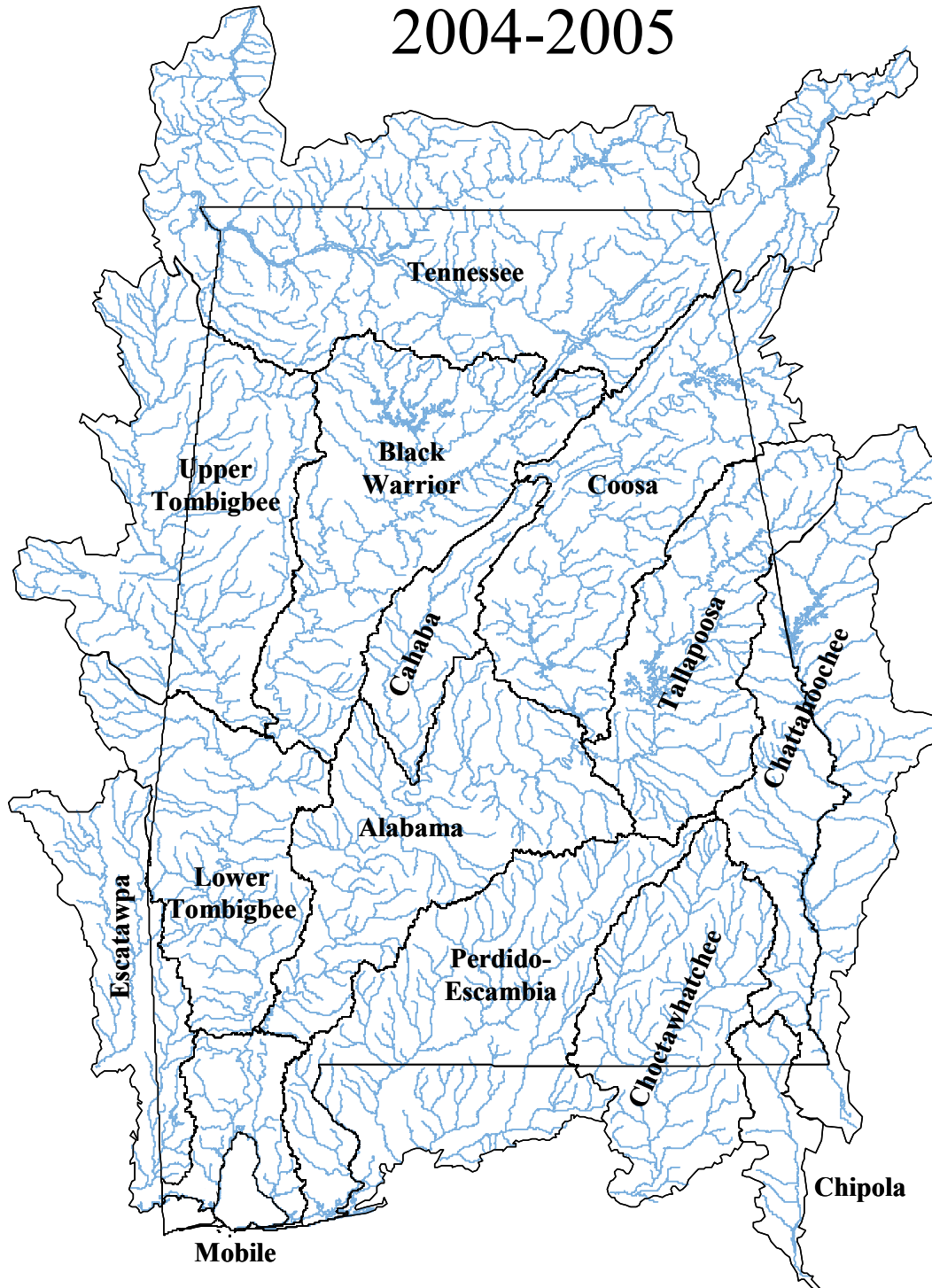

WATER QUALITY IN ALABAMA

2004-2005



2006 Integrated Water Quality Monitoring and Assessment Report
Alabama Department of Environmental Management

2006 Alabama Integrated Water Quality Monitoring and Assessment Report



April 1, 2006

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This report was prepared by the Alabama Department of Environmental Management as required by Section 305(b) (the Clean Water Act). Comments or questions related to the content of the report should be addressed to:



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Executive Summary

Alabama's 2006 Integrated Water Quality Assessment and Monitoring Report includes some changes from previous 305(b) reports. This document combines information about Alabama's surface and ground water resource management programs with a comprehensive listing of State waters consistent with EPA's 2005 guidance. The new guidance requests that states report on the condition of all surface waters by categorizing rivers, streams, lakes, estuaries, and coastal waters according to their designated uses and the degree to which water quality is supporting those uses. State waters have been segmented consistent with the National Hydrography Dataset (NHD) and assigned a unique assessment unit identification number (AU) based on the recently completed twelve-digit hydrologic units (watersheds) for Alabama. Waterbody data and information are evaluated using the use support assessment methodology and the waterbody is assigned to one of the following categories.

Category 1

Waters that are attaining all applicable water quality standards.

