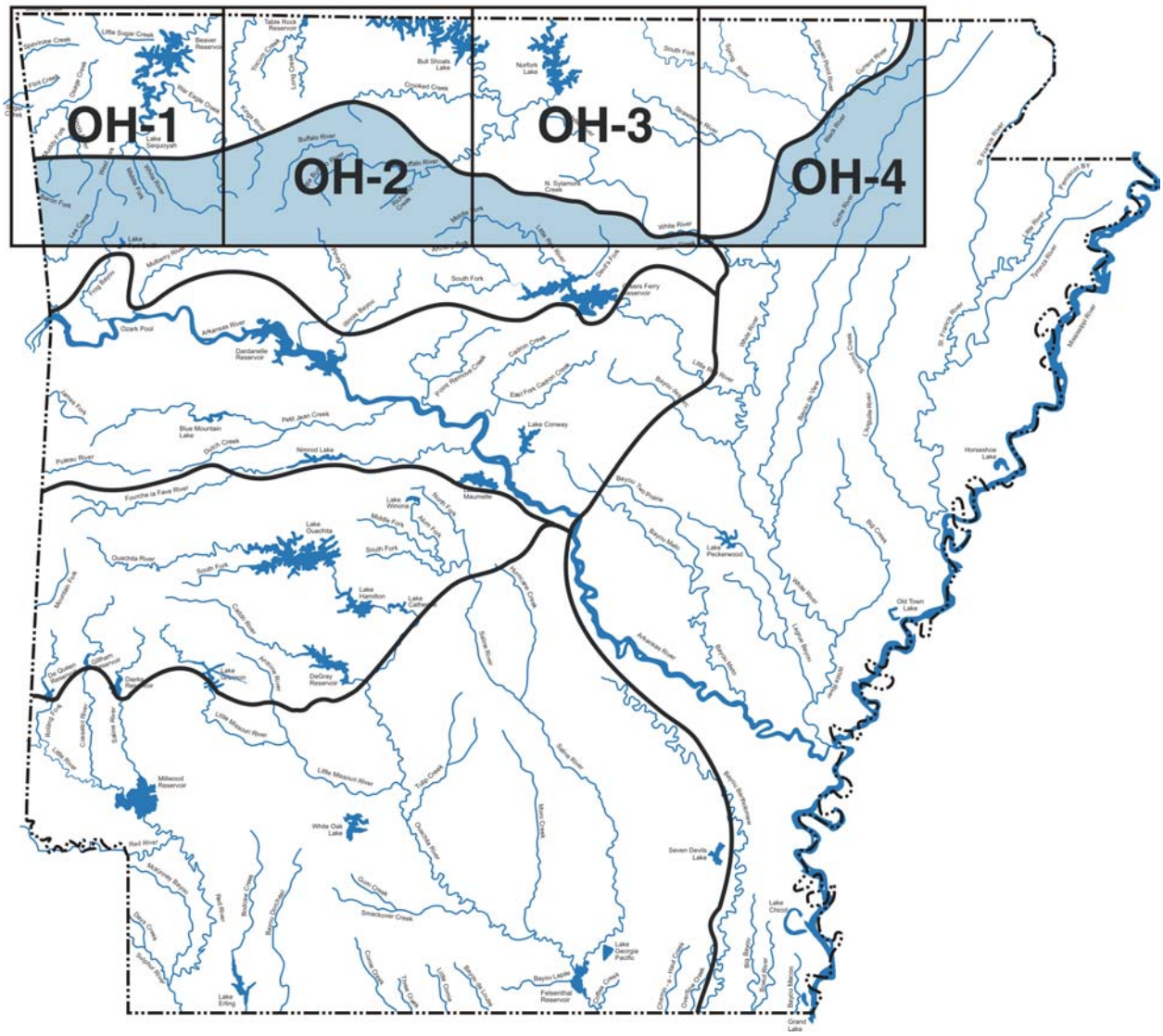
Designated Uses, Specific Standards and Maps of Waters of the State by Ecoregions

April 23, 2004

APPENDIX A: MAP OF ECOREGIONS OF ARKANSAS



Index to Plates of the Ozark Highlands



DESIGNATED USES: OZARK HIGHLANDS ECOREGION
(Plates OH-1, OH-2, OH-3, OH-4)

Extraordinary Resource Waters
Current River (OH-4)
Eleven Point River (OH-4)
Strawberry River (OH-3, OH-4)
Spring River, including its tributaries: Field Creek, Big Creek, English Creek, Gut Creek and Myatt Creek (OH-4)
South Fork Spring River (OH-3, OH-4)
North Sylamore Creek (OH-3)
Buffalo River (OH-2, OH-3)
Kings River (OH-2)
Bull Shoals Reservoir (OH-2, OH-3)

Natural and Scenic Waterways
Strawberry River from headwaters to Sharp-Izard County Line (OH-3, OH-4)
Kings River - that segment in Madison County (OH-2)
Buffalo River (OH-2, OH-3)
North Sylamore Creek (OH-3)*

Ecologically Sensitive Waterbodies
Numerous springs and spring-fed tributaries which support southern cavefish, Ozark cavefish, Arkansas darter, least darter, Oklahoma salamander, cave snails, cave crawfish and unique invertebrates (OH-1, OH-2, OH-3)
Strawberry River - location of Strawberry River darter (OH-3, OH-4)
Spring River - snuffbox and pink mucket mussels; Ozark hellbender (OH-4)
Eleven Point River - location of Ozark hellbender (OH-4)
Current River - location of flat floater and pink mucket mussels (OH-4)
Illinois River - Neosho mucket (OH-1)

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs

Secondary Contact Recreation - all waters

Domestic, Industrial and Agricultural Water Supply - all waters

Fisheries

Trout

Bull Shoals Reservoir - lower portion (OH-2)
White River from Bull Shoals Dam to Dam #3 (OH-3)
North Fork White River (OH-3)
Spring River from Mammoth Springs to South Fork Spring River (OH-4)
Upper White River from Beaver Dam to State Line (OH-1)

Lakes and Reservoirs - all

Streams

Seasonal Ozark Highlands fishery - all streams with watersheds of less than 10 mi^2 except as otherwise provided in Reg. 2.505
Perennial Ozark Highlands fishery - all streams with watersheds of 10 mi^2 and larger and those waters where discharges equal or exceed 1 CFS

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* As designated in the National Wild and Scenic Rivers System

Use Variations Supported by UAA or Other Investigations
Railroad Hollow Creek - no fishable/swimmable uses (OH-1, #1)
Columbia Hollow Creek - seasonal fishery March-June (OH-1, #2)
Curia Creek - below first waterfall, perennial fishery (OH-4, #3)
Moccasin Creek - below Highway 177, perennial fishery (OH-3, #4)
Stennitt Creek- from Brushy Creek to Spring River, no domestic water supply use (OH-4)

SPECIFIC STANDARDS: OZARK HIGHLANDS ECOREGION
(Plates OH-1, OH-2, OH-3, OH-4)

	Streams		Lakes and Reservoirs
Temperature °C (°F)*	29 (84.2)		32 (89.6)
Trout waters	20 (68)		
Turbidity (NTU)(primary/storm)	10/17		25/45
Minerals	see Reg. 2.511		see Reg. 2.511
Dissolved Oxygen**	Pri.	Crit	see Reg. 2.505
<10 mi^2 watershed	6	2	
10 to 100 mi^2	6	5	
>100 mi^2 watershed	6	6	
Trout waters	6	6	

All other standards(same as statewide)

Variations Supported by UAA
Railroad Hollow Creek: from headwaters to Spavinaw Creek - year-round dissolved oxygen - 2 mg/l (OH-1, #1)
Curia Creek - below first waterfall, critical season D.O. 6 mg/l (OH-4, #3)
Moccasin Creek - below Highway 177, critical season D.O. 5mg/l (OH-3, #4)
SWEPCO Reservoir - maximum temperature 54°C (limitation of 2.8°C above natural temperature does not apply) (OH-1, #5)
Stennitt Creek - from Brushy Creek to Spring River, TDS = 456 mg/l (OH-4, #6)

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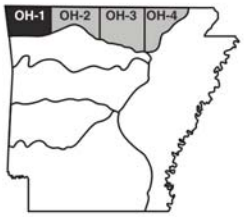
* Increase over natural temperatures may not be more than 2.8°C (5°F).

** At water temperatures ≤10°C or during March, April and May when stream flows are 15 CFS and greater, the primary season D.O. standard will be 6.5 mg/l. When water temperatures exceed 22°C, the critical season D.O. standard may be depressed by 1 mg/l for no more than 8 hours during a 24-hour period.

Plate OH-1 (Ozark Highlands)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA

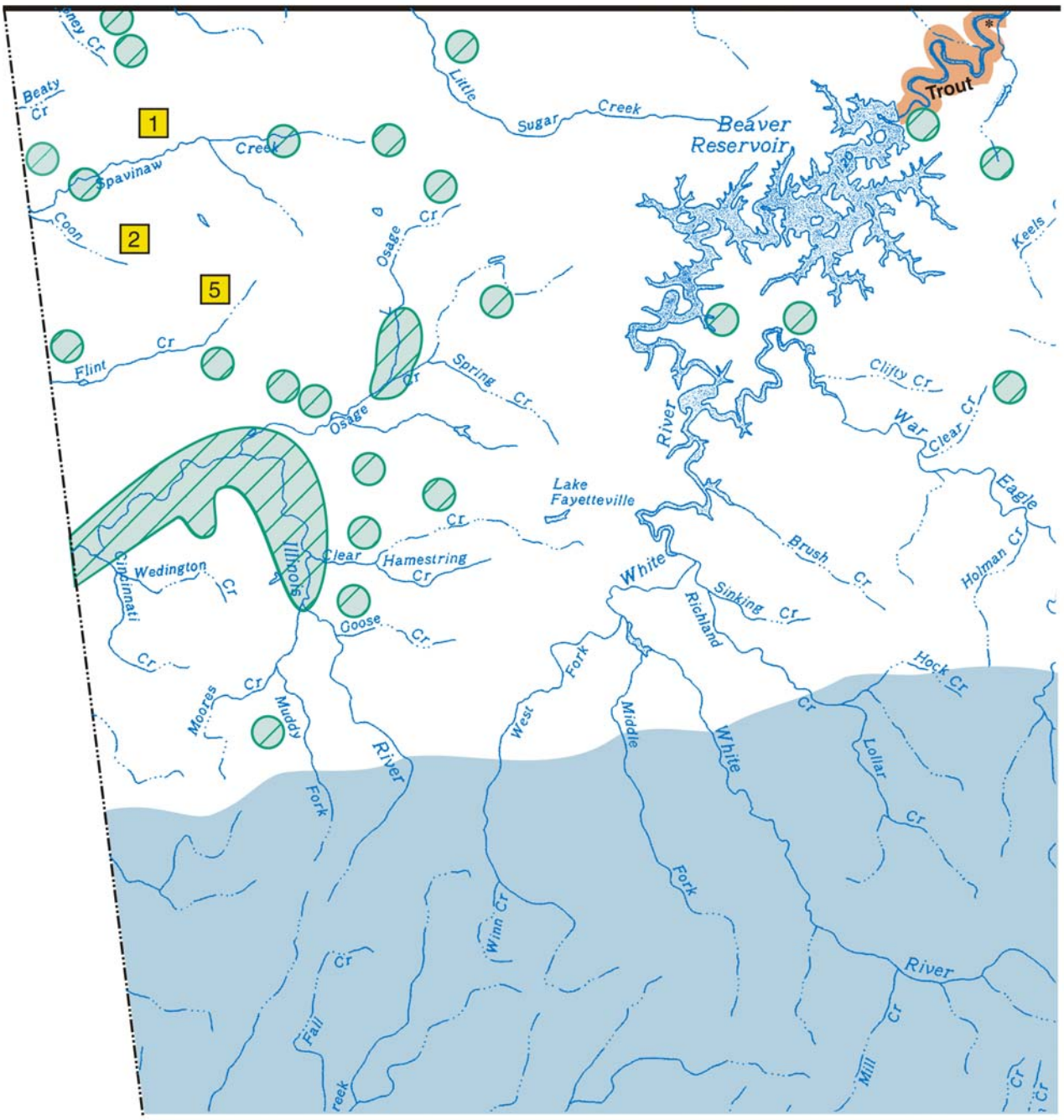
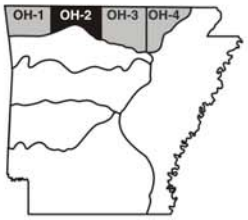


Plate OH-2 (Ozark Highlands)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA

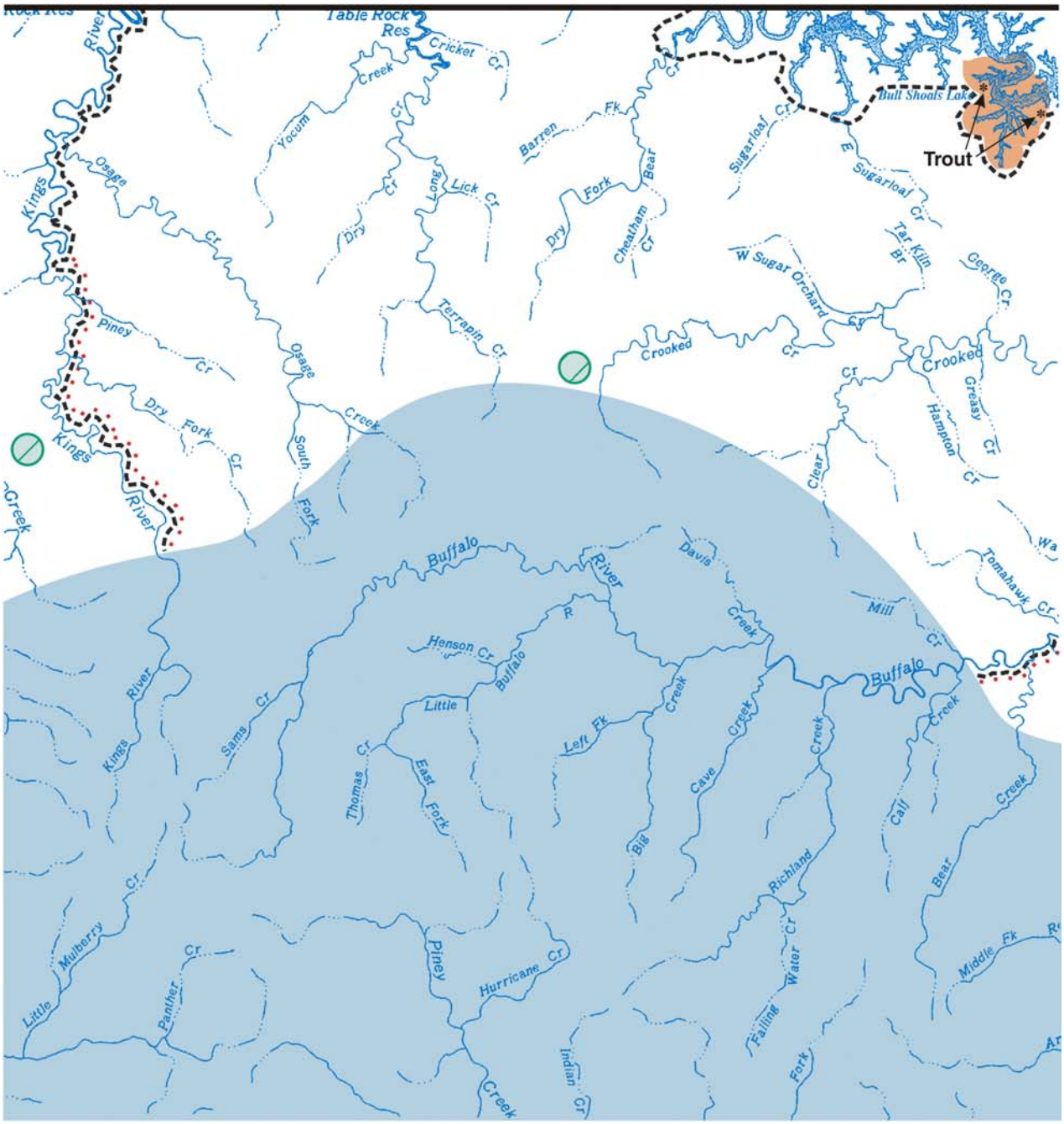
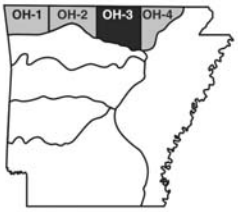


Plate OH-3 (Ozark Highlands)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA

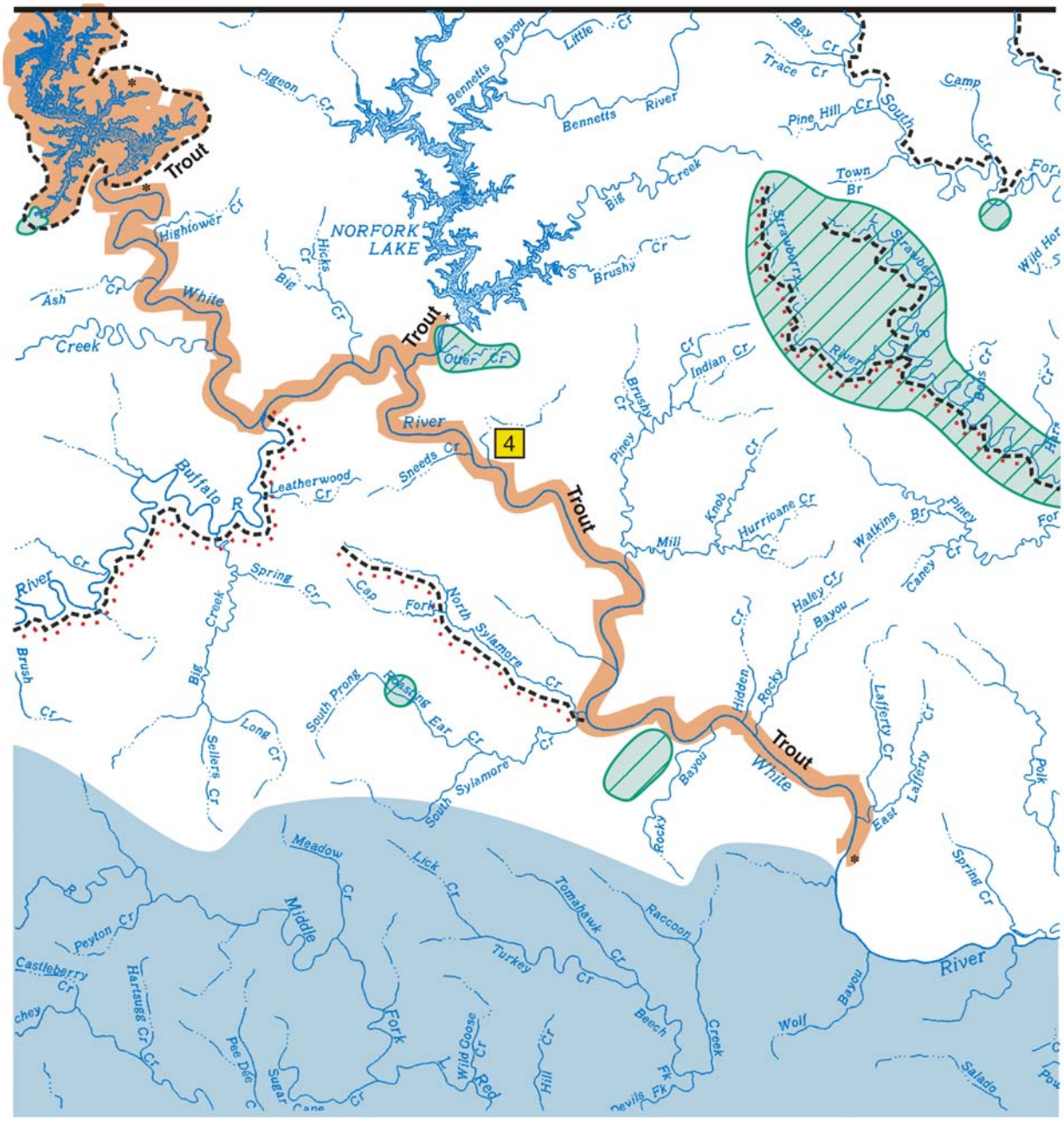
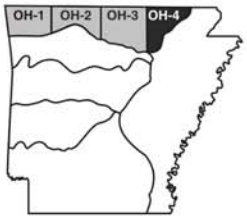
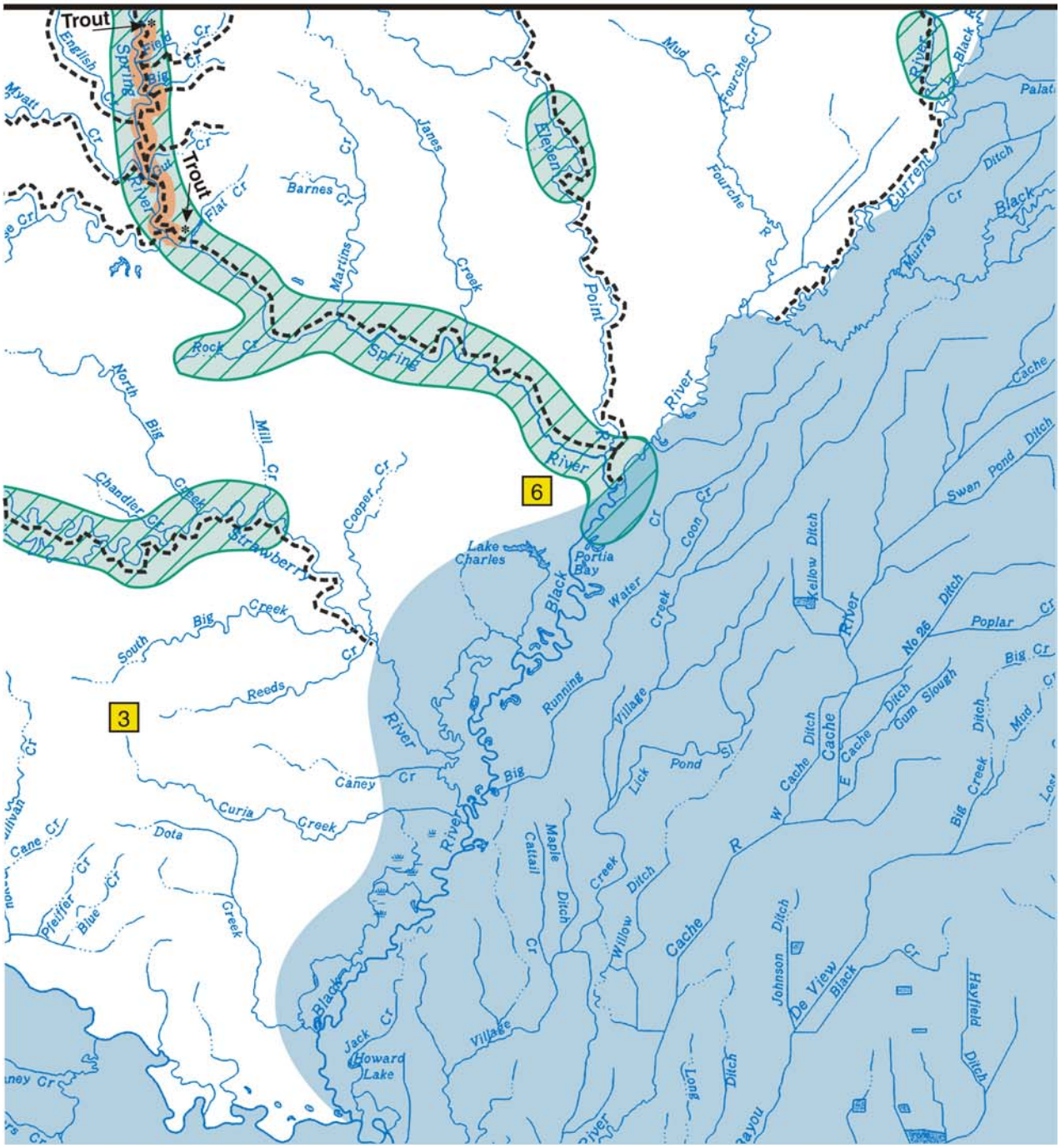


Plate OH-4 (Ozark Highlands)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA


Trout
Trout
6
3
Spring
Big
Spring
Rock Cr
Barnes Cr
Martins
Creek
Janes
Eleven
Point
River
Mud Cr
Fourche Cr
Fourche R
Current
Murray
Black
Ditch
Palat
Cache
Swan Pond Ditch
Poplar Cr
Big Cr
Mud
Big Creek
Ditch
Gum Slough
No 25 Ditch
Kellow Ditch
Coon Cr
Water Creek
Portia Bay
Lake Charles
Black
River
Running
Village
Lick
Pond
Cr
Maple
Cattail
Ditch
Creek
Willow
Ditch
Cache
R
W Cache Ditch
E Cache Ditch
Johnson Ditch
De View
Black
Cr
Hayfield
Ditch
Long
Ditch
Bayou
River
Big
River
Caney Cr
Curia Creek
Dota
Reeds
South Big Creek
Cr
Strawberry
Chandler Cr
North Big Creek
Mill Cr
Cooper Cr
Cane Cr
Pfeiffer Cr
Blue Cr
Creek
Jack Cr
Howard Lake
Village
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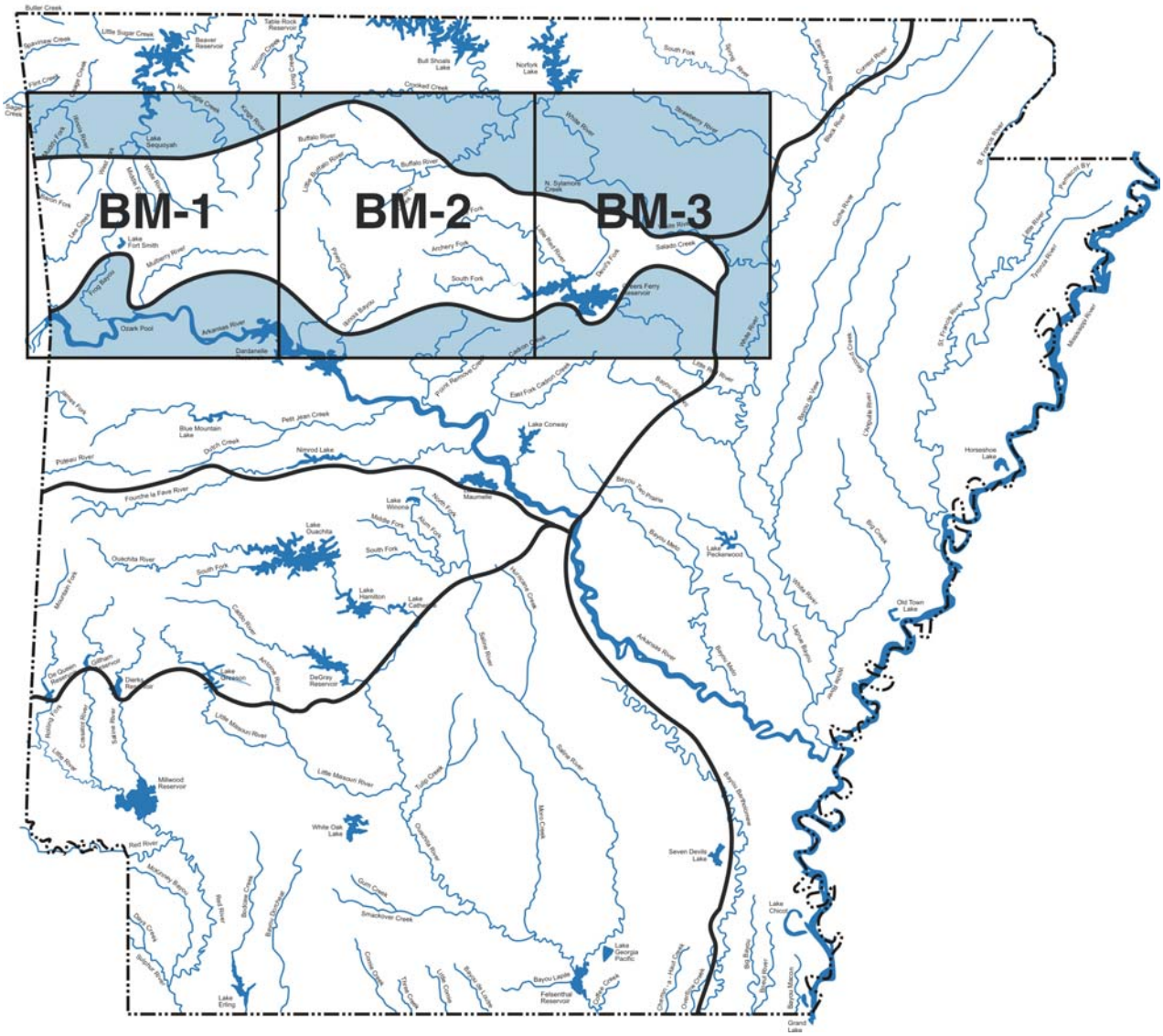

DESIGNATED USES: BOSTON MOUNTAINS ECOREGION

(Plates BM-1, BM-2, BM-3)

Extraordinary Resource Waters

Devils Fork of Little Red River including Beech Creek, Tomahawk Creek, Turkey Creek, Lick Creek and Racoon Creek (BM-3)
Middle Fork of Little Red River above Greers Ferry Reservoir (BM-2, BM-3)
Archey Creek from headwaters to confluence with South Fork Little Red River (BM-2)
Illinois Bayou including North, Middle and East Forks (BM-2)
Piney Creek (BM-2)
Hurricane Creek (BM-2)
Mulberry River (BM-1, BM-2)
Lee Creek from state line upstream to headwaters (BM-1)
Salado Creek (BM-3)
Kings River (BM-1)
Richland Creek and Falling Water Creek (BM-2)
Buffalo River (BM-1, BM-2)

Natural and Scenic Waterways

Mulberry River (BM-1, BM-2)
Buffalo River (BM-1, BM-2)
Kings River (BM-1)
Big Piney Creek (BM-2)*
Hurricane Creek (BM-2)*
Richland Creek (BM-2)*

Ecologically Sensitive Waterbodies

Devils, Middle and South Forks of Little Red River and Archey Creek above Greers Ferry Reservoir - location of endemic yellowcheek darter and endangered speckled pocketbook mussel (except Devils Fork) (BM-2, BM-3)
Foshee Cave - location of aquatic cave snail (BM-3)
Upper White River - location of longnose darter (BM-1)

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs

Secondary Contact Recreation - all waters

Domestic, Industrial and Agricultural Water Supply - all waters

Fisheries

Trout

Greers Ferry Reservoir below Narrows (BM-3)
Little Red River below Greers Ferry Dam (BM-3)

Lakes and Reservoirs – all

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* As designated in the National Wild and Scenic Rivers System

Streams

Seasonal Boston Mountain fishery - all waters with watersheds of less than 10 mi^2 except as otherwise provided in Reg.2.505

Perennial Boston Mountain fishery - all waters with 10 mi^2 watershed or larger and those waters where discharges equal or exceed 1 CFS

Use Variations Supported by UAA

None

SPECIFIC STANDARDS: BOSTON MOUNTAINS ECOREGION

(Plates BM-1, BM-2, BM-3)

	Streams		Lakes and Reservoirs
Temperature °C (°F)*	31 (87.8)		32 (89.6)
Trout waters	20 (68)		
Turbidity (NTU)(primary/storm)	10/19		25/45
Minerals	see Reg. 2.511		see Reg. 2.511
Dissolved Oxygen (mg/l)**	Pri.	Crit	see Reg. 2.505
<10 mi^2 watershed	6	2	
10 mi^2 and greater	6	6	
Trout waters	6	6	
All other standards	(same as statewide)		

Variations Supported by UAA

None

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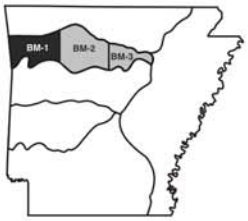
* Increase over natural temperatures may not be more than 2.8°C (5°F).

** At water temperatures ≤10°C or during March, April and May when stream flows are 15 CFS and greater, the primary season D.O. standard will be 6.5 mg/l. When water temperatures exceed 22°C, the critical season D.O. standard may be depressed by 1 mg/l for no more than 8 hours during a 24-hour period.

Plate BM-1 (Boston Mountains)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA

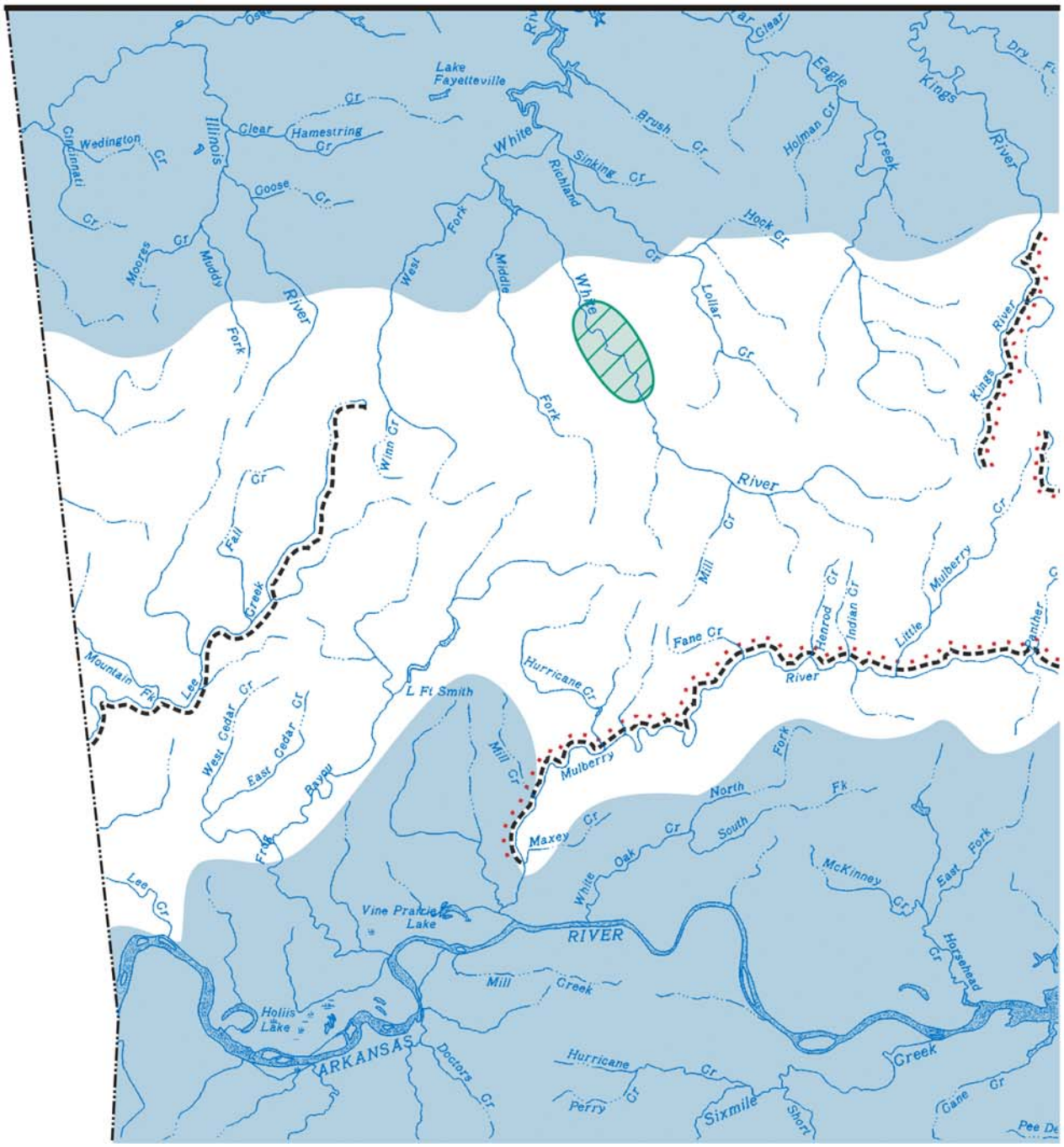
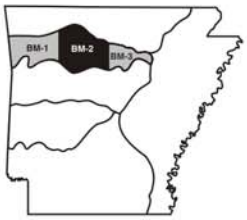


Plate BM-2 (Boston Mountains)



LEGEND

- Ecologically Sensitive Waterbodies
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- Natural and Scenic Waterways
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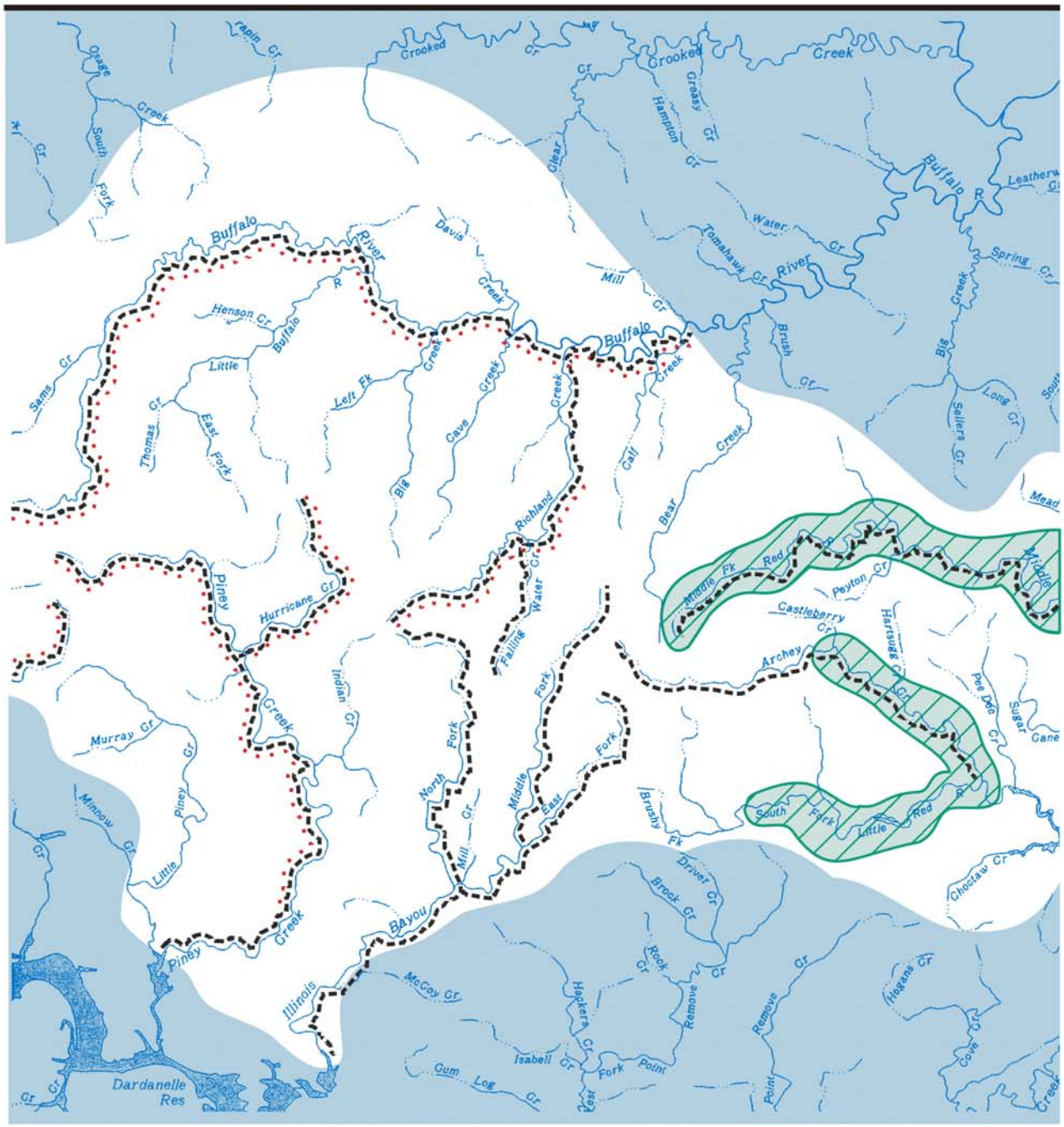
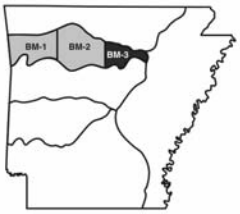


Plate BM-3 (Boston Mountains)



LEGEND

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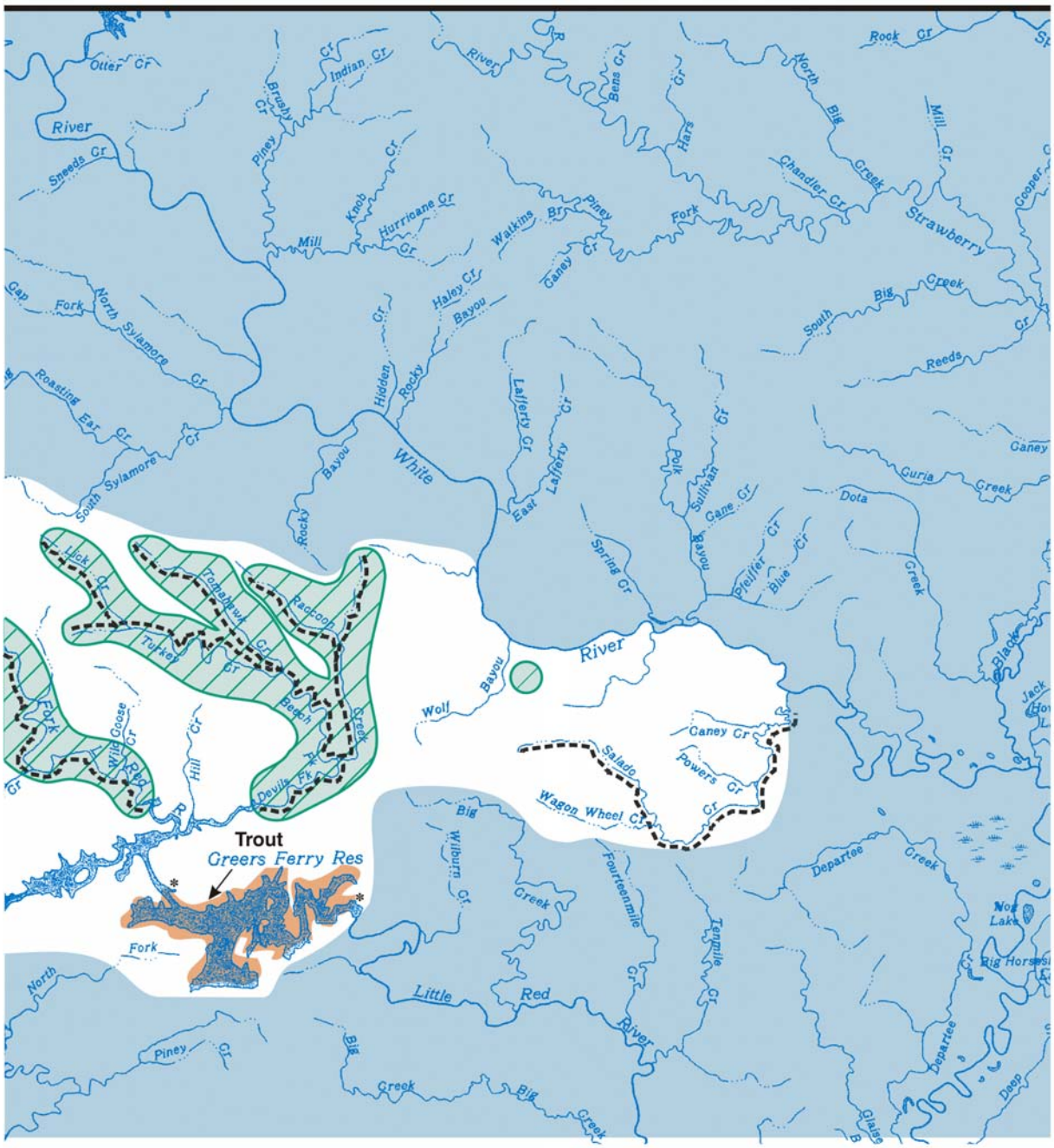

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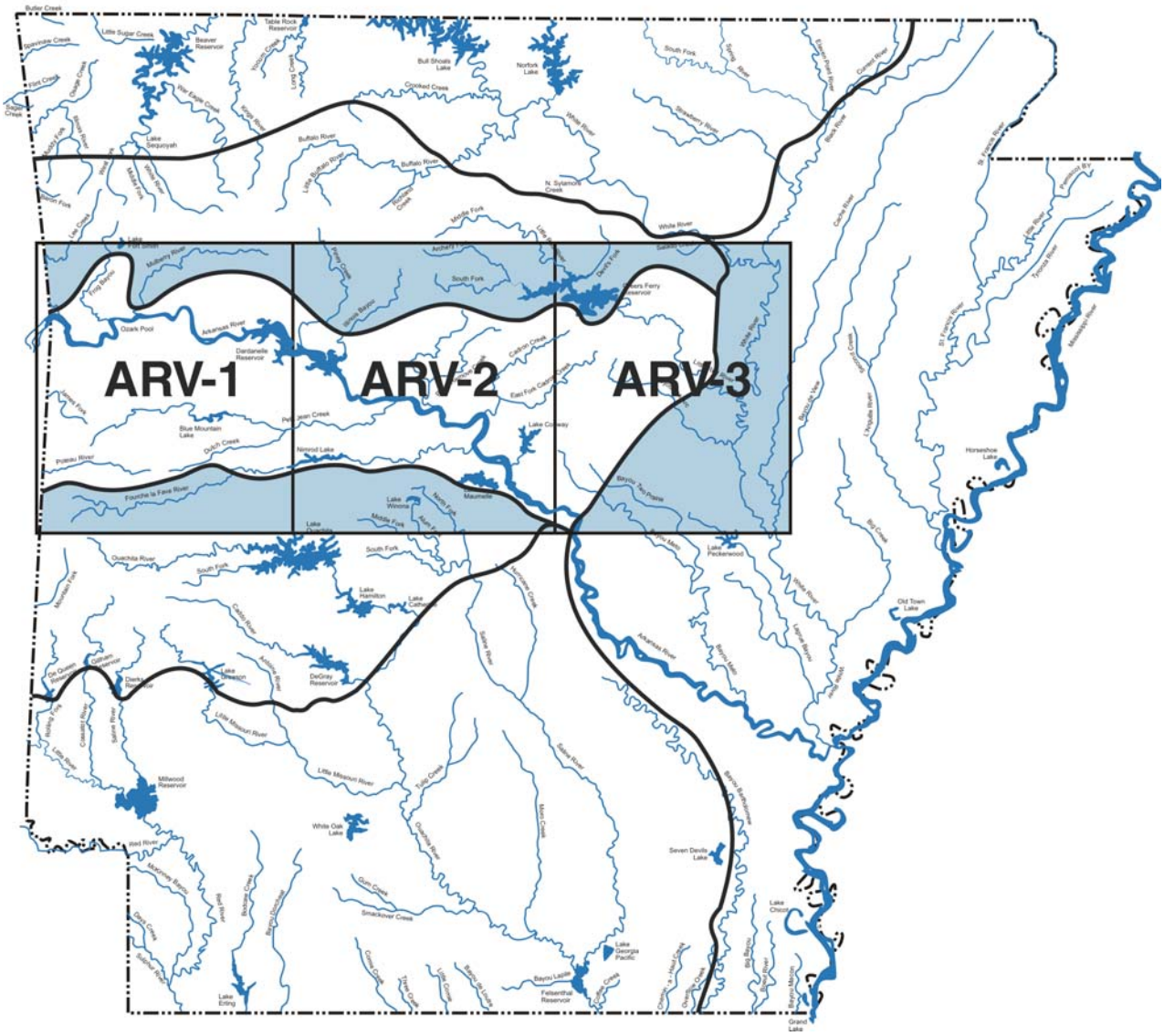

DESIGNATED USES: ARKANSAS RIVER VALLEY ECOREGION

(Plates ARV-1, ARV-2, ARV-3)

Extraordinary Resource Waters
Cadron Creek including North Fork and East Fork (ARV-2, ARV-3)
Mulberry River (ARV-1)
Big Creek adjacent to natural areas (ARV-3)

Natural and Scenic Waterway
Mulberry River (ARV-1)

Ecologically Sensitive Waterbodies

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs

Secondary Contact Recreation - all waters

Domestic, Industrial and Agricultural Water Supply - all waters

Fisheries

Trout

Little Red River below Greers Ferry Dam to Searcy (ARV-3)

Lakes and Reservoirs - all

Streams

Seasonal Arkansas River Valley fishery - all streams with watersheds of less than 10 mi^2 except as otherwise provided in Reg. 2.505

Perennial Arkansas River Valley fishery - all streams with watersheds of 10 mi^2 or larger and those waters where discharges equal or exceed 1 CFS

Use Variations Supported by UAA
Poteau River from Business Highway 71 to Stateline - no domestic water supply use(ARV-1,#2)
Unnamed tributary to Poteau River at Waldron - no domestic water supply use(ARV-1,#3)

SPECIFIC STANDARDS: ARKANSAS RIVER VALLEY ECOREGION

(Plates ARV-1, ARV-2, ARV-3)

	Streams		Lakes and Reservoirs
Temperature °C (°F)*	31 (87.8)		32 (89.6)
Trout waters	20 (68)		
Arkansas River	32 (89.6)		
Turbidity (NTU)(primary/storm)	21/40		25/45
Arkansas River(primary/storm)	50/52		
Minerals	see Reg. 2.511		see Reg. 2.511
Dissolved Oxygen (mg/l)**	Pri.	Crit.	see Reg. 2.505
<10 mi^2 watershed	5	2	
10 to 150 mi^2	5	3	
151 mi^2 to 400 mi^2	5	4	
>400 mi^2 watershed	5	5	
Trout waters	6	6	
All other standards	(same as statewide)		

Variations Supported by UAA

Dardanelle Reservoir - maximum temperature 35°C (95°F) (limitation of 2.8°C above natural temperature does not apply) (ARV-2, #1)

Poteau River from Business Highway 71 to Stateline - chlorides - 120 mg/l; sulfates - 60 mg/l; TDS - 500 mg/l (ARV-1, #2)

Unnamed tributary to Poteau River at Waldron - chlorides 150 mg/l; sulfates - 70 mg/l; TDS - 660 mg/l (ARV-1, #3)

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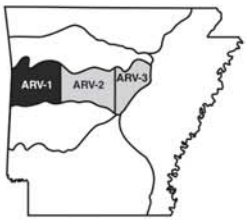
* Increase over natural temperatures may not be more than 2.8°C (5°F).

** At water temperatures ≤10°C or during March, April and May when stream flows are 15 CFS and greater, the primary season D.O. standard will be 6.5 mg/l. When water temperatures exceed 22°C, the critical season D.O. standard may be depressed by 1 mg/l for no more than 8 hours during a 24-hour period.

Plate ARV-1 (Arkansas River Valley)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA

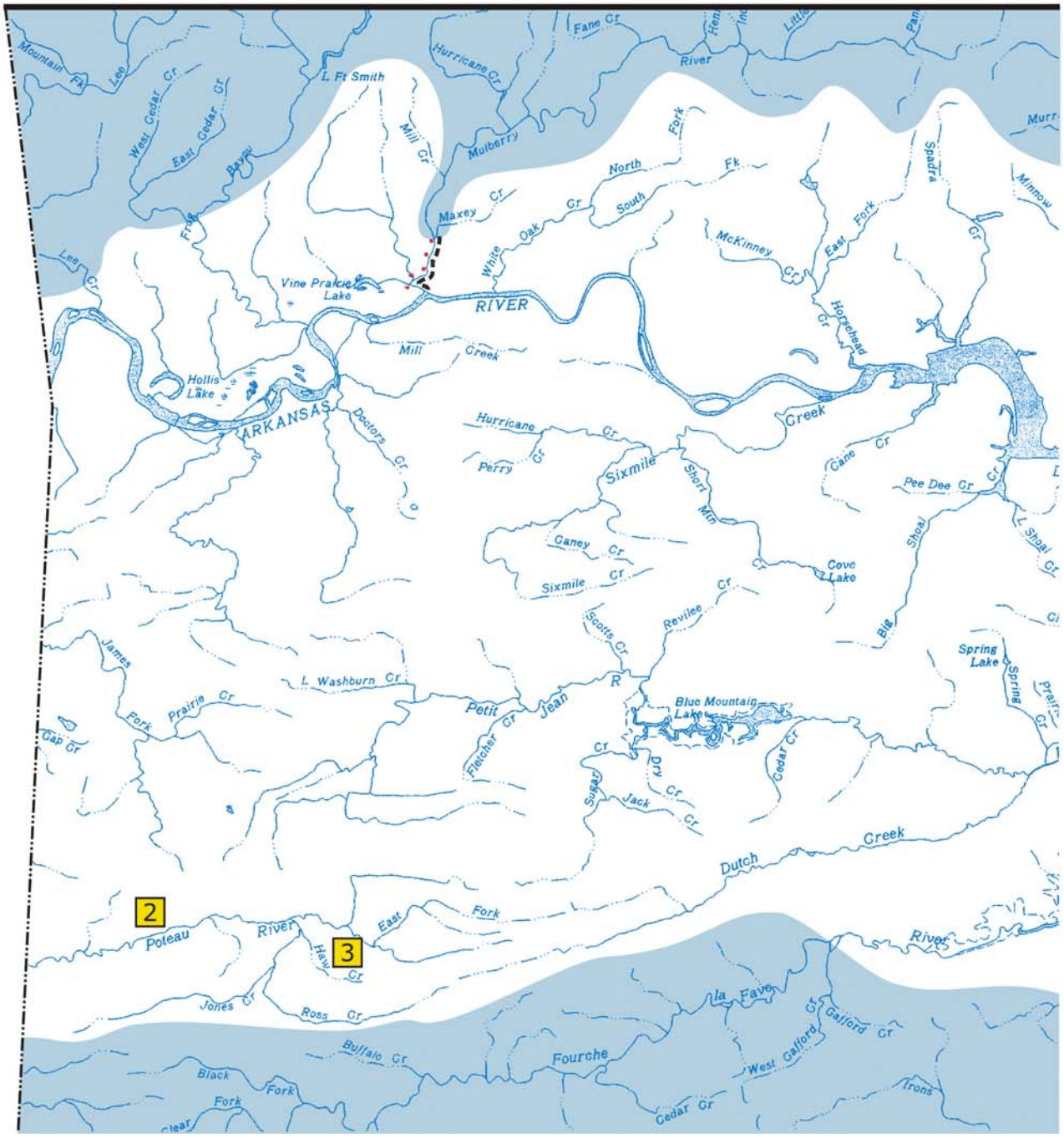
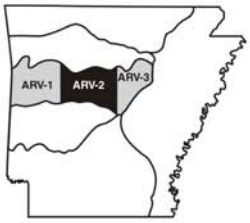