Category 2

Waters for which readily available data, which meets the State's requirements as described in Section 4.9, supports a determination that some water quality standards are met and there is insufficient data to determine if remaining water quality standards are met. Attainment status of the remaining standards is unknown because data is insufficient. Waters for which the minimum data requirements (as described later) have not been met will be placed in Category 2.

- *Category 2A*
For these waters available data does not satisfy minimum data requirements but there is a high potential for use impairment based on the limited data. These waters will be given a higher priority for additional data collection.
- *Category 2B*
For these waters available data does not satisfy minimum data requirements but there is a low potential for use impairment based on the limited data. These waters will be included in future basin monitoring rotations as resources allow.

Category 3

Waters for which there is no data or information to determine if any applicable water quality standard is attained or impaired. These waters will be considered unassessed.

Category 4

Waters in which one or more applicable water quality standards are not met but establishment of a TMDL is not required.

- *Category 4A*

Waters for which all TMDLs needed to result in attainment of all applicable WQSs have been approved or established by EPA.

- *Category 4B*

Waters for which other required control measures are expected to attain applicable water quality standards in a reasonable period of time. Adequate documentation is required to indicate that the proposed control mechanisms will address all major pollutant sources and should result in the issuance of more stringent effluent limitations required by either Federal, State, or local authority or the implementation of “other pollution control requirements (e.g., best management practices) required by local, state, or federal authority” that are stringent enough to implement applicable water quality standards. Waters will be evaluated on a case by case basis to determine if the proposed control measures or activities under another program can be expected to address the cause of use impairment within a reasonable time period. A reasonable time period may vary depending on the degree of technical difficulty or extent of the modifications to existing measures needed to achieve water quality standards. EPA’s 2006 assessment and listing guidance offers additional clarification of what might be expected of waters placed in Category 4b.

- *Category 4C*

Waters in which the impairment is not caused by a pollutant. This would include waters which are impaired due to natural causes or pollution. A pollutant is defined in Section 502(6) of the Clean Water Act (CWA) as “spoil, solid waste, incinerator residue, sewerage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.” Pollution is defined as “the man-made or man-induced alteration of the chemical, physical, or radiological integrity of a waterbody.” Invasive plants and animal species are considered pollution.

Category 5

Waters in which a pollutant has caused or is suspected of causing impairment. If the impairment is caused by an identified pollutant the water should be placed in Category 5. All “readily available data and information” will be used to determine when a water should be placed in Category 5. Waters in this category comprise the State’s list of impaired waters or §303(d) list. When the information used to assess the waterbody consist primarily of observed conditions, (limited water quality data, water quality data older than six years, or estimated impacts from observed or suspected activities), the assessment is generally referred to as an evaluated assessment (Category 2). Evaluated assessments usually require the use of some degree of

professional judgment by the person making the assessment and these assessments are not considered sufficient to place waters in or to remove waters from the impaired category (Category 5) or the fully supporting category (Category 1).

Monitored assessments (Categories 1 and 5) are based on readily available chemical, physical, and/or biological data collected during the previous six years, using commonly accepted and well-documented methods. Readily available data are data that have been collected or assembled by the Department or other groups or agencies and are available to the public. Data older than six years old may be used on a case-by-case basis when assessing waters that are not currently included in Category 1 or Category 5. (For example, older data could be used if conditions, such as land use, have not changed.) Much of the remainder of this document will pertain to the use of monitoring data to make use support determinations.

Categorizing Alabama's surface waters represents a significant effort. With approximately 47,072 miles of perennial rivers and streams and approximately 30, 170 miles of intermittent streams, this process will be ongoing and will require substantial resources and time. While the State's monitoring efforts have increased dramatically during the last 10 to 15 years, much of that effort has been focused on impaired waters or waters with special concerns, such as reservoirs or coastal waters. The five part list included in the appendix of this report represents the categorization based on information currently available. As new information becomes available the list will be updated and placed on the Department's web site to give the public the most complete and accurate picture of the water quality status of Alabama's surface water resources.

Table ES-1 River Basins

Alabama River Basin
Black Warrior River Basin
Cahaba River Basin
Chattahoochee River Basin
Chipola River Basin
Choctawhatchee River Basin
Coosa River Basin
Escatawpa River Basin
Lower Tombigbee River Basin
Mobile River Basin
Perdido - Escambia River Basin
Tallapoosa River Basin
Tennessee River Basin
Upper Tombigbee River Basin

Alabama has a population in excess of 4,447,100 (2000 Census), a 10.1% increase in population from the 1990 census, and covers a surface area of 51,609 square miles. The cities of Birmingham, Huntsville, Montgomery, Mobile, and their surrounding suburbs contain approximately half of Alabama's population. The state is comprised of sixty-seven (67) counties. A large percentage of Alabama's industries are related to forestry, agriculture, and mining. The State is divided into fourteen (14) major river basins (Table ES-1) containing 77,272 miles of rivers and streams (Table ES-2). Table ES-3 shows Size of Surface Waters Assigned to Reporting Categories.

Alabama has ponds, lakes, and reservoirs in excess of 490,472 acres. Freshwater wetlands occupy an estimated 3,600,000 acres. Alabama's coastal wetlands are estimated at 27,600 acres (National Wetland Inventory estimates). Coastal Alabama also contains an estimated 610 square miles of estuaries and a coastal shoreline that is 337 miles long (includes Mobile Bay and island shorelines).

Assessing the State's abundant surface water resources requires a significant effort and significant resources. During FY 05 the Alabama Department of Environmental Management (ADEM) initiated monitoring of upland waters using a revised monitoring strategy that focuses on assessing whole watersheds consistent with the Department's 2005 assessment and listing methodology. These watersheds, ranging in size from approximately 10 square miles up to

Table ES-2 Atlas

Topics	Value
State population	4,447,100
State surface area	51,609
Number of river basins	14
Total miles of rivers and streams	77,274
Miles of perennial rivers/streams	47,072
Miles of intermittent (nonperennial) streams	30,170
Miles of ditches and canals	32
Border miles of shared rivers/streams	210
Number of lakes/reservoirs/ponds	7,694
Number of significant publicly-owned lakes/reservoirs/ponds	43
Acres of lakes/reservoirs/ponds	490,472
Acres of significant publicly-owned lakes/reservoirs/ponds	380,939
Square miles of estuaries/harbors/ponds	610
Miles of ocean coast (includes bays and inlets)	337
Acres of freshwater wetlands*	3,600,000
Acres of tidal wetlands*	27,600

*historic National Wetland Inventory estimates

more than 100 square miles, were randomly selected to incorporate a range of human disturbances. In addition to the probabilistic watershed monitoring, the Department continued its more traditional monitoring of §303(d) listed streams, ambient trend monitoring, and the rivers and reservoirs monitoring programs.

Alabama's surface water is of generally high quality. An indication of full support of rivers and streams can be determined by analyzing Alabama's 2006 303(d) List. The total mileage for rivers and streams not supporting designated uses is 2,520 miles. This total is 3% of the 77,272 total rivers and streams miles. This is a good indication that Alabama has a high percentage of full use support for rivers and streams. Approximately 83% of Alabama's publicly accessible lakes and reservoirs are fully supporting their designated uses. Much of the non-support acreage is related to historic as well as recent PCB contamination and eutrophic conditions in the Coosa River Basin reservoirs. Naturally higher nutrients in the soils of the Coosa River Basin, to a large extent, dictate its reservoirs' eutrophic conditions. In an effort to manage eutrophic conditions more directly, the Department has developed nutrient criteria for 29 reservoirs (Weiss Lake, Lake Harris, West Point Lake, Walter F. George Lake, Lake Martin, Yates Lake, Thurlow Lake, Lake Guntersville, Wheeler Lake, Wilson Lake, Pickwick Lake, Little Bear Creek Lake, Cedar Creek Lake, Claiborne Lake, Dannelly Lake, Bankhead Lake, Holt Lake, Lewis Smith Lake, Oliver Lake, Lake Tuscaloosa, Warrior Lake, Lake Harding, Gantt Lake, Point A Lake, Inland Lake, Jackson Lake, Coffeeville Lake, Demopolis Lake, and Gainesville Lake).

Alabama's estuaries enjoy overall good health but pathogens and mercury are pollutants of concern in many coastal watersheds. The Department's coastal water quality monitoring program is participating in several monitoring initiatives with partners such as the Mobile Bay National Estuary Program, the National Oceanic and Atmospheric Administration, the U.S. Environmental Protection Agency, and other local groups and institutions to provide comprehensive assessments of Alabama's coastal waters.

Alabama has initiated a Wetlands Identification Program in coastal Alabama (Baldwin County) and has completed an extensive study of the possible wetland restoration locations for 5 areas of

the State (Alabama River Watershed, Lower Black Warrior River Watershed, Sipsey River Watershed, and Baldwin and Mobile Counties). Statewide wetland estimates derived from EPA landuse data are also included in the wetlands section. ADEM and the US Army Corps of Engineers continue to partner in the management and mitigation of impacts to wetlands in the water quality certification processes of Section 401 and 404 of the Clean Water Act. Alabama has one of the best preserved major river deltas in the U.S., that being the Mobile-Tensaw River Delta. To preserve such a valuable national resource the Alabama Department of Natural Resources and Conservation - State Lands Division has purchased a very large percentage of the Delta through the US Department of Interior's North American Wetlands Conservation Act (NAWCA) funding. The coastal section contains a map of wetland tracts purchased through NAWCA. Wetlands have also been purchased at Weeks Bay, a National Estuarine Reserve.

Alabama's ground water continues to be managed effectively through efforts under the Underground Storage Tank (UST) Program, the Resource Conservation and Recovery Act (RCRA) and Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), and the Underground Injection Control (UIC) Program, as well as the Wellhead Protection Program (WHPP). The lack of chronic detections of pollutants in public water supply groundwater sources is a good indication of Alabama's high ground water quality and effective management of the resource.

Approximately 850,000,000 gallons of drinking water are taken from ground and surface sources each day, provided with treatment, and made available to approximately four million citizens in Alabama. Six hundred and seven (607) community systems, seventy-two (72) transient non-community systems and thirty-two (32) non-transient non-community systems are permitted by the ADEM. Approximately sixty-five (65) percent of the water used is obtained from surface sources such as lakes, rivers, and streams and provided with full treatment to include coagulation, sedimentation, filtration, and disinfection. One hundred (100) percent of these systems meet turbidity requirements, ninety-seven (97) percent meet trihalomethane standards, one hundred (100) percent meet haloacetic acid standards and one hundred (100) percent meet inorganic and radiological drinking water standards.