Plate ARV-2 (Arkansas River Valley)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA

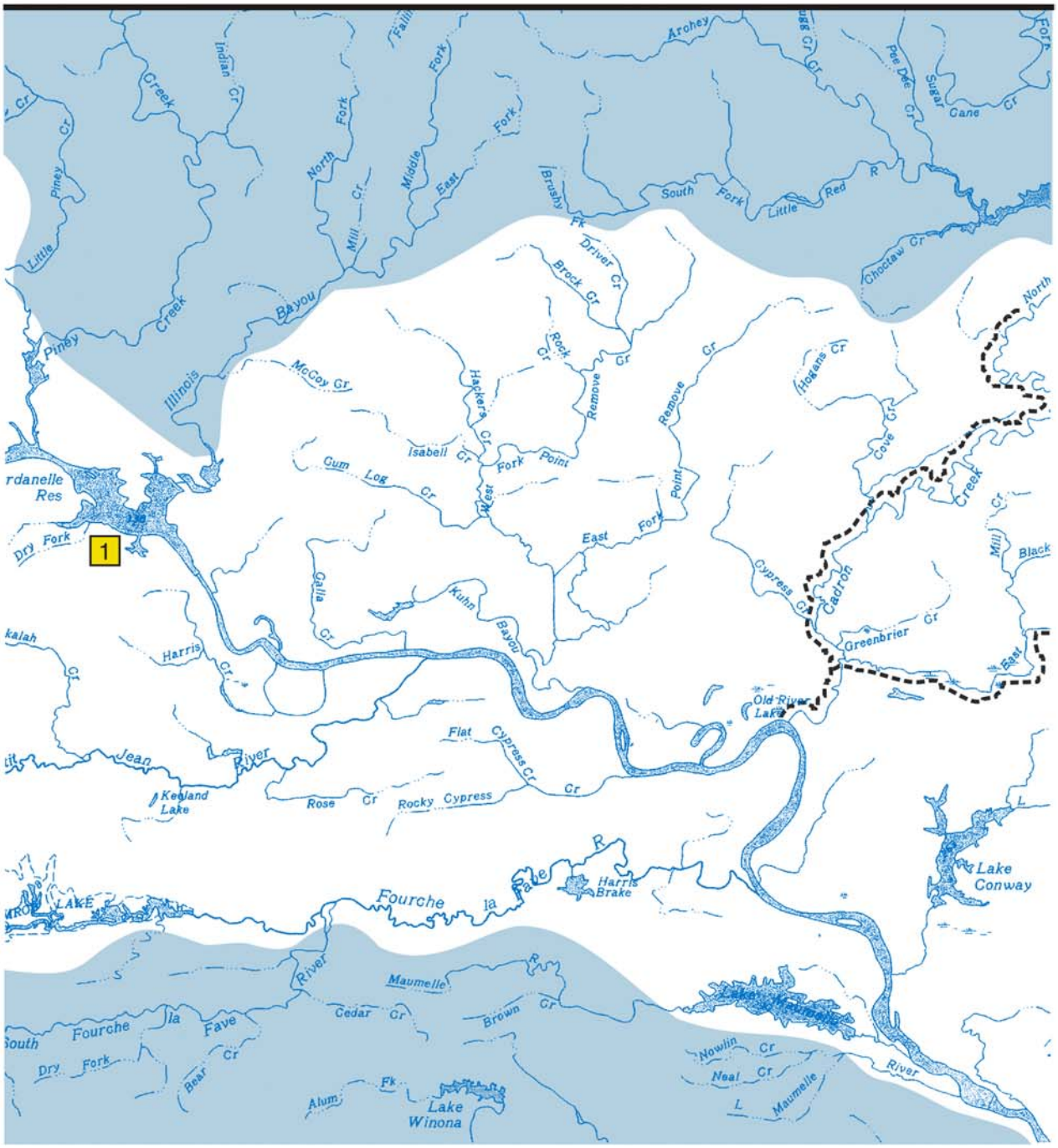
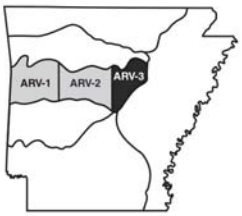
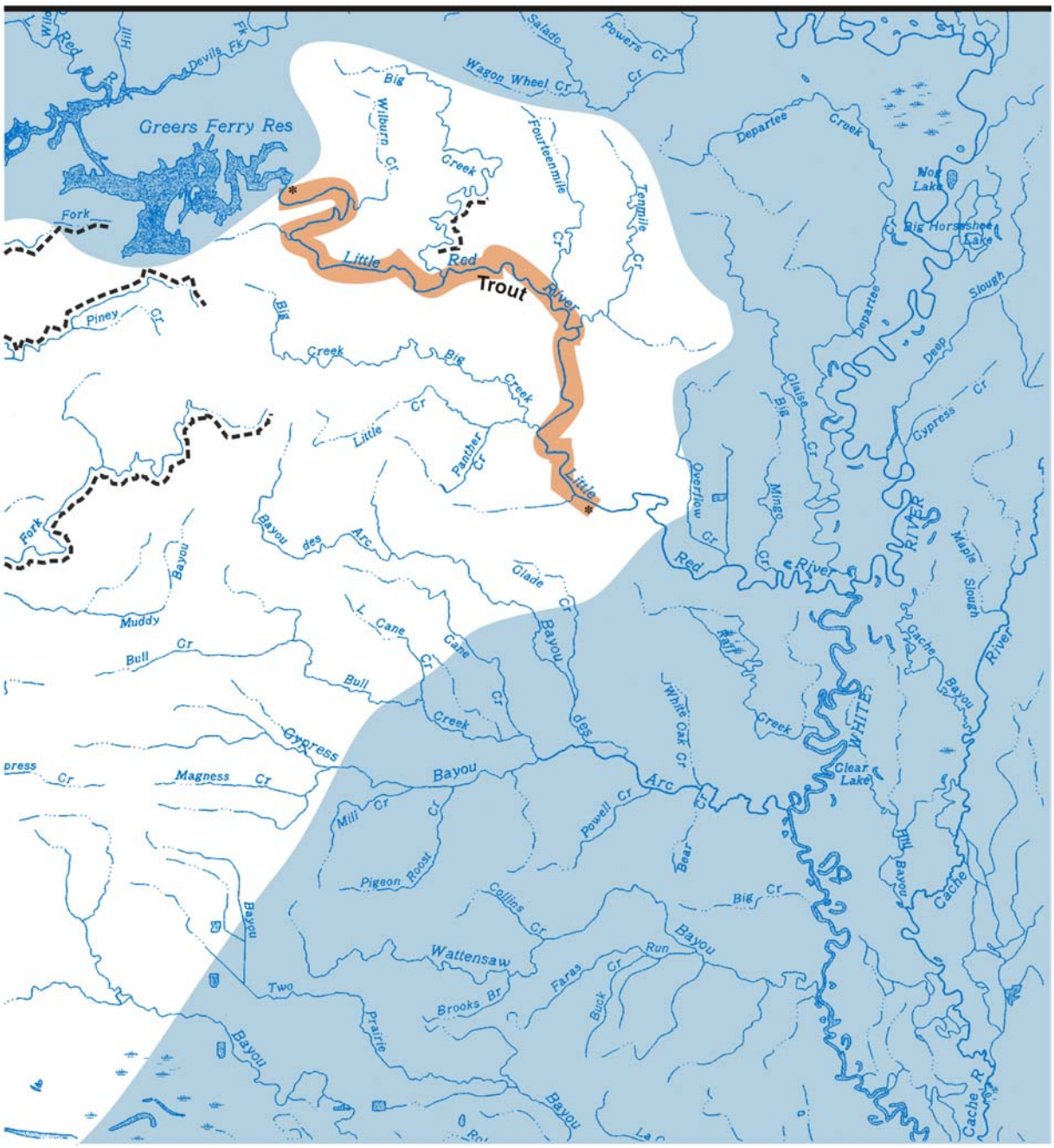


Plate ARV-3 (Arkansas River Valley)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA



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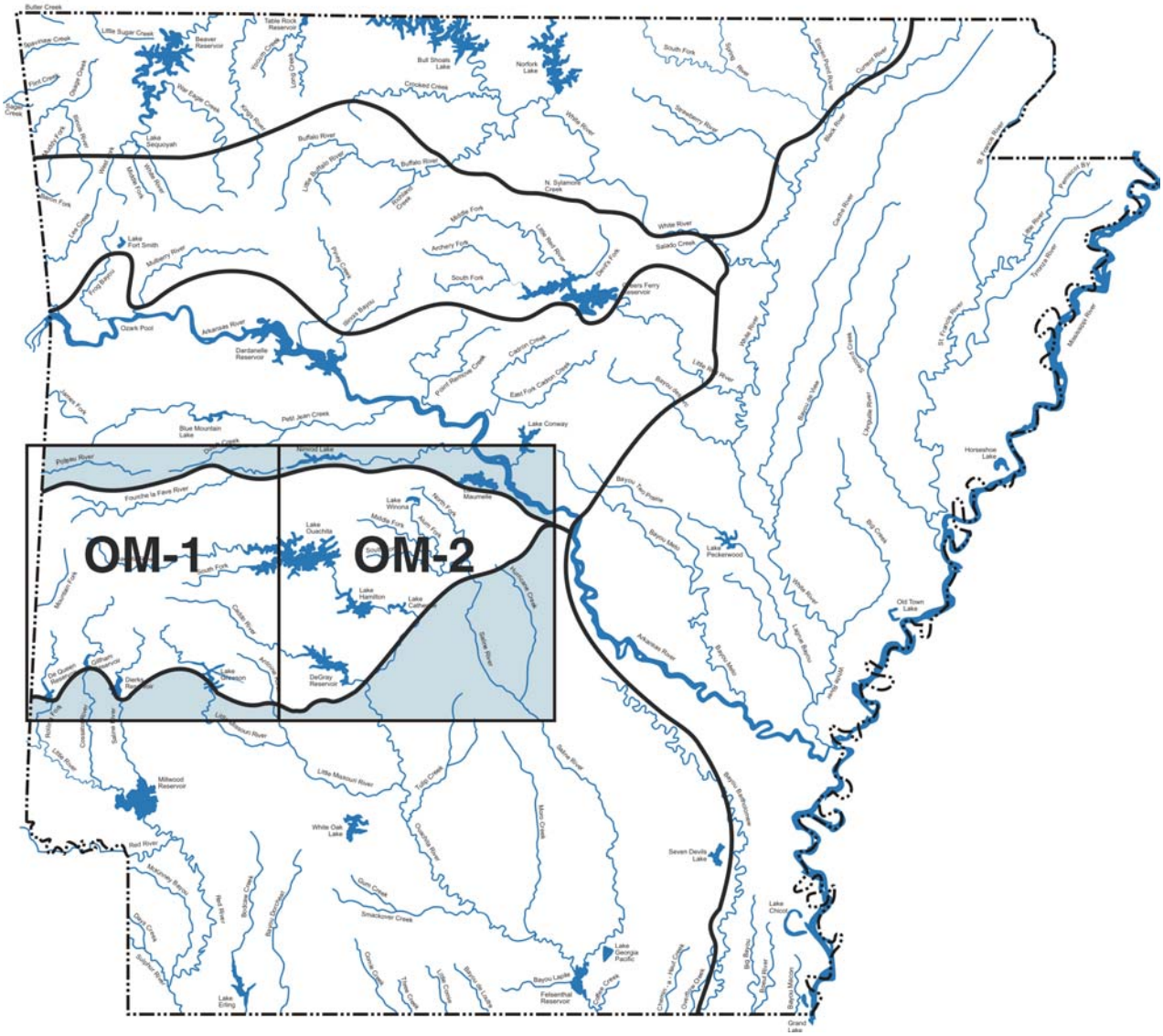

DESIGNATED USES: OUACHITA MOUNTAIN ECOREGION

(Plates OM-1, OM-2)

Extraordinary Resource Waters

Lake Ouachita (OM-1, OM-2)
DeGray Reservoir (OM-2)
Saline River - entire segment including North, Alum, Middle and South Forks (OM-2)
Caddo River - above DeGray Reservoir (OM-1, OM-2)
South Fork Caddo River (OM-1)
Cossatot River - above Gillham Reservoir (OM-1)
Caney Creek (OM-1)
Little Missouri River - above Lake Greeson (OM-1)
Mountain Fork River (OM-1)
Big Fork Creek - adjacent to natural area (OM-1)

Natural and Scenic Waterway

Cossatot River above Gillham Reservoir (OM-1)
Little Missouri River above Lake Greeson (OM-1)
Brushy Creek (OM-1)*

Ecologically Sensitive Waterbodies

Ouachita River above Lake Ouachita - location of Caddo madtom, longnose darter, peppered shiner and threatened Arkansas Fatmucket Mussel (OM-1)
South Fork Ouachita River - location of Arkansas fat mucket mussel and Caddo madtom (OM-1)
Caddo River and all tributaries above DeGray Reservoir - location of endemic paleback darter, Caddo madtom and threatened Arkansas Fatmucket Mussel (OM-1, OM-2)
Mountain Fork River - location of threatened leopard darter (OM-1)
Cossatot River above Gillham Reservoir - location of threatened leopard darter (OM-1)
Saline River including Alum, Middle, North and South Forks, and Ten Mile Creek - location of endemic Ouachita madtom and threatened Arkansas Fatmucket Mussel (except South fork and Ten Mile Creek)(OM-2)
Little Missouri River above Lake Greeson - location of Caddo madtom
Mayberry Creek (tributary to Hallman's Creek) - location of paleback darter (OM-2)
Robinson Creek - location of threatened leopard darter (OM-1)

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs

Secondary Contact Recreation - all waters

Domestic, Industrial and Agricultural Water Supply - all waters

Fisheries

Trout

Lake Ouachita (lower portion) (OM-2)
Ouachita River from Blakely Mt. Dam to Hwy. 270 bridge (OM-2)

Lakes and Reservoirs – all

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* As designated in the National Wild and Scenic Rivers System

Fisheries

Streams

Seasonal Ouachita Mountain Ecoregion fishery - all streams with watersheds of less than 10 mi^2 except as otherwise provided in Reg. 2.505

Perennial Ouachita Mountain Ecoregion fishery - all streams with watershed of 10 mi^2 or larger and those waters where discharges equal or exceed 1 CFS

Use Variations Supported by UAA

Rolling Fork from unnamed tributary A at Grannis to DeQueen Reservoir - no domestic water supply use (OM-1, #2)

Unnamed tributaries A and A1 at Grannis - no domestic water supply use (OM-1, #3)

SPECIFIC STANDARDS: OUACHITA MOUNTAIN ECOREGION

(Plates OM-1, OM-2)

	Streams		Lakes and Reservoirs
Temperature °C (°F)*	30 (86)		32 (89.6)
Trout waters	20 (68)		
Turbidity (NTU)(primary/storm)	10/18		25/45
Minerals	see Reg. 2.511		see Reg. 2.511
Dissolved Oxygen (mg/l)**	Pri.	Crit	see Reg. 2.505
<10 mi^2 watershed	6	2	
10 mi^2 and greater	6	6	
Trout waters	6	6	
All other standards	(same as statewide)		

Variations Supported by UAA

Prairie Creek: from headwaters to confluence with Briar Creek, critical season dissolved oxygen - 4 mg/l (OM-1, #1)

Rolling Fork from unnamed tributary A to DeQueen Reservoir - chlorides 130 mg/l; sulfates - 70 mg/l; TDS - 670 mg/l (OM-1, #2)

Unnamed tributaries A and A1 at Grannis - chlorides - 135 mg/l; sulfates - 70 mg/l; TDS - 700 mg/l (OM-1, #3)

South Fork Caddo River - sulfates 60 mg/1 (OM-1, #4)

Back Valley Creek - sulfates 250 mg/l; total dissolved solids 500 mg/l (OM-1,#5)

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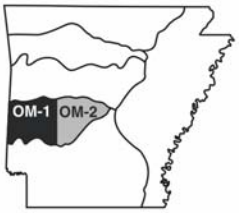
* Increase over natural temperatures may not be more than 2.8°C (5°F).

** At water temperatures ≤10°C or during March, April and May when stream flows are 15 CFS and greater, the primary season D.O. standard will be 6.5 mg/l. When water temperatures exceed 22°C, the critical season D.O. standard may be depressed by 1 mg/l for no more than 8 hours during a 24-hour period.