There is much new work to be done regarding water quality management with the 303(d) process and implementation of Total Maximum Daily Loads in Alabama and the recent management efforts of the Source Water Protection Program and the Wellhead Protection Program. Management efforts continue in the UST, RCRA, CERCLA, and UIC Programs and through National Pollutant Discharge Elimination System (NPDES) permitting. Continuing watershed coordination efforts in Alabama are vital to the effective use of limited resources for surface and ground water management. Implementation of controls for nonpoint source runoff is an integral component of watershed management in Alabama. Water quality monitoring will be crucial in demonstrating the effectiveness of these implementation activities.

Table ES-3 Size of Surface Waters Assigned to Reporting Categories

Waterbody Type	Category								Total Assessed
	1	2A	2B	3	4A	4B	4C	5	
River/Stream (miles)	3,073.76	740.22	2,530.08	2,186.10	671.02	64.19	14.04	1,770.25	11,049.66
Reservoir/Lake (acres)	66,413.86	-	13,545.98	34,285.43	28,967.02	-	-	51,092.65	194,304.94
Estuary/Ocean (square miles)	-	-	20.8	-	-	-	-	627.84	648.64

List of Acronyms

A&I	Agriculture and Industry water supply use classification
AAES	Alabama Agricultural Experiment Station
ACES	Alabama Cooperative Extension Service
ACT/ACF	Alabama-Coosa-Tallapoosa/Apalachicola-Chattahoochee-Flint River Basins study
ACWI	Alabama Coastal Waters Initiative
ADAI	Alabama Department of Agriculture and Industries
ADCNR	Alabama Department of Conservation and Natural Resources
ADCNR-MRD	Alabama Department of Conservation and Natural Resources-Marine Resources Division
ADE	Alabama Department of Education
ADEM	Alabama Department of Environmental Management
ADPH	Alabama Department of Public Health
AEEI	Alabama Environmental Education Initiative
AEMA	Alabama Emergency Management Agency
AEMC	Alabama Environmental Management Commission
AFC	Alabama Forestry Commission
AGPT	Algal Growth Potential Test
ALAMAP	Alabama Monitoring and Assessment Program
ALUS	Aquatic Life Use Assessment
ANHP	Alabama Natural Heritage Program
ASCS	Agricultural Stabilization & Conservation Service
ASMC	Alabama Surface Mining Commission
ASSESS	ADEM's Strategy for Sampling Environmental indicators of Surface water Quality Status
ASWCC	Alabama Soil and Water Conservation Committee
AUC	Assessment Unit Code
AWPCA	Alabama Water Pollution Control Act
B/H	Biological/Habitat data
BMP	Best Management Practices
CBEP	Community-Based Environmental Protection
CERS	Center for Environmental Research and Service at Troy State University
CLP	Clean Lakes Program
CNPCP	Coastal Nonpoint Pollution Control Program
CPYRWMA	Choctawhatchee-Pea and Yellow Rivers Watershed Management Authority
CSO	Combined Sewer Overflow
CWA	Clean Water Act
CWP	Clean Water Partnership
DA	Drainage Area
DIZ	Discharge Information Zone for NPDES Coastal Permits
DO	Dissolved Oxygen

List of Acronyms

EMAP	Environmental Monitoring Assessment Program
EPA	U.S. Environmental Protection Agency
ERL-A	EPA's Environmental Research Laboratory at Athens, GA
ERL-C	EPA's Environmental Research Laboratory at Corvallis, OR
F&W	Fish and Wildlife use classification
FDA	U.S. Food and Drug Administration
FDER	Florida Department of Environmental Regulation
GDNR	Georgia Department of Natural Resources
GIS	Geographical Information System
GPS	Global Positioning System
GSA	Geological Survey of Alabama
HDG	Human Disturbance Gradient
HUC	Hydrologic Unit Code
IO	Industrial Operations
LDI	Landscape Development Index
MBP	Multihabitat Bioassessment Protocol
MCL	Maximum Contaminant Level
MESC	Marine Environmental Sciences Consortium of Dauphin Island, AL
MGD	Million Gallons per Day
MOPC	Mississippi Office of Pollution Control
MOU	Memorandum of Understanding
MPSs	Hester-Dendy Multiplate Samplers
MRD	Marine Resources Division of the ADCNR
MU	Monitoring Unit
NEP	National Estuary Program
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPL	Superfund National Priority Listed Sites
NRCS	Natural Resource Conservation Service of the USDA
NWI	National Wetland Inventory of the USFWS
OAW	Outstanding Alabama Water use classification
OEO	Office of Education and Outreach
ONRW	Outstanding National Resource Water designation
P/C	Physical/Chemical data
PACE	Pollution Abatement Costs and Expenditures
PCB	Polychlorinated Biphenyls