Plate OM-1 (Ouachita Mountains)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA

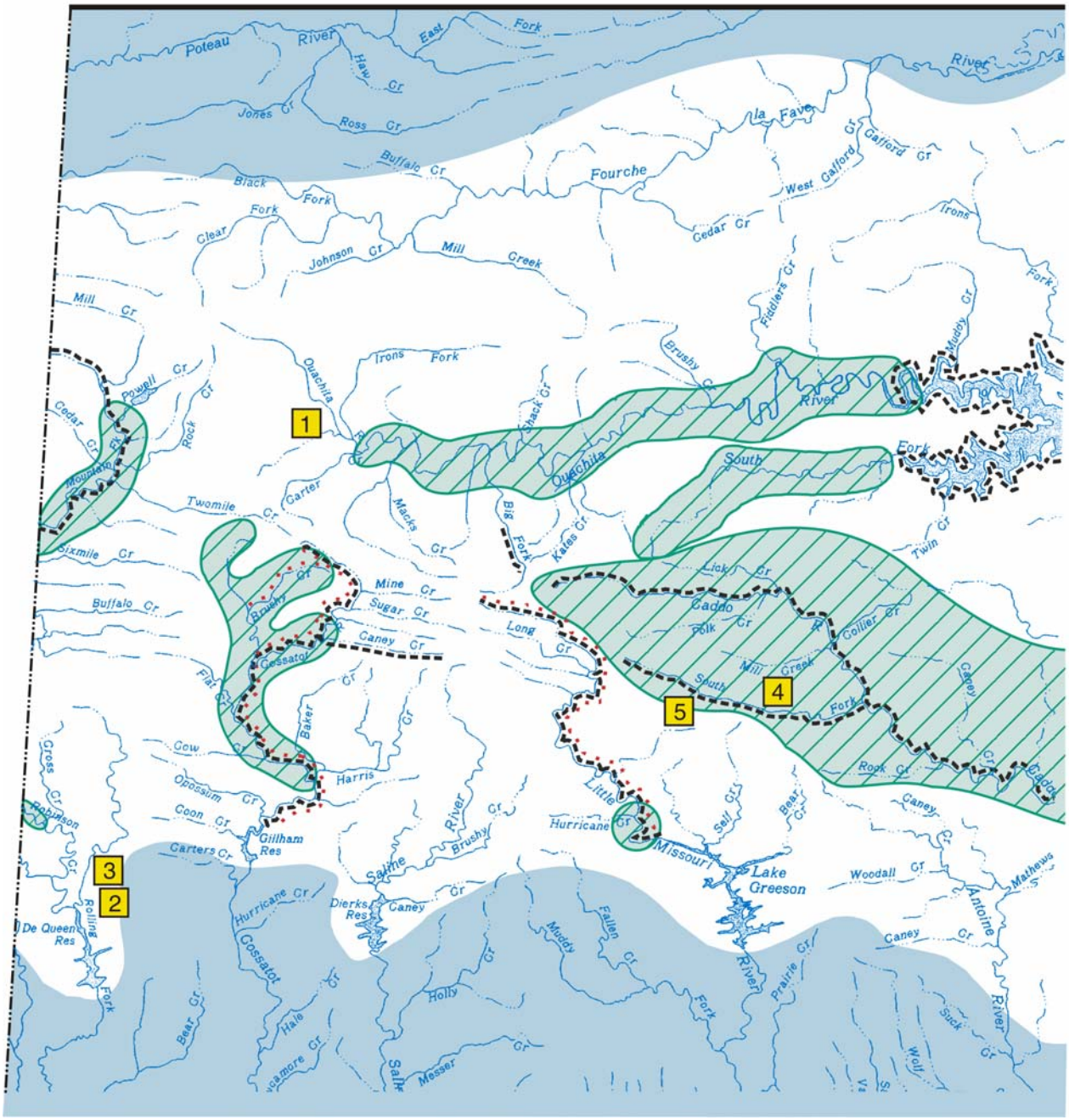
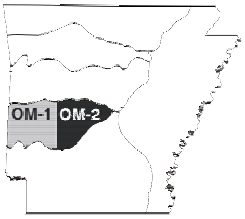
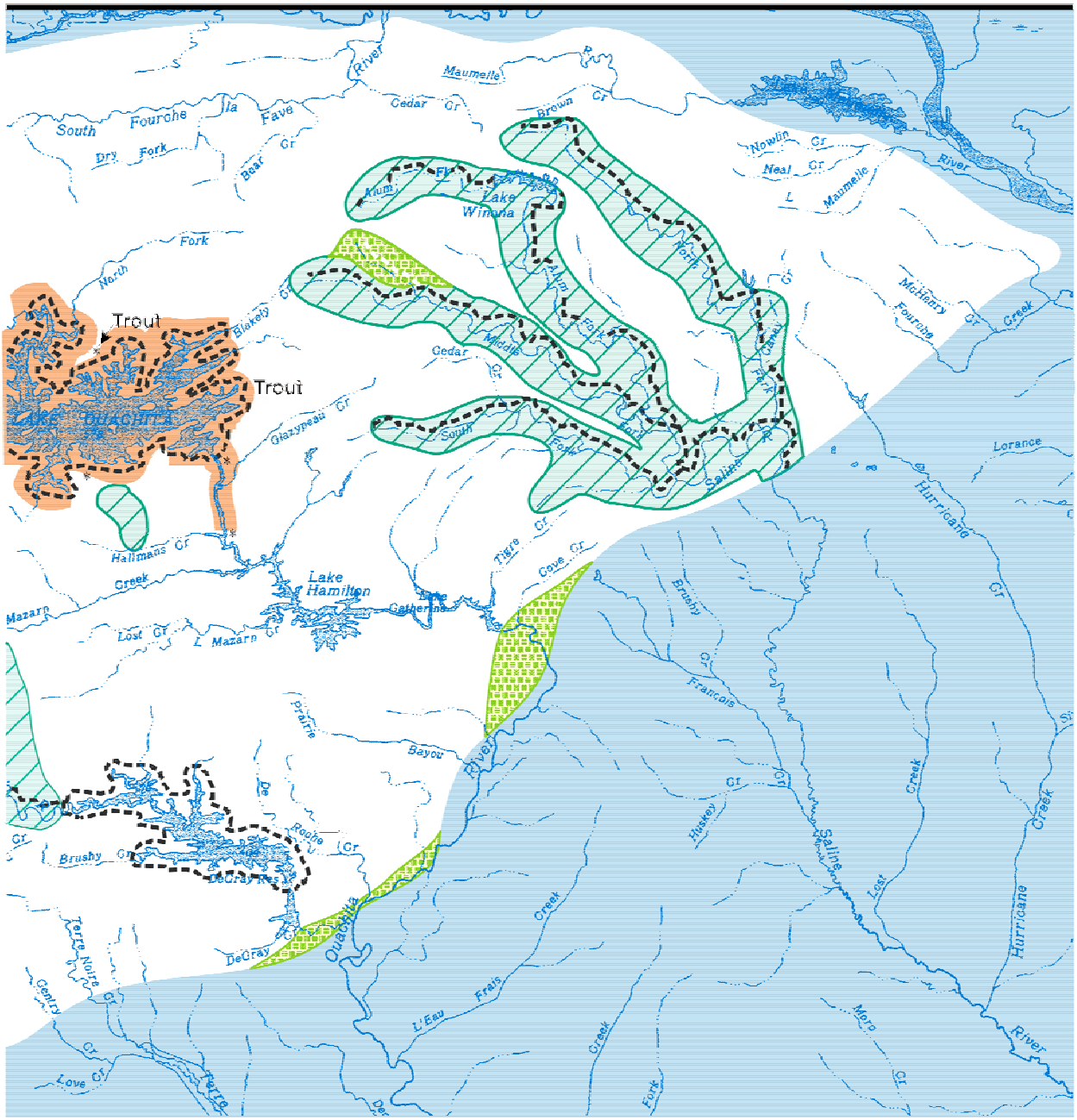


Plate OM-2 (Ouachita Mountains)



LEGEND

- Ecologically Sensitive Waterbodies
- Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA
- Proposed Border Changes
- Proposed Correction of ERW designation



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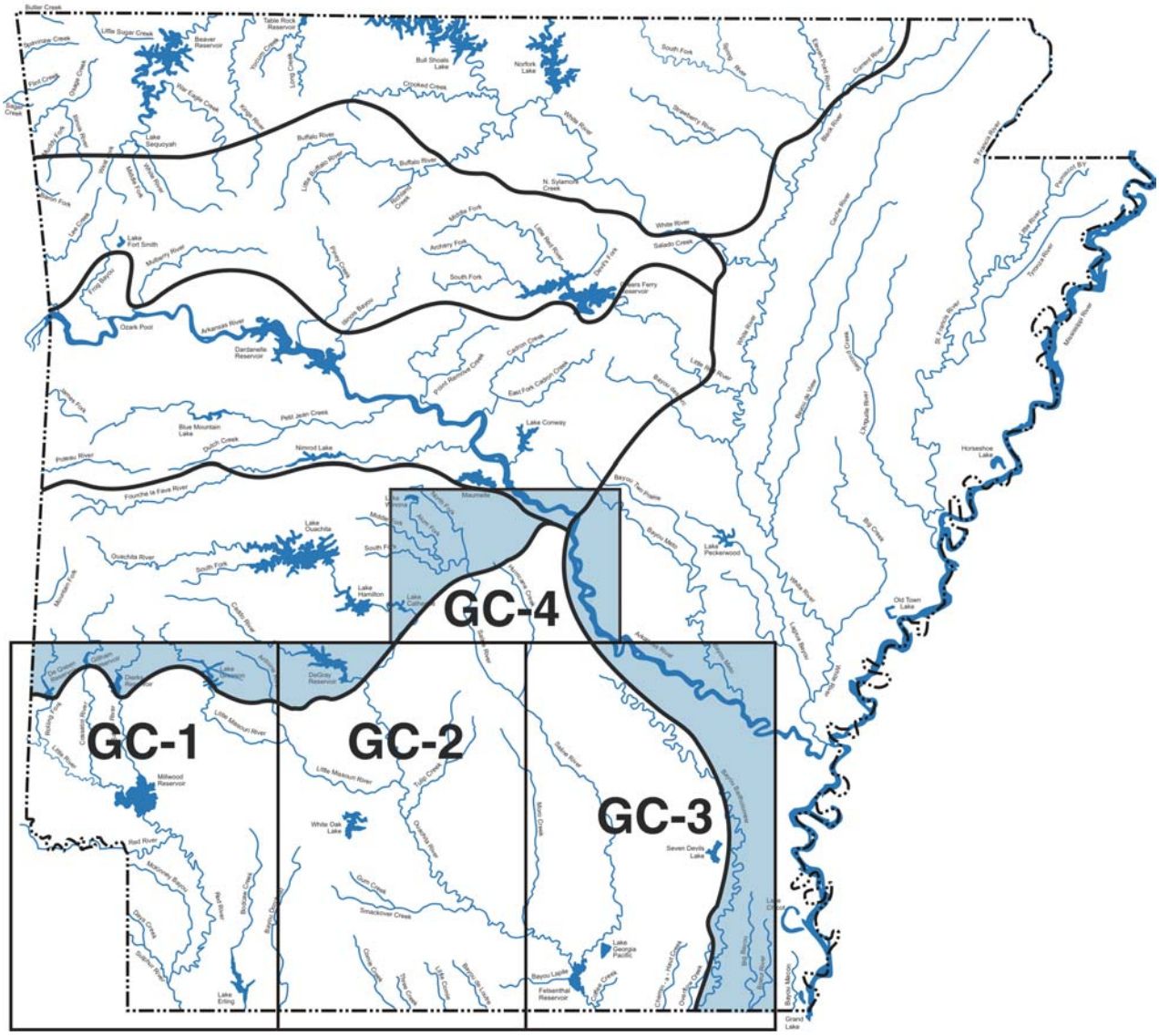


DESIGNATED USES: GULF COASTAL ECOREGION

(Plates GC-1, GC-2, GC-3, GC-4)

Extraordinary Resource Waters
Saline River (GC-3, GC-4)
Moro Creek - adjacent to natural area (GC-3)

Natural and Scenic Waterways
Saline River from the Grant-Saline County line to mouth (GC-3)

Ecologically Sensitive Waterbodies
Little River above Millwood Reservoir - location of Ouachita rock pocketbook and pink mucket mussels (GC-1)
Grassy Lake and Yellow Creek below Millwood Reservoir - unique ecosystem and biota (GC-1)Lower Little Missouri River - location of peppered shiner and longnose darter (GC-2)
Lower Saline River - location of peppered shiner, crystal darter and goldstripe darter (GC-3)
Ouachita River near Arkadelphia - location of flat floater, Ouachita rock pocketbook and pink mucket mussels (GC-2)

Streams with Substantial Springwater Influence
L'Eau Frais (GC-4)
Cypress Creek (GC-4)
East and West Fork Tulip Creeks (GC-4)
Others to be determined

Primary Contact Recreation - all streams with watersheds greater than 10 mi^2 and all lakes/reservoirs

Secondary Contact Recreation - all waters

Domestic, Industrial and Agricultural Water Supply - all waters

Fisheries

Trout

Little Missouri River from Narrows Dam to confluence with Muddy Fork (GC-1)

Lakes and Reservoirs - all

Streams

Seasonal Gulf Coastal fishery - all streams with watersheds of less than 10 mi^2 except as otherwise provided in Reg. 2.505
Perennial Gulf Coastal fishery - all streams with watersheds of 10 mi^2 or larger and those waters where discharges equal or exceed 1 CFS

Use Variations Supported by UAA
Loutre Creek - perennial fishery, except seasonal from railroad bridge to mouth (GC-2, #1)
Unnamed tributary to Smackover Creek - no fishable/swimmable uses (GC-2, #2)
Unnamed tributary to Flat Creek - no fishable/swimmable uses (GC-2, #4)
Dodson Creek - perennial fishery (GC-4, #5)
Jug Creek - perennial fishery (GC-2, #6)
Lick Creek - seasonal fishery; no primary contact (GC-1, #7)
Coffee Creek and Mossy Lake - no fishable/swimmable or domestic water supply uses (GC-3, #8)
Red River from Oklahoma to confluence with Little River - No domestic water supply use (GC-1, #9)
Bluff Creek and unnamed tributary - no domestic water supply use(GC-1,#10)
Mine Creek from Highway 27 to Millwood Lake - no domestic water supply use (GC-1, #11)
Caney Creek - no domestic or industrial water supply use(GC-1,#12)

Use Variations Supported by UAA
Bois d'Arc Creek from Caney Creek to Red River - no domestic or industrial water supply use(GC-1,#13)
Town Creek below Acme tributary - no domestic water supply(GC-4,#14)
Unnamed trib. from Acme - no domestic water supply(GC-4,#14)
Gum Creek - no domestic water supply use(GC-2,#15)
Bayou de Loutre from Gum Creek to State line - no domestic water supply use(GC-2,#16)
Walker Branch - no domestic water supply use(GC-2,#17)
Little Cornie Bayou from Walker Branch to State line - no domestic water supply use(GC-2,#18)
Alcoa unnamed trib to Hurricane Cr.and Hurricane Cr. - no domestic water supply use(GC-4,#19)
Holly Creek - no domestic water supply use(GC-4,#20)
Dry Lost Creek and Tribs. - no domestic water supply use(GC-4.#21)
Lost Creek - no domestic water supply use(GC-4,#22)
Albemarle unnamed trib (AUT) to Horsehead Creek - no domestic water supply use(GC-2,#27)
Horsehead Creek from AUT to mouth - no domestic water supply use(GC-2,#27)
Dismukes Creek and Big Creek to Bayou Dorcheat – no domestic water supply

SPECIFIC STANDARDS: GULF COASTAL ECOREGION

(Plates GC-1, GC-2, GC-3, GC-4)

	Typical Streams		**Spring Water Streams**	**Lakes and Reservoirs**
Temperature °C (°F)*	30 (86)		30 (86)	32 (89.6)
Ouachita River (state line to Little Missouri River)	32 (89.6)			
Red River	32 (89.6)			
Turbidity (NTU)(primary/storm)	21/32		21/32	25/45
Red River(primary/storm)	50/150			
Minerals	see Reg. 2.511			see Reg. 2.511
Dissolved Oxygen (mg/l)**	Pri.	Crit.		see Reg. 2.505
<10 mi^2 watershed	5	2		
10 mi^2 - 500 mi^2	5	3		
>500 mi^2 watershed	5	5		
All sizes	6	5		
All other standards	(same as statewide)			

* Increase over natural temperatures may not be more than 2.8°C (5°F).

** At water temperatures ≤10°C or during March, April and May when stream flows are 15 CFS and greater, the primary season D.O. standard will be 6.5 mg/l. When water temperatures exceed 22°C, the critical season D.O. standard may be depressed by 1 mg/l for no more than 8 hours during a 24-hour period

Variations Supported by UAA

Loutre Creek - from headwaters to railroad bridge, critical season D.O. standard - 3 mg/l; primary season - 5 mg/l; from railroad bridge to mouth, critical season D.O. - 2 mg/l (GC-2, #1)

Unnamed tributary to Smackover Creek - headwaters to Smackover Creek, year round D.O. criteria - 2 mg/l (GC-2, #2)

Unnamed tributary to Flat Creek - from headwaters to Flat Creek, year round D.O. criteria - 2 mg/l (GC-2, #4)

Dodson Creek - from headwaters to confluence with Saline River, critical season D.O. standard - 3 mg/l (GC-4, #5)

Jug Creek - from headwaters to confluence with Moro Creek, critical season D.O. standard - 3 mg/l (GC-2, #6)

Lick Creek - from headwaters to Millwood Reservoir, critical season D.O. standard - 2 mg/l (GC-1, #7)

Coffee Creek and Mossy Lake - exempt from Reg. 2.406 and Chapter Five (GC-3, #8)

Red River from Oklahoma to confluence with Little River - total dissolved solids - 850 mg/l (GC-1, #9)

Bluff Creek and unnamed trib. - sulfates 651 mg/l; total dissolved solids 1033 mg/l(GC-1,#10)

Muddy Fork Little Missouri River - sulfates 250 mg/l; total dissolved solids 500 mg/l(GC-1,#24)

Little Missouri River - sulfates 90 mg/l; total dissolved solids 180 mg/l(GC-1,#25)

Mine Creek from Highway 27 to Millwood Lake - chlorides - 90 mg/l; sulfates - 65 mg/l; TDS - 700 mg/l (GC-1, #11)

Caney Creek - chlorides 113 mg/l; sulfates 283 mg/l; total dissolved solids 420 mg/l(GC-1,#12)

Bois d'Arc Creek from Caney Creek to Red River - chlorides 113 mg/l; sulfates 283 mg/l; dissolved solids 420 mg/l(GC-1,#13)

Town Creek below Acme tributary - sulfates 200 mg/l; TDS 700 mg/l(GC-4,#14)

Unnamed trib. from Acme - sulfates 330 mg/l; TDS 830 mg/l(GC-4,#14)

Gum Creek - chlorides 104 mg/L; TDS 311 mg/L(GC-2,#15)

Bayou de Loutre from Gum Creek to State line - Chlorides 250 mg/l; TDS solids 750 mg/l(GC-2,#16)

Walker Branch - chlorides 180 mg/l; total dissolved solids 970 mg/l(GC-2,#17)

Ouachita River - from Ouachita River mile(ORM) 223 to the Arkansas-Louisiana border(ORM 221.1),site specific seasonal D.O.criteria: 3 mg/L June and July; 4.5 mg/L August; 5 mg/L September through May. These seasonal criteria may be unattainable during or following naturally occurring high flows,(i.e., river stage above 65 feet measured at the lower gauge at the Felsenthal Lock and Dam, Station No.89-o, and also for the two weeks following the recession of flood waters below 65 feet), which occurs from May through August. Naturally occurring conditions which fail to meet criteria should not be interpreted as violations of these criteria (GC-3,#26)

Alcoa unnamed trib. to Hurricane Cr. And Hurricane Cr. - see Reg. 2.511(CG-4.#19)

Holly Creek - See Reg. 2.511(CG-4,#20)

Saline River bifurcation - see Reg. 2.511(GC-4,#23)

Dry Lost Creek and tributaries - see Reg. 2.511(GC-4,#21)

Lost Creek - see Reg. 2.511(GC-4,#22)

Albemarle unnamed trib (AUT) to Horsehead Creek - chlorides 137 mg/l; TDS 383 mg/l(GC-2,#27)

Horsehead Creek from AUT to mouth - chlorides 85 mg/l; TDS 260 mg/l(GC-2,#27)

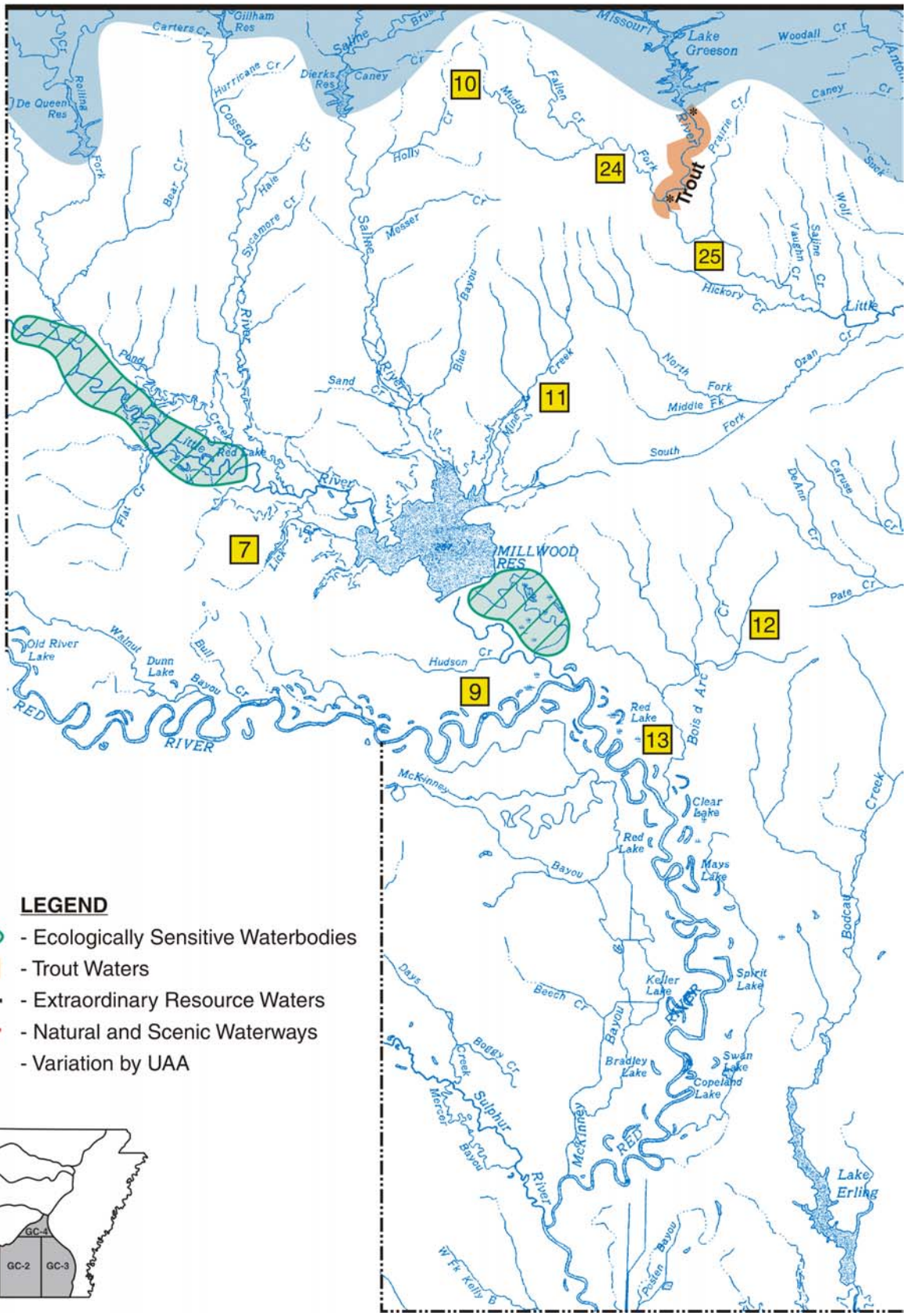
Bayou Dorcheat - sulfates 16 mg/l(GC-2,#27)

Dismukes Creek – chlorides 26 mg/L; TDS 157 mg/L (GC-2, #28)

Big Creek from Dismukes to Bayou Dorcheat – chlorides 20 mg/L; TDS 200 mg/L (GC-2, #28)

Bayou de Loutre from Great Lakes outfall to Loutre Creek – maximum water temperature 96°F (GC-2, #29)

Plate GC-1 (Gulf Coastal Plain)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA

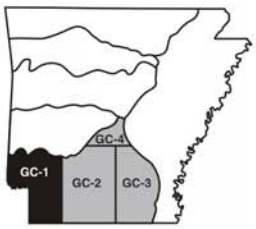


Plate GC-2 (Gulf Coastal Plain)

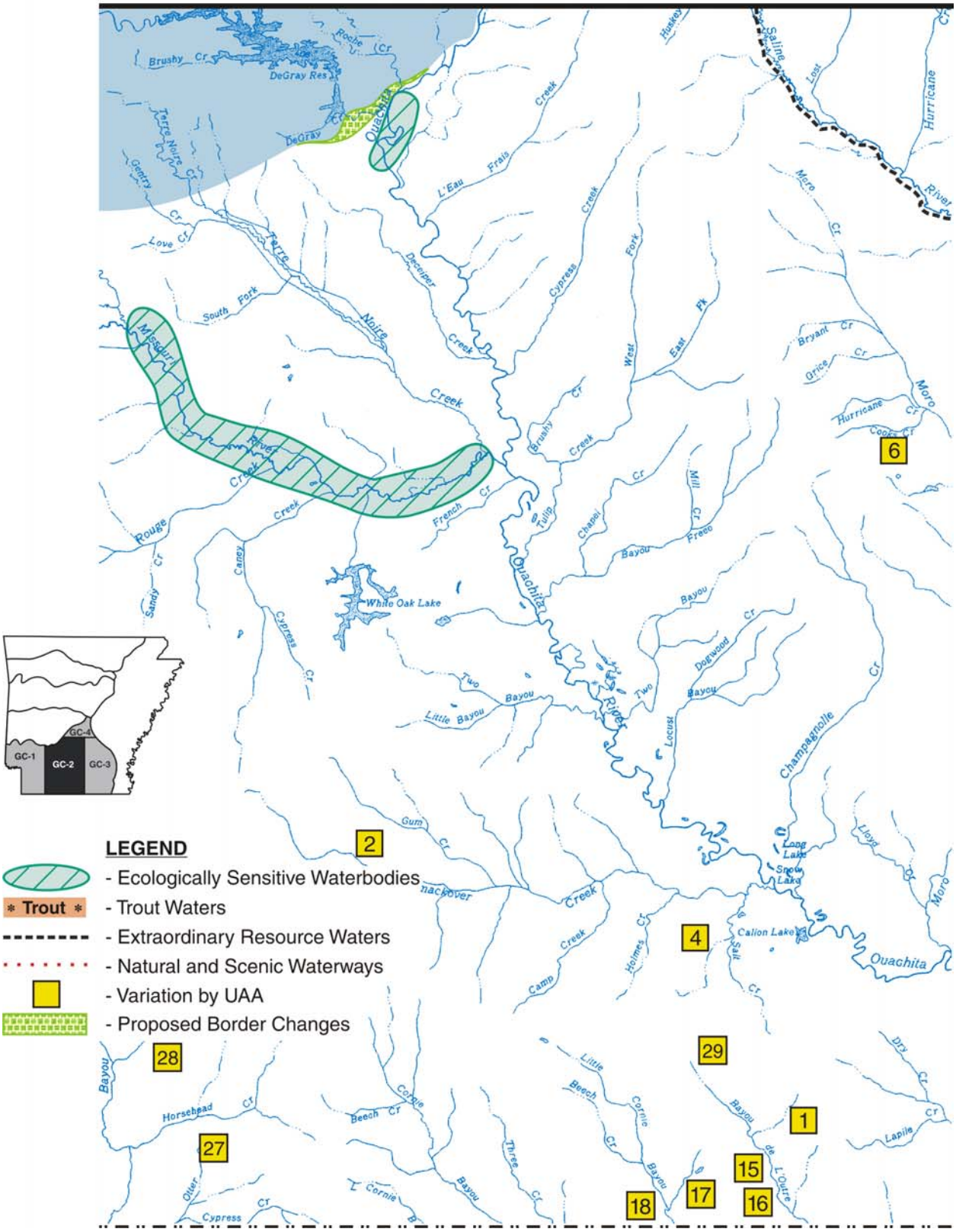


Plate GC-3 (Gulf Coastal Plain)

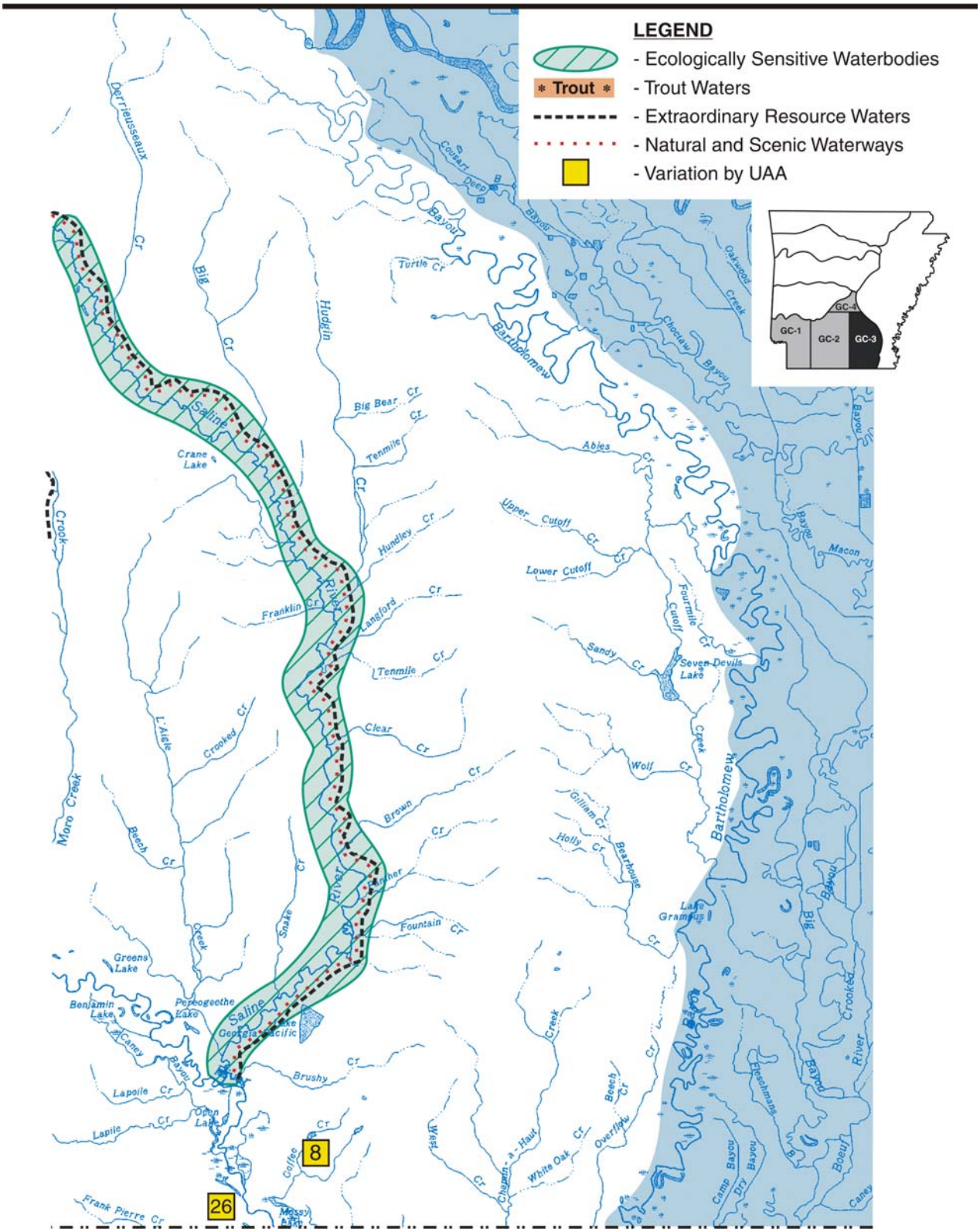
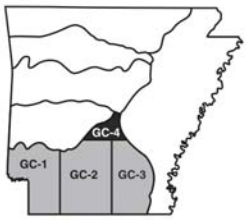
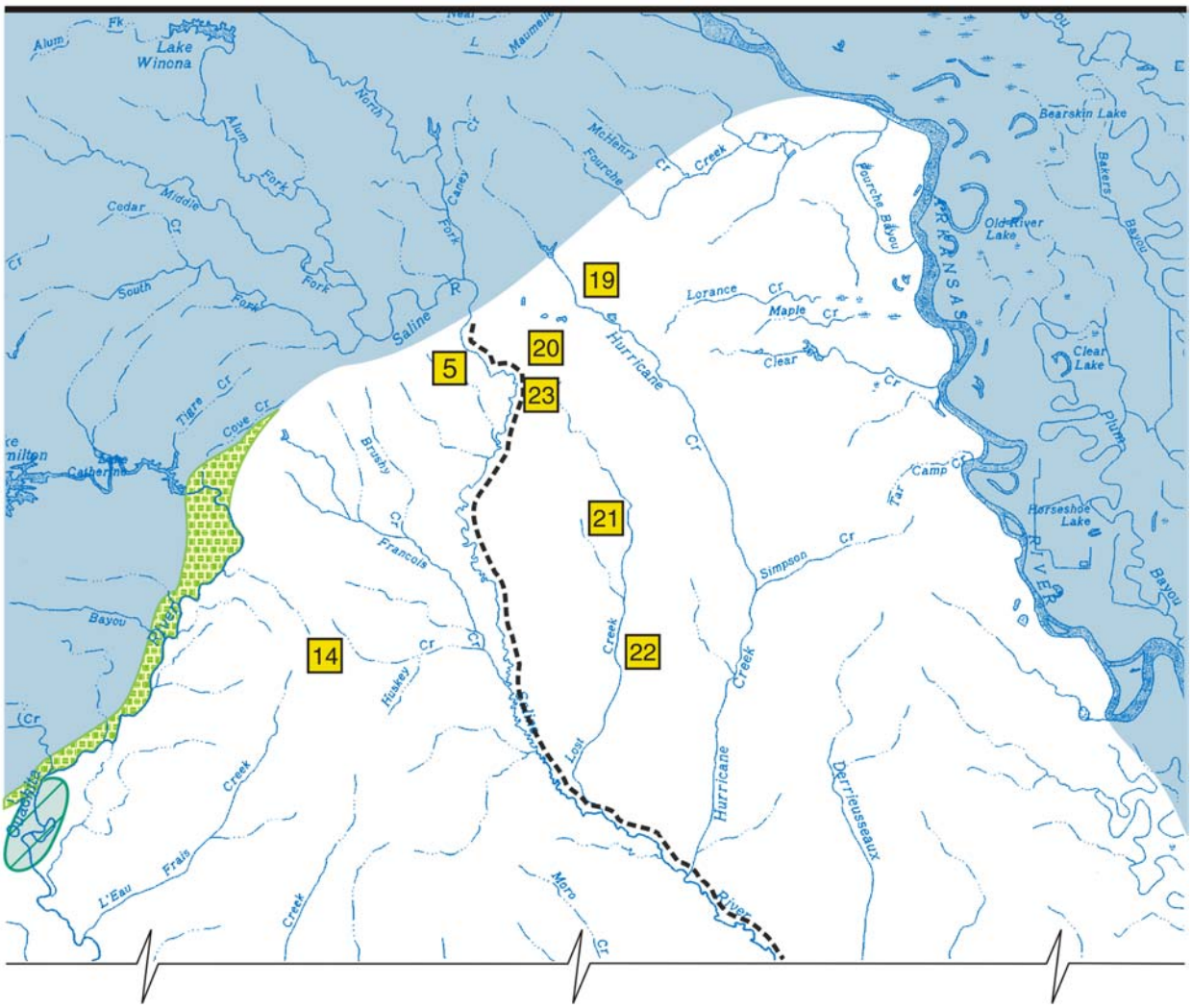


Plate GC-4 (Gulf Coastal Plain)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA
- Proposed Border Changes