List of Acronyms

PFOA	Perfluorooctanoic Acid
PWS	Public Water Supply use classification
RBP	Rapid Bioassessment Protocol
RC&D	Resource Conservation and Development Councils of the USDA
RM	River Mile
RPS	Rapid Periphyton Surveys
RSMP	Rivers and Streams Monitoring Program
RWC	Receiving Water Concentration
S	Swimming and Other Whole Body Water contact Sports use classification
SH	Shellfish Harvesting use classification
SM/LG	Sand Mountain/Lake Guntersville watershed study
SMZ	Streamside Management Zone
SOC	Synthetic Organic Compound
SOD/NR	Sediment Oxygen Demand/Nutrient Release studies
SOP	Standard Operating Procedures
SRF	State Revolving Fund of Alabama
SSO	Sanitary Sewer Overflow
STP	Sewage Treatment Plant
SWCD	Soil and Water Conservation District
SWCP	State Wetland Conservation Plan
TMDL	Total Maximum Daily Loads
TOT	Time-of-travel studies
TRE	Toxicity Reduction Evaluation
TSI	Trophic State Index
UAA	Use Attainability Analysis
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USCG	United States Coast Guard
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service of the Department of the Interior
USGS	U.S. Geological Survey
VOC	Volatile Organic Compound
WCAMI	Wetlands Conservation and Management Initiative
WLA	Wasteload Allocation
WQB	Water Quality Branch
WWTP	Wastewater Treatment Plant

Chapter 1 Water Quality Standards

1.1 Water Quality Standards Program

The Water Quality Standards Program at the Alabama Department of Environmental Management (ADEM) has been very active since the last 305(b) Report was submitted in April of 2004. ADEM's Water Quality Standards (WQS) Program, consisting of the Water Quality Criteria (Rule 335-6-10) and Water Use Classifications for Interstate and Intrastate Waters (Rule 335-6-11) has been the subject of significant changes over the last year. The subject regulations, which govern our water quality program have been amended twice within a 12-month period and are once again undergoing public review as a result of additional proposed changes. Nutrient criteria development for Alabama reservoirs, new bacteriological criteria for coastal waters, and revision of the state's toxic criteria have been the primary focus of water quality standards development within ADEM's WQS Program over the past year. The section that follows provides a brief summary of the subject rules. The Department believes the recent changes to the WQS Program is a direct reflection of our ongoing commitment to restore, maintain, and protect the physical, chemical, and biological integrity of Alabama's waters.

For information pertaining to Water Quality Standards, contact Mr. Stan Shirley in ADEM's Montgomery Office at (334) 274-4250 or sls@adem.state.al.us

1.2 Water Quality Rule Changes

On April 20, 2004, the State of Alabama adopted regulations that became effective May 27, 2004. Highlights of the rule changes are listed below.

- Amendment of ADEM Administrative Code Rule 335-6-10-.11 to establish lake-specific, nutrient criteria (expressed as chlorophyll *a* targets) for 11 additional reservoirs within Alabama, including Claiborne Lake, Dannelly Lake, Lake Harding, Point A Lake, Gantt Lake, Warrior Lake, Oliver Lake, Holt Lake, Lake Tuscaloosa, Bankhead Lake, and Lewis Smith Lake.
- Amendment of ADEM Administrative Code Rule 335-6-11-.02 to add the Public Water Supply use classification to Whitesides Mill Lake on the western border of the Talladega National Forest. This change was adopted to provide classification for this reservoir for use as a water supply source for the city of Anniston.
- Amendment of ADEM Administrative Code Rule 335-6-10-.09 to replace fecal coliform with enterococci as the bacterial indicator to use when monitoring recreational coastal waters for bacterial contamination and the presence of potential human pathogens. This rule

revision fulfills the requirements mandated by the federal Beaches Environmental Assessment and Coastal Health (BEACH) Act. In marine water studies conducted by EPA, it was determined that enterococcus was the most effective bacterial indicator to use as the basis for bacteriological criteria in coastal waters since it is best suited for indicating potential pathogens associated with fecal pollution.

On December 3, 2004, the State of Alabama adopted regulations that became effective January 15, 2005. Highlights of the rule changes are listed below.

- Amendment of ADEM Administrative Code Rule 335-6-10-.05 to update a reference to federal regulations (40 CFR 136.3) that describes which tests and analytical procedures are acceptable for determining compliance or noncompliance with water quality criteria.
- Amendment of ADEM Administrative Code Rule 335-6-10-.07 to change certain factors in the hardness-dependent equations for calculating aquatic life criteria for certain metals and to clarify that the criteria are expressed as the dissolved fraction of the metal in the water column. The adopted revisions make the Department's toxic pollutant criteria consistent with EPA's recommended criteria.
- Amendment of ADEM Administrative Code Rule 335-6-10-.07 to update reference doses, cancer potency factors, and bioconcentration factors used in the calculation of certain human health toxic pollutant criteria. The adopted revisions make the Department's toxic pollutant criteria consistent with EPA's recommended criteria as reflected in its guidance document entitled "National Recommended Water Quality Criteria: 2002", as well as the fifteen (15) recommended water quality criteria EPA revised and published in the Federal Register on December 27, 2002, and criteria for tributyltin (TBT) which EPA also published in the Federal Register on December 27, 2002.
- Amendment of ADEM Administrative Code Rules 335-6-10-.07 and 335-6-10-.09 to clarify the minimum stream flow used when establishing effluent limitations in waters with the Agricultural and Industrial Water Supply use classification. The adopted revision makes Rule 335-6-10-.09(7)(5) consistent with the regulations contained in Chapter 335-6-6 concerning the National Pollutant Discharge Elimination System.
- Amendment of ADEM Administrative Code Rule 335-6-10-.08 to clarify the language regarding the waste treatment requirements for municipal facilities that have effluent concentration limitations more stringent than secondary treatment.