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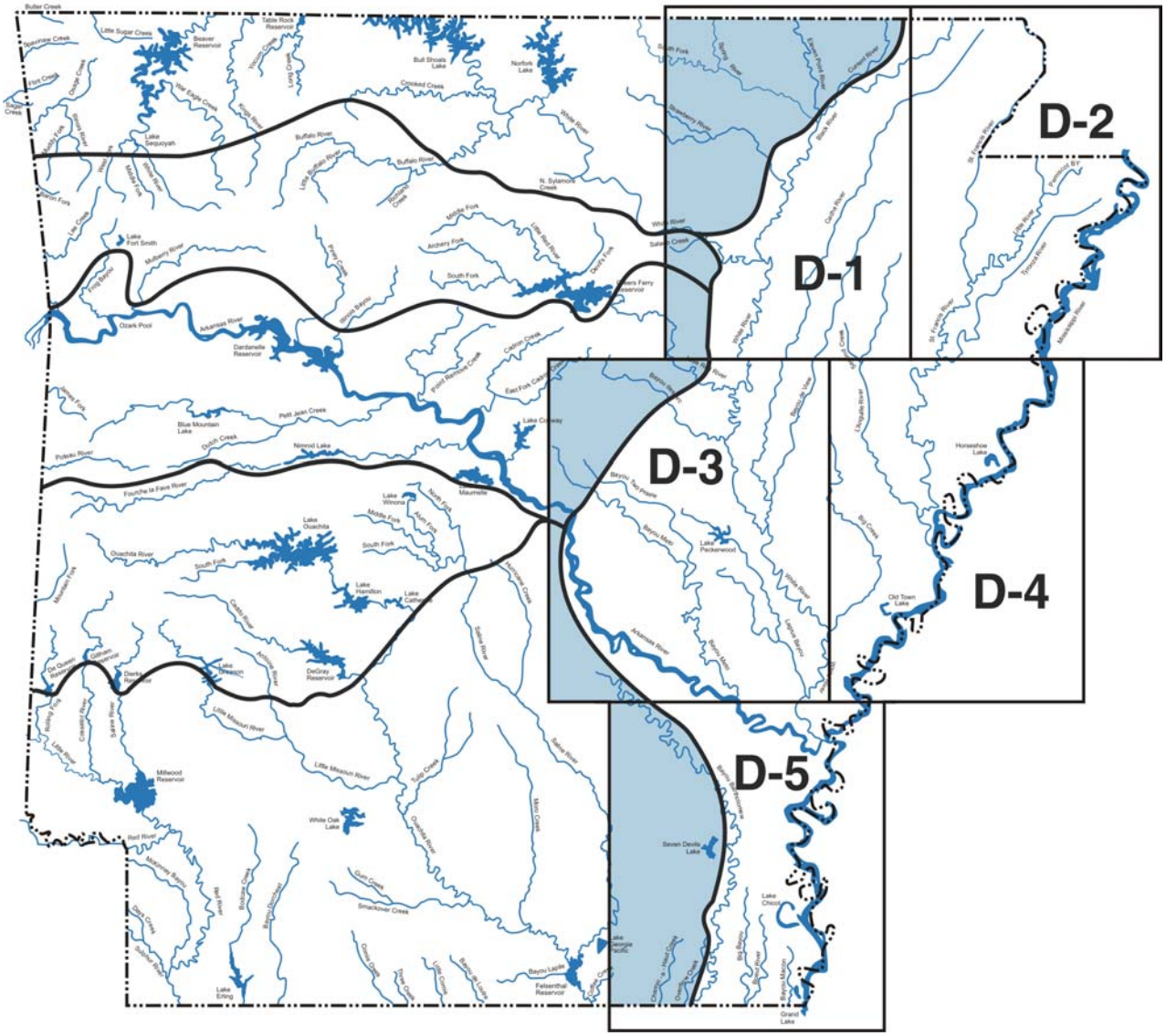

DESIGNATED USES: DELTA ECOREGION

(Plates D-1, D-2, D-3, D-4)

Extraordinary Resource Waters
Second Creek (D-4)
Cache River above Cache Bayou - adjacent to natural areas (D-3)
Arkansas River below Dam #2 (D-5)
Strawberry River (D-1)
Two Prairie Bayou adjacent to natural areas (D-3)

Natural and Scenic Waterways
None

Ecologically Sensitive Waterbodies
Lower St. Francis River and lower 10 miles of Straight Slough - location of fat pocketbook mussel (D-2, D-4)
Right Hand Chute at confluence with St. Francis River - location of fat pocketbook mussel (D-2)
Departee Creek - location of flat floater mussel (D-1)
Black River at mouth of Spring River - location of pink mucket mussel (D-1)

Channel-altered Delta Ecoregion Streams - These include the majority of the streams in this ecoregion and are characterized by substantial alteration of the morphology of their main-stream channel as well as their tributary streams. Such alteration of the tributaries of these streams significantly affects the water quality and hydrology of the streams and their watersheds. Most of the upper segments of these waters have been dredged and straightened into ditches. Additionally most of the tributaries of these streams have been straightened, ditched and, in some cases, rerouted to quickly move water off the agriculture fields and into the major streams. In the lower segments of these waters, channel realignment is less expansive but most of these channels have been "snagged" to remove any in-stream obstructions (brush, logs, and other debris) and the stream channel and banks have been dredged to uniform depths and cleared of any obstructions. These include Cache River, Bayou DeView, Village Creek, Blackfish Bayou and others to be determined by the Department on a case by case basis.

Primary Contact Recreation - all streams with watersheds of greater than 10 mi^2 and all lakes/reservoirs

Secondary Contact Recreation - all waters

Domestic, Industrial and Agricultural Water Supply - all waters

Fisheries

Trout - none

Lakes and Reservoirs - all

Streams

Seasonal Delta fishery - all streams with watersheds of less than 10 mi^2 except as otherwise provided in Reg. 2.505

Perennial Delta fishery - all streams with watersheds 10 mi^2 or larger and those waters where discharges equal or exceed 1 CFS

Use Variation Supported by UAA
Unnamed ditch to Little Lagrue Bayou - perennial Delta fishery (D-3, #1)
Little Lake Bayou - seasonal Delta fishery; no primary contact (D-5, #2)
Coon Creek and unnamed tributary from Frit Ind. - no domestic water supply use (D-1,#3)
Rocky Branch Creek and Bayou Meto from Rocky Branch Creek to Bayou Two Prairie - no domestic water supply use (D-3 #4)

SPECIFIC STANDARDS: DELTA ECOREGION

(Plates D-1, D-2, D-3, D-4)

	Least-Altered Streams		Channel-Altered Streams		Lakes and Reservoirs
Temperature °C (°F)*	30 (86)		32 (89.6)		32 (89.6)
White River	32 (89.6)				
St. Francis River	32 (89.6)				
Mississippi River	32 (89.6)				
Arkansas River	32 (89.6)				
Turbidity (NTU)(primary/storm)	45/84		75/250		25/45
Arkansas River(primary/storm)	50/52				
Mississippi River (primary/storm)	50/75				
St. Francis River(primary/storm)	75/100				
Minerals	see Reg. 2.511		see Reg. 2.511		see Reg. 2.511
Dissolved Oxygen (mg/l)**	Pri	Crit	Pri	Crit.	see Reg. 2.505
<10 mi^2 watershed	5	2	5	2	
10 mi^2 to 100 mi^2	5	3	5	3	
>100 mi^2 watershed	5	5	5	5	
All other standards	(same as statewide)				

Variations Supported by UAA

Unnamed ditch to Little Lagrue Bayou - from headwaters to confluence with Little Lagrue Bayou, critical season D.O. standard - 3 mg/l (D-3, #1)

Little Lake Bayou - critical season D.O. standard - 2 mg/l (D-5, #2)

Unnamed tributary from Frit Ind, to Coon Creek - sulfates 48 mg/l (D-1, #3)

Rocky Branch Creek and Bayou Meto from Rocky Branch Creek to Bayou Two Prairie - chlorides 64 mg/l (D-3, #4)

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* Increase over natural temperatures may not be more than 2.8°C (5°F).

** When water temperatures exceed 22°C, the critical season D.O. standard may be depressed by 1 mg/l for no more than 8 hours during a 24-hour period.

Plate D-1 (Delta)

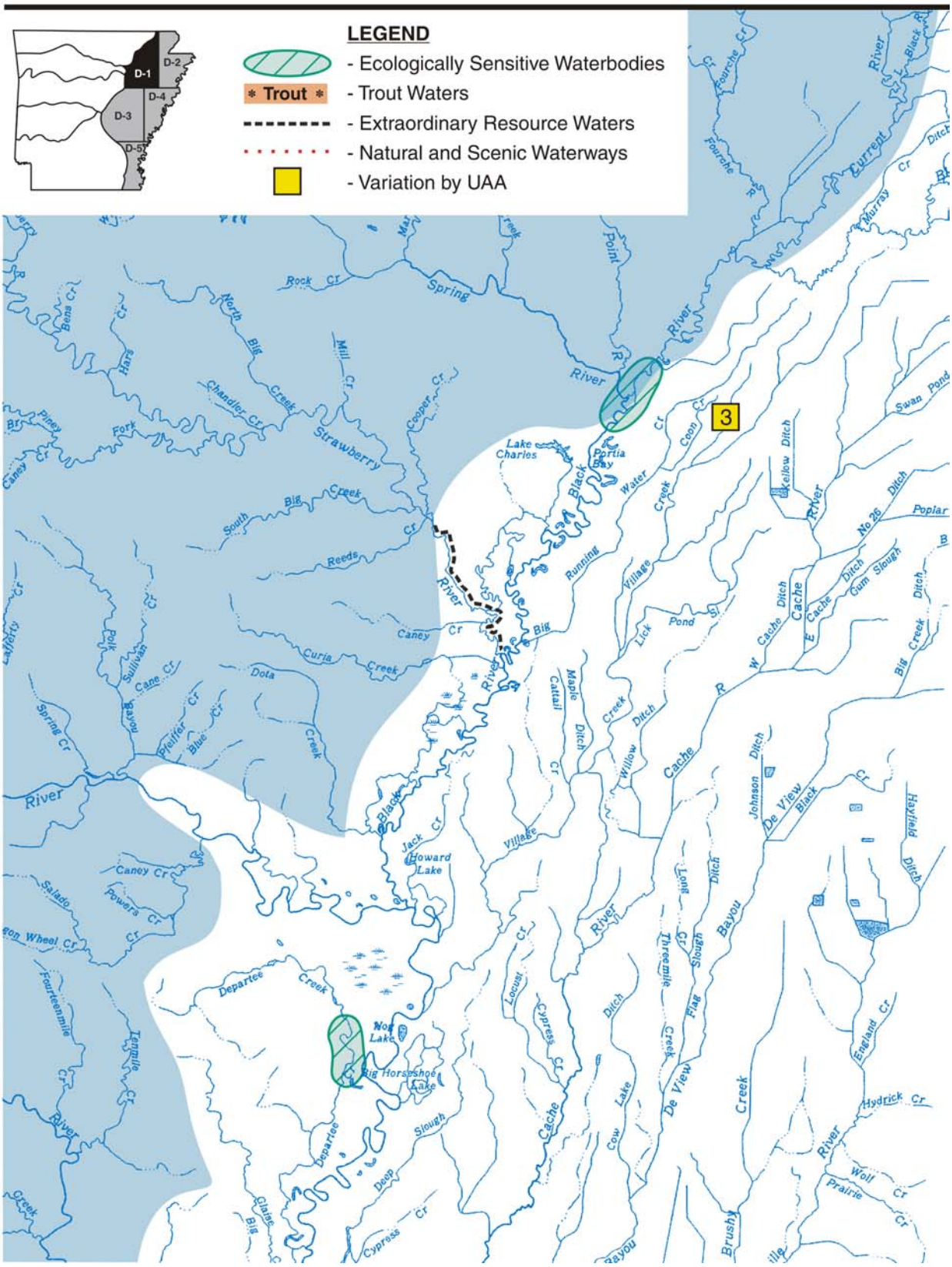


Plate D-2 (Delta)

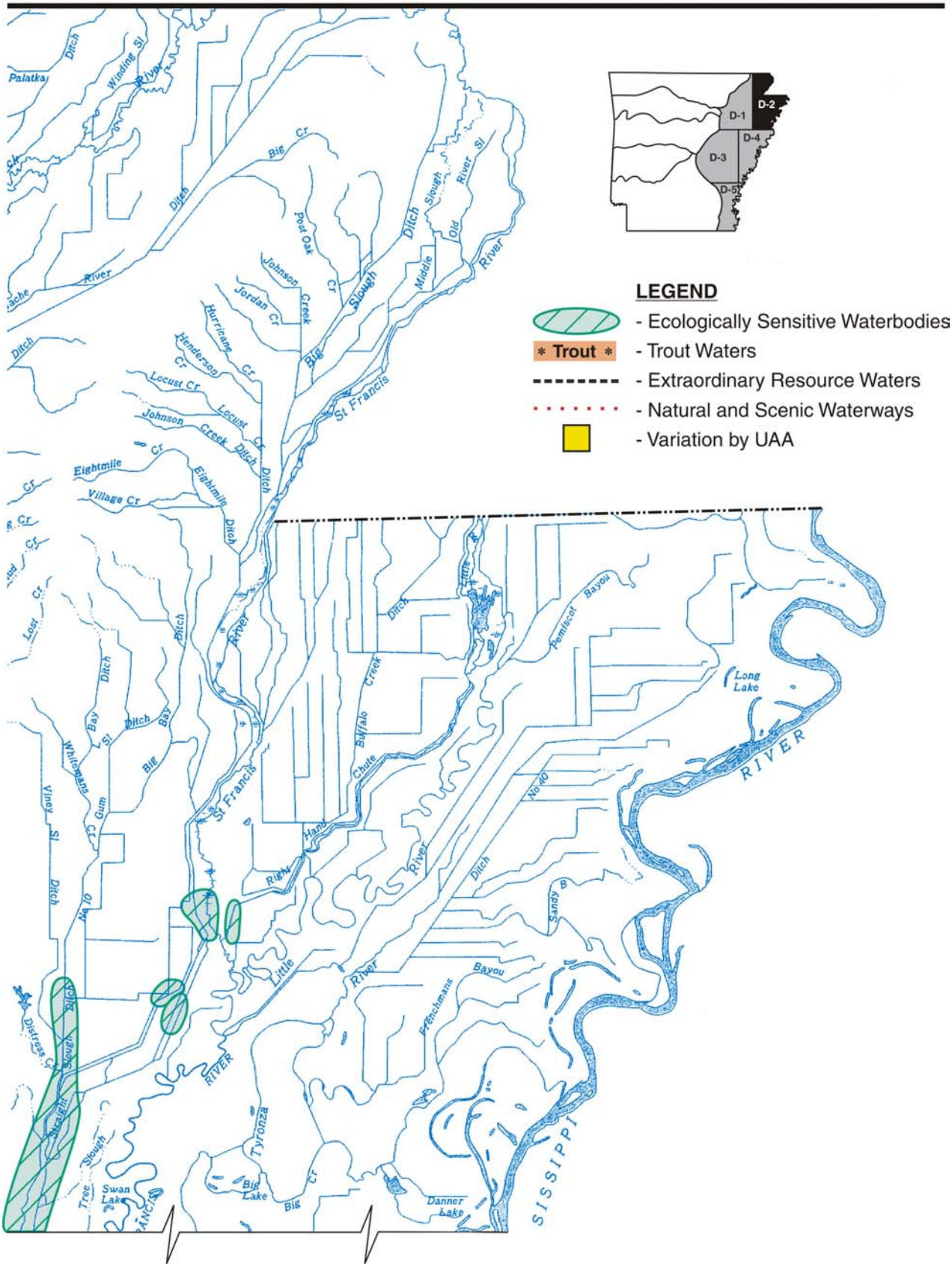


Plate D-3 (Delta)

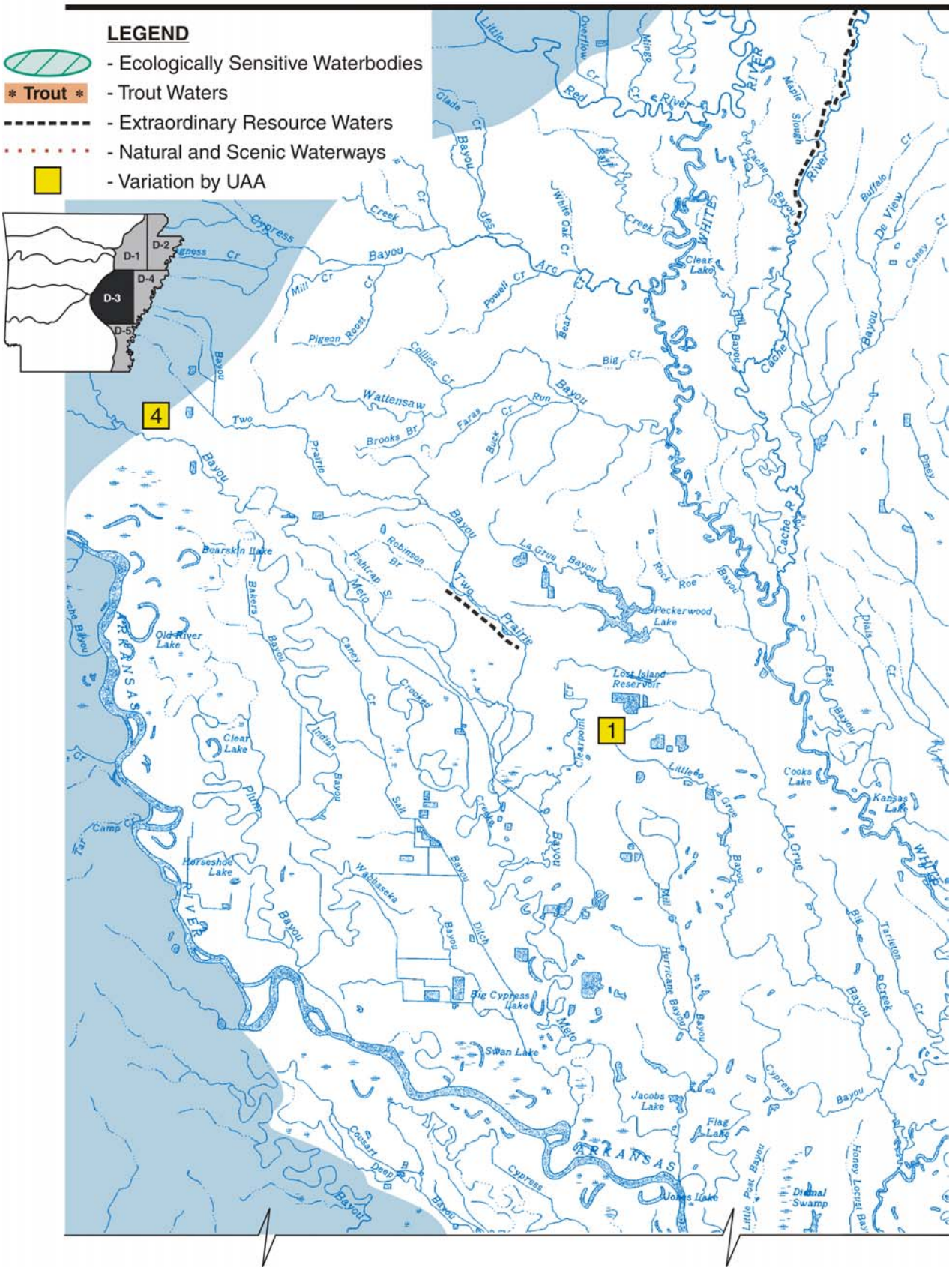


Plate D-4 (Delta)

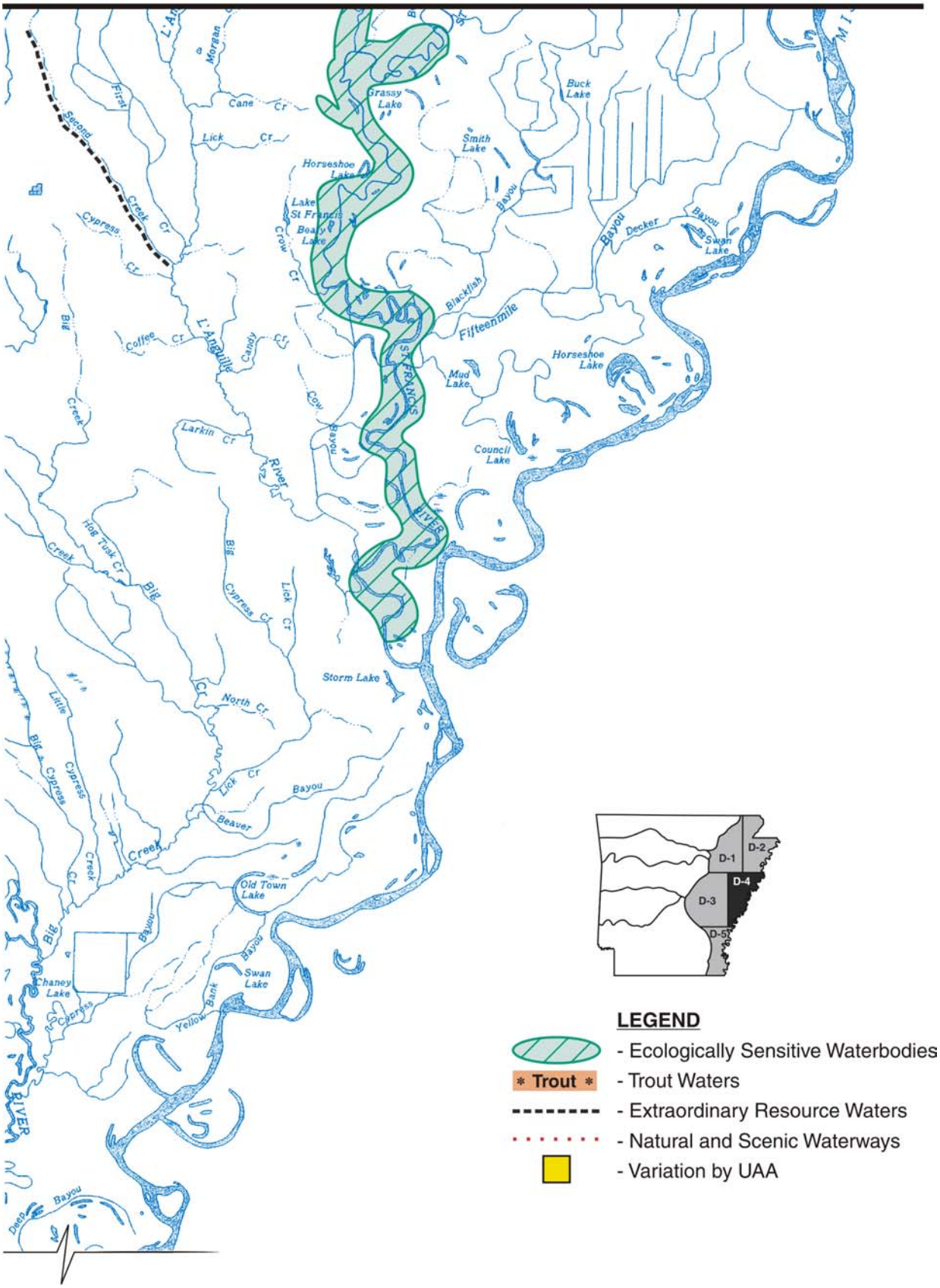
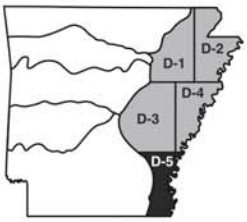
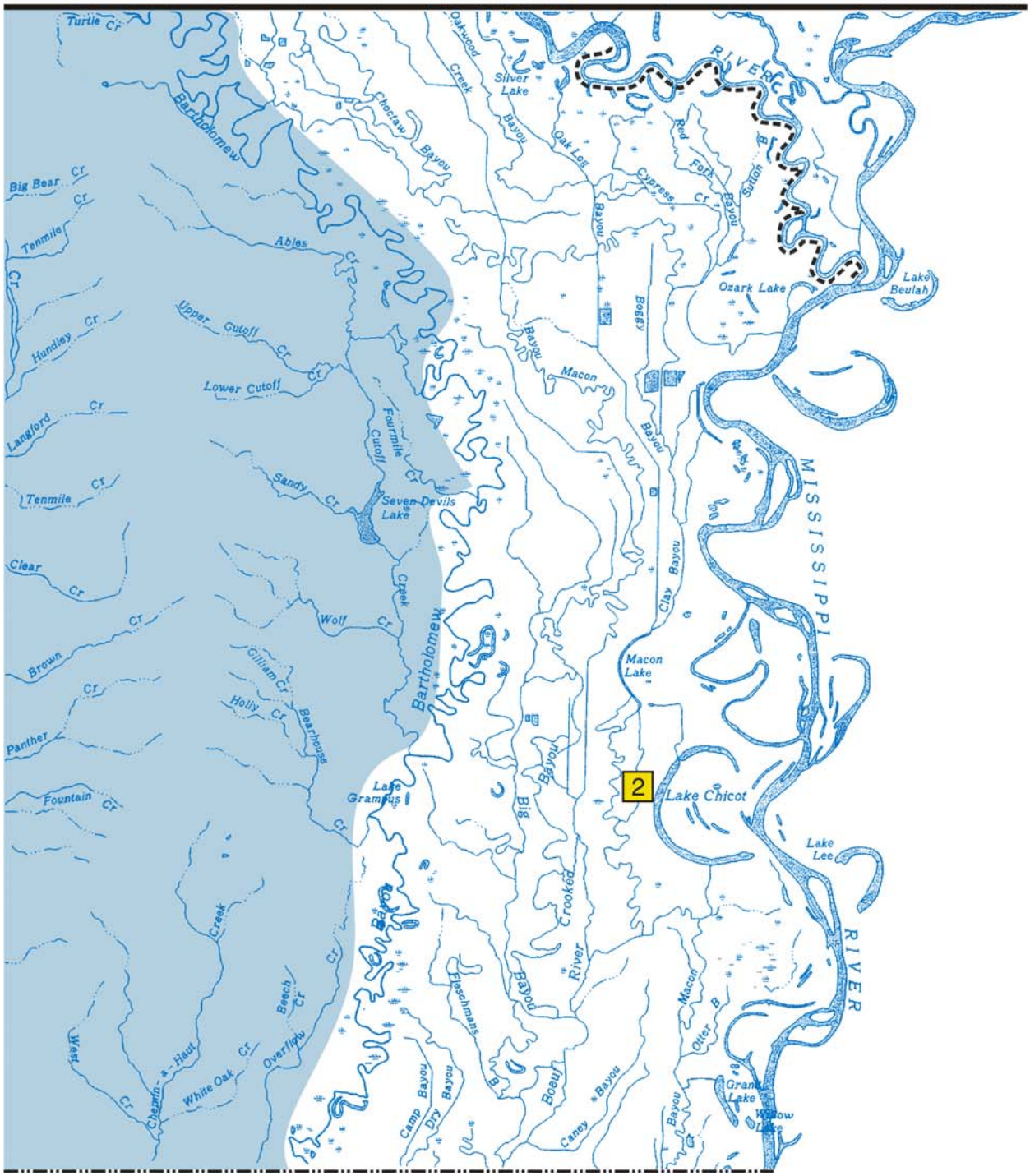


Plate D-5 (Delta)



LEGEND

- Ecologically Sensitive Waterbodies
- * Trout * - Trout Waters
- Extraordinary Resource Waters
- Natural and Scenic Waterways
- Variation by UAA



ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATION NO. 2

APPENDIX B

Environmental Improvement Project

April 23, 2004

APPENDIX B:ENVIRONMENTAL IMPROVEMENT PROJECT

Stricken language would be deleted from present law. Underlined language would be added to present law

State of Arkansas *As Engrossed: S2/21/97*

81st General Assembly **A Bill** ACT 401 OF 1997

Regular Session, 1997 HOUSE BILL 1563

By: Representatives Sheppard, Wallis, Lancaster, Johnson, and Horn

By: Senator Mahony

For An Act To Be Entitled

"AN ACT TO ENCOURAGE LONG-TERM ENVIRONMENTAL PROJECTS; AND FOR OTHER PURPOSES."

Subtitle

"AN ACT TO ENCOURAGE LONG-TERM ENVIRONMENTAL PROJECTS."

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF ARKANSAS:

SECTION 1. Legislative Findings and Intent.

The General Assembly hereby finds that many areas of the state would benefit from long-term environmental remediation projects that significantly improve the effects caused by industrial or extractive activities. However, commitments by private enterprise to remedy such damages are discouraged by the prospect of civil liability based upon rigid application of state water quality standards to the enterprises activities. The purpose of this act is to preserve the states approach to establishing water quality standards, while also encouraging private enterprises to make significant improvements to closed or abandoned sites that are of such magnitude that more than three (3) years will be required to complete the project.

SECTION 2. Definitions and Applicability.

For the purposes of this act:

(1) "Long-term Improvement Project" or "Project" means any remediation or reclamation project at closed or abandoned:

(A) Mineral Extraction Sites;

(B) Solid Waste Management Units as defined pursuant to the Arkansas Hazardous Waste Management Act;

(C) Oil and Gas Extraction Sites;

(D) Brownfield Sites as defined in Act 125 of 1995 or as may be amended; and

(E) Hazardous Substance Sites listed on the National Priority List (42 U.S.C. Section 9605), or State Priority List (Arkansas Code 8-7-509(e), or as may be amended.

(2) "Water Quality Standard" means standards developed through administrative rulemaking by the Commission;

(3) "Commission" means the Arkansas Pollution Control and Ecology Commission; and

(4) "Department" means the Arkansas Department of Pollution Control and Ecology.

SECTION 3. Procedures for approval of environmental projects, contents of applications, and public notice.

(a) A petitioner seeking approval of a change in water quality standards to accommodate a long-term environmental improvement project shall file with the Department a Notice of Intent, which includes as a minimum:

(1) A description of the water body or stream segment affected by the project;

(2) The existing ambient water quality for the use of criteria at issue;

(3) The affected water quality standard;

(4) The modifications sought;

(5) The proposed remediation activities;

(6) A proposed Remediation Plan, which shall contain:

(A) A description of the existing conditions, including identification of the conditions limiting the attainment of the water quality standards;

(B) A description of the proposed water quality standard modification, both during and post project;

(C) A description of the proposed remediation plan; and

(D) The anticipated collateral effects, if any, of the Remediation Plan; and

(7) A schedule for implementing the Remediation Plan that ensures that the post project water quality standards are met as soon as reasonably practicable.

(b) The department shall cause notice of the proposed project and associated water quality standard changes described in subsection (a) to be published for public notice and comment in the same manner as provided for permit applications in Arkansas Code 8-4-203(b), and shall advise the public that the details of the proposed project are available for public review.

(c) After considering comments from the public, the department shall notify the petitioner as to whether the proposed project is approved or denied. The department may deny approval of a project if it reasonably concludes that the plan is not complete, the plan is not technically sound, the schedule is unrealistic, the plan will not have an overall beneficial effect for the environment, or other appropriate reasons. Any department determination on the approval or denial of a project is subject to the appeal procedures applicable to permitting decisions set out in Arkansas Code 8-4-205.

(d) Upon approval of the project for further development, the petitioner shall prepare documentation required for third-party rulemaking by Arkansas Code 8-4-202 and established in administrative procedures.

SECTION 4. Modification of Water Quality Standards.

(a) The commission may approve a modification where the water quality standard is not being maintained due to conditions which may, in part or in whole, be corrected through the implementation of long-term measures. The commission shall establish such subcategory of use and modify such general and specific standards as it deems appropriate to reflect such modification while ensuring that the fishable/swimmable use is maintained. In all water quality standard changes associated with long-term environmental projects, the remedial action plan described in subsection (a) of Section 3 of this act shall be incorporated by reference in the statement of basis and purpose of the rule and shall be considered an essential condition of the modified water quality standard.

(b) Once the commission approves a water quality standard modification, the department shall ensure that conditions and limitations designed to achieve compliance with the plan are

established in applicable discharge permits, consent administrative orders, or such other enforcement measures deemed appropriate by the department. The department may allow modifications by the petitioner to the remediation plan and schedule as is deemed appropriate, provided that any such modifications to the original remedial action plan shall not render the project significantly less protective of the applicable use subcategory. Should the department find that the petitioner is not acting in good faith to complete the project in accordance with the approved plan, applicable and appropriate enforcement authority may be exercised subject to appeal to the commission.

(c) The department or the petitioner shall report annually to the commission on the progress of the project.

SECTION 5. Project Completion.

At the end of the project the post project water quality standards shall be in full force and effect.

SECTION 6.All provisions of this act of a general and permanent nature are amendatory to the Arkansas Code of 1987 Annotated and the Arkansas Code Revision Commission shall incorporate the same in the Code.

SECTION 7. If any provision of this act or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the act which can be given effect without the invalid provision or application, and to this end the provisions of this act are declared to be severable.

SECTION 8. All laws and parts of laws in conflict with this act are hereby repealed.

/s/Sheppard et al
APPROVED:3-07-97

ARKANSAS POLLUTION CONTROL AND ECOLOGY COMMISSION

REGULATION NO. 2

APPENDIX C

Scientific Names of Fishes

April 23, 2004

APPENDIX C: SCIENTIFIC NAMES OF FISHES

Common Name	Species	Family
Banded sculpin	*Cottus carolinae*	Cottidae
Banded pygmy sunfish	*Elassoma zonatum*	Elassomatidae
Bigeye shiner	*Notropis boops*	Cyprinidae
Black redhorse	*Moxostoma duquesnei*	Catostomidae
Blackside darter	*Percina maculata*	Percidae
Blacktail redhorse	*Moxostoma poecilurum*	Catostomidae
Blacktail shiner	*Notropis venustus*	Cyprinidae
Bleeding shiner	*Luxilus zonatus*	Cyprinidae
Bluegill	*Lepomis macrochirus*	Centrarchidae
Bluntnose minnow	*Pimephales notatus*	Cyprinidae
Bluntnose darter	*Etheostoma chlorosomum*	Percidae
Cardinal shiner	*Luxilus cardinalus*	Cyprinidae
Carp	*Cyprinus carpio*	Cyprinidae
Channel catfish	*Ictalurus punctatus*	Ictaluridae
Creek chubsucker	*Erimyzon oblongus*	Catostomidae
Creole darter	*Etheostoma collettei*	Percidae
Drum	*Aplodinotus grunniens*	Sciaenidae
Dusky darter	*Percina sciera*	Pericidae
Duskystripe shiner	*Luxilus pilsbryi*	Cyprinidae
Emerald shiner	*Notropis atherinoides*	Cyprinidae
Fantail darter	*Etheostoma flabellare*	Percidae
Flier	*Centrarchus macropterus*	Centrarchidae
Freckled madtom	*Noturus nocturnus*	Ictaluridae
Gizzard shad	*Dorosoma cepedianum*	Clupeidae
Golden redhorse	*Moxostoma erythrurum*	Catostomidae
Grass pickerel	*Esox americanus*	Esocidae
Gravel chub	*Hybopsis X-punctata*	Cyprinidae
Green sunfish	*Lepomis cyanellus*	Centrarchidae
Greenside darter	*Etheostoma blennioides*	Percidae
Largemouth bass	*Micropterus salmoides*	Centrarchidae
Longear sunfish	*Lepomis megalotis*	Centrarchidae
Longnose darter	*Percina nasuta*	Percidae
Madtoms	*Noturus sp.*	Ictaluridae
Mosquitofish	*Gambusia affinis*	Poeciliidae
Northern hogsucker	*Hypentelium nigricans*	Catostomidae
Northern studfish	*Fundulus catenatus*	Cyprinodontidae
Orangebelly darter	*Etheostoma radiosum*	Percidae
Orangespotted sunfish	*Lepomis humilis*	Centrarchidae
Orangethroat darter	*Etheostoma spectabile*	Percidae
Ozark madtom	*Noturus albater*	Ictaluridae
Ozark minnow	*Notropis nubilus*	Cyprinidae
Pirate perch	*Aphredoderus sayanus*	Aphredoderidae
Pugnose minnow	*Notropis emiliae*	Cyprinidae

Common Name	**Species**	**Family**
Rainbow darter	*Etheostoma caeruleum*	Percidae
Redfin darter	*Etheostoma whipplei*	Percidae
Redfin shiner	*Lythrurus umbratilis*	Cyprinidae
Ribbon shiner	*Lythrurus fumeus*	Cyprinidae
"Rock basses"	*Ambloplites sp.*	Centrarchidae
Scaly sand darter	*Ammocrypta vivax*	Percidae
Shadow bass	*Ambloplites ariommus*	Centrarchidae
Slender madtom	*Noturus exilis*	Ictaluridae
Slough darter	*Etheostoma gracile*	Percidae
Smallmouth bass	*Micropterus dolomieu*	Centrarchidae
Smallmouth buffalo	*Ictiobus bubalus*	Catostomidae
Southern redbelly dace	*Phoxinus erythrogaster*	Cyprinidae
Spotted bass	*Micropterus punctulatus*	Centrarchidae
Spotted sucker	*Minytrema melanops*	Catostomidae
Spotted sunfish	*Lepomis punctatus*	Centrarchidae
Spotted gar	*Lepisosteus oculatus*	Lepisosteidae
Striped shiner	*Notropis chrysocephalus*	Cyprinidae
Tadpole madtom	*Noturus gyrinus*	Ictaluridae
Warmouth	*Lepomis gulosus*	Centrarchidae
Wedgespot shiner	*Notropis greenei*	Cyprinidae
Whitetail shiner	*Notropis galacturus*	Cyprinidae
Yellow bullhead	*Ameiurus natalis*	Ictaluridae