On August 12, 2005, the State of Alabama adopted regulations that became effective September 21, 2005. Highlights of the rule changes are listed below.

- Amendment of ADEM Administrative Code Rule 335-6-10.11 to establish lake-specific nutrient criteria (expressed as chlorophyll a targets) for 5 additional reservoirs within Alabama, including Inland Lake, Lake Jackson, Coffeville Lake, Demopolis Lake, and Gainesville Lake.
- Amendment of ADEM Administrative Code Rule 335-6-10.11-.02 to correct typographical

errors in the regulation text and to ensure that water body names are consistent with the Geographic Names Information System (GNIS) maintained by the U.S. Geological Survey.

1.3 Numeric Water Quality Criteria Development for Nutrients

The development of nutrient criteria has continued to be a top priority within Alabama's water quality program. As of May 24, 2002, ADEM adopted water quality regulations that established numeric, lake-specific criteria for nine reservoirs within Alabama. Specifically, chlorophyll *a* criteria were adopted for Lake Martin, Yates Lake, and Thurlow Lake in the Tallapoosa River Basin and Guntersville Lake, Wheeler Lake, Wilson Lake, Pickwick Lake, Little Bear Creek Lake, and Cedar Creek Lake in the Tennessee River Basin. The chlorophyll *a* criteria is established on a growing-season basis, which is defined as April through October for all reservoirs with the exception of the reservoirs in the Tennessee River basin, which have a defined growing season of April through September. The chlorophyll *a* criteria is expressed as the mean of samples (taken as photic-zone composites) collected monthly during the defined growing season. The criteria is established at specific locations within the reservoir, such as dam forebay or mid-reservoir, and is not applied as lake-wide averages or as levels that shall be maintained at all locations within the lake at any given time.

The Department is well underway in developing plans for future nutrient criteria development for Alabama's lakes and reservoirs. Because criteria development is largely dependent upon available data, sampling plans have been prepared and efforts are underway to gather the necessary data to establish numeric nutrient criteria for the remaining lakes and reservoirs throughout Alabama. Located within 14 major river basins and 25 different sub-ecoregions, Alabama's reservoirs represent some of the most biologically diverse aquatic ecosystems in the United States. Because of this large diversity in geographic and climate conditions from one region to another, as well as the significant variability in dam operations between reservoirs, the Department developed nutrient criteria on a lake-specific basis rather than on a more aggregate basis such as an ecoregional approach. The lake-specific approach captures the large variability inherent in man-made reservoirs, where chlorophyll *a* concentrations are typically a strong function of such factors as reservoir depth, reservoir retention time, and scheduling of power generation.

For the remaining types of water bodies, such as rivers and streams, estuarine and coastal waters, and wetlands the Department is in the process of developing strategies, goals, technical advisory teams, sampling plans and implementation plans that address nutrient issues for each of these types of waters. Nutrient criteria development for Alabama's rivers and streams has already begun via the formation of a nutrient workgroup comprising technical experts throughout the region. As for Wetlands and Coastal/Marine Waters the Department is in the process of reviewing EPA Headquarters technical guidance manuals and 304(a) ambient water quality criteria for these water body types. Also, the Department is participating in a nutrient pilot study directed by EPA's Gulf of Mexico Program office. This study is a scientific assessment of nutrient concentrations, loads, and biological responses in the northern Gulf of Mexico and will help provide the Department with the information and data necessary to develop nutrient criteria for the Mobile Bay and other Alabama coastal waters. In addition, the Department has and will continue to actively participate as a member of the EPA Region 4-

Table 1-1 Nutrient Criteria Implementation Schedule for Alabama Reservoirs

Year	Number of Reservoirs	Major Basin(s)	Name of Reservoirs
2001	4	Chattahoochee, Coosa, Tallapoosa	West Point, W.F. George, Weiss, R.L. Harris
2002	9	Tallapoosa, Tennessee	Martin, Yates, Thurlow, Guntersville, Wheeler, Wilson, Pickwick, Little Bear, Cedar
2004	11	Alabama	Claiborne, Dannelly
		Black Warrior	Bankhead, Holt, Lewis Smith, Oliver, Tuscaloosa, Warrior
		Chattahoochee	Harding
		Perdido-Escambia	Gantt, Point A
2005	5	Black Warrior	Inland
		Perdido-Escambia	Jackson
		Lower Tombigbee	Coffeeville
		Upper Tombigbee	Demopolis, Gainsville
		Alabama	Woodruff
2006	11	Cahaba	Purdy
		Coosa	Jordan, Lay, Logan Martin, Mitchell, Neely Henry
		Escatawpa	Big Creek
		Tennessee	Bear, Upper Bear
		Upper Tombigbee	Aliceville
2007	1	Perdido-Escambia	Frank Jackson

Regional Technical Advisory Group (RTAG) in order to ensure Alabama's nutrient program is technically sound via peer review from experts throughout the Southeast. Table 1-1 provides the implementation schedule for numeric nutrient criteria for the public lakes and reservoirs located throughout Alabama. Figure 1-1 shows Alabama's Ecoregions and Reservoirs/Lakes

1.4 Implementation of Alabama's Antidegradation Policy

On June 25, 2002, the Alabama Environmental Management Commission adopted Rule 335-6-10-12, Implementation of the Antidegradation Policy. This rule codifies procedures for implementing the Department's antidegradation policy (contained in Rule 335-6-10-.04) which was last amended in 1991 and approved that same year by the U.S. Environmental Protection Agency (EPA), Region 4. In response to a petition from the Legal Environmental Assistance Foundation (LEAF), in 1997 EPA requested that ADEM develop written procedures for implementing the state's antidegradation policy. Final written implementation procedures were submitted to EPA in December 1998 and approved by EPA in August 1999. In November 1999,

Alabama's Ecoregions

45 Piedmont
 65 Southeastern Plains
 67 Ridge and Valley
 68 Southwestern Appalachians
 71 Interior Plateau
 75 Coastal Plains

Ecoregion-Subregions

- 45a Southern Upper Piedmont
- 45b Southern Lower Piedmont
- 45d Upper Piedmont Mountains
- 65a Blackland Prairie
- 65b Flatwood/Alluvial Prairie Margins
- 65e Southeastern Plains and Hills
- 65f Southern Pine Plains and Hills
- 65g Dougherty Plain
- 65i Fall Line Hills
- 65j Transition Hills
- 67f Southern Limestone/Dolomite Valleys and Low Rolling Hills
- 67g Southern Shale Valleys
- 67h Southern Sandstone Ridges
- 67i Southern Dissected Ridges and Knobs
- 68a Cumberland Plateau
- 68b Sequatchie Valley
- 68c Plateau Escarpment
- 68d Southern Table Plateaus
- 68e Dissected Plateaus
- 68f Shale Hills
- 71f Western Highland Rim
- 71g Eastern Highland Rim
- 71h Outer Nashville Basin
- 71j Little Mountain
- 75a Gulf Coast Flatwoods

Scale: 0 to 20 Miles

Source: ADEM Water Quality Section-mjr

Table 1-2 Surface Water Classifications and Special Designations

Use Classifications	
Outstanding Alabama Water	OAW
Public Water Supply	PWS
Swimming and Other Whole Body and Water Contact Sports	S
Shellfish Harvesting	SH
Fish and Wildlife	F&W
Limited Warmwater Fishery	LWF
Agricultural and Industrial Water Supply	A&I
Special Designations	
Outstanding National Resource Water	ONRW

LEAF sued ADEM alleging that the Department's use of the EPA-approved implementation procedures in the NPDES permitting process was improper because these procedures were, in act, "rules" that had not been adopted through the formal rulemaking process. The Montgomery Circuit Court found in favor of ADEM; a decision later affirmed by the Court of Civil Appeals.

LEAF then applied for a writ of certiorari to the Alabama Supreme Court, which was granted, and thereafter the Alabama Supreme Court concluded in a decision dated March 1, 2002, that the implementation procedures are "rules" within the context of the Alabama Administrative Procedure Act, reversed the judgment of the Court of Civil Appeals and remanded the case to the lower courts. As a result of the Supreme Court decision, the Department ceased the review of permit applications for new or expanded discharges of treated wastewater to those waters affected by the Supreme Court decision until April 10, 2002, following adoption by the Alabama Environmental Management Commission of emergency rule (335-6-10-.12-.01ER) establishing implementation procedures. As adopted, the emergency rule procedures incorporate suggestions made by EPA and are essentially equivalent to the written procedures utilized by the Department prior to the Supreme Court decision. The provisions of the permanent rule adopted on June 25, 2002, are the same as those of the emergency rule and, as such, have been determined by EPA to be consistent with the federal requirement for implementation procedures included in EPA's water quality standards regulation. The final implementation procedures rule became effective on August 1, 2002.

The Department's antidegradation policy serves to conserve and protect the waters of Alabama and their beneficial uses and to prevent the deterioration of a water body even when its water quality surpasses the level necessary to meet the fishable and swimmable goals of the Clean Water Act. The antidegradation implementation policy addresses three categories of waters and beneficial uses:

- High-quality waters that constitute an outstanding national resource (Tier 3 waters);
- Waters where the quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife as well as recreation in and on the water (Tier 2 waters); and
- Existing instream water uses and the level of water quality necessary to protect the existing uses (Tier 1 waters).
- The implementation policy codifies procedures for reviewing applications for new or expanded discharges to waters designated as Tier 2 waters. The two basic components of the implementation policy involve:

- The Department's determination, based on the applicant's demonstration, that the proposed discharge is necessary for important economic or social development in the area in which the waters are located; and
- An evaluation by the applicant of alternatives other than the proposed discharge to Tier 2 water.
- The antidegradation implementation procedures comply with federal law and provides ADEM with adequate guidelines for making environmentally and economically sound decisions, industries with the predictability needed to operate and the public with the assurances needed to guarantee clean water.

1.5 Surface Water Use Classification Maps

The following maps depict Outstanding Alabama Waters and Outstanding National Resource Waters. Alabama's classified surface waters are listed in *ADEM Water Division-Water Quality Program-Chapter 335-6-11-Water Use Classifications for Interstate and Intrastate Waters (effective 01/28/2004)*. For more Surface Water Use Classification Maps (Statewide and by River Basin) go to Water Quality and see "Use Classification" at www.adem.state.al.us. Table 1-2 shows Surface Water Classifications and Designations. Figures 1-2 through 1-6 and Tables 1-3 through 1-7 show waters classified as Outstanding Alabama Waters (OAW) and waters with the special designation of Outstanding National Resource Waters (ONRW).

Figure 1-2 Cahaba River and Tributaries

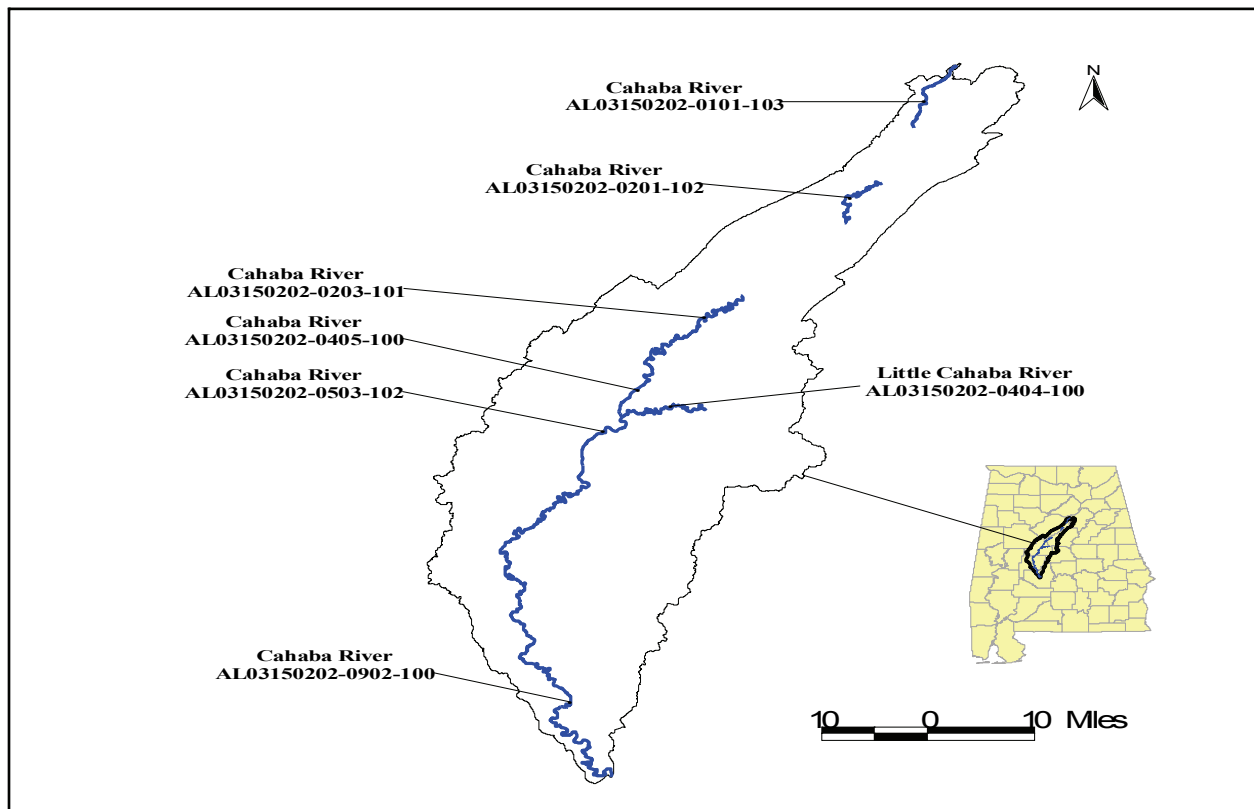


Table 1-3 Cahaba River and Tributaries

#	Assessment Unit #	Name	From	To	Use Classification	Miles
1	AL03150202-0503-102	Cahaba River	Alabama Highway 82	lower Little Cahaba River	OAW/S	10.58
2	AL03150202-0203-101	Cahaba River	Shades Creek	Shelby County Road 52	OAW/F&W	23.61
3	AL03150202-0405-100	Cahaba River	lower Little Cahaba River	Shades Creek	OAW/F&W	13.51
4	AL03150202-0201-102	Cahaba River	dam near U.S. Highway 280	Grant's Mill Road	OAW/PWS	13.45
5	AL03150202-0101-102	Cahaba River	US Highway 11	I-59	OAW/F&W	3.13
6	AL03150202-0101-103	Cahaba River	I-59	Its source	OAW/F&W	2.22
7	AL03150202-0404-100	Little Cahaba River	Cahaba River	Its source	OAW/F&W	16.54
8	AL03150202-0902-100	Cahaba River	Alabama River	Alabama Highway 82	OAW/S	89.50
Total Miles						172.54

Figure 1-3 Hatchet Creek and Tributaries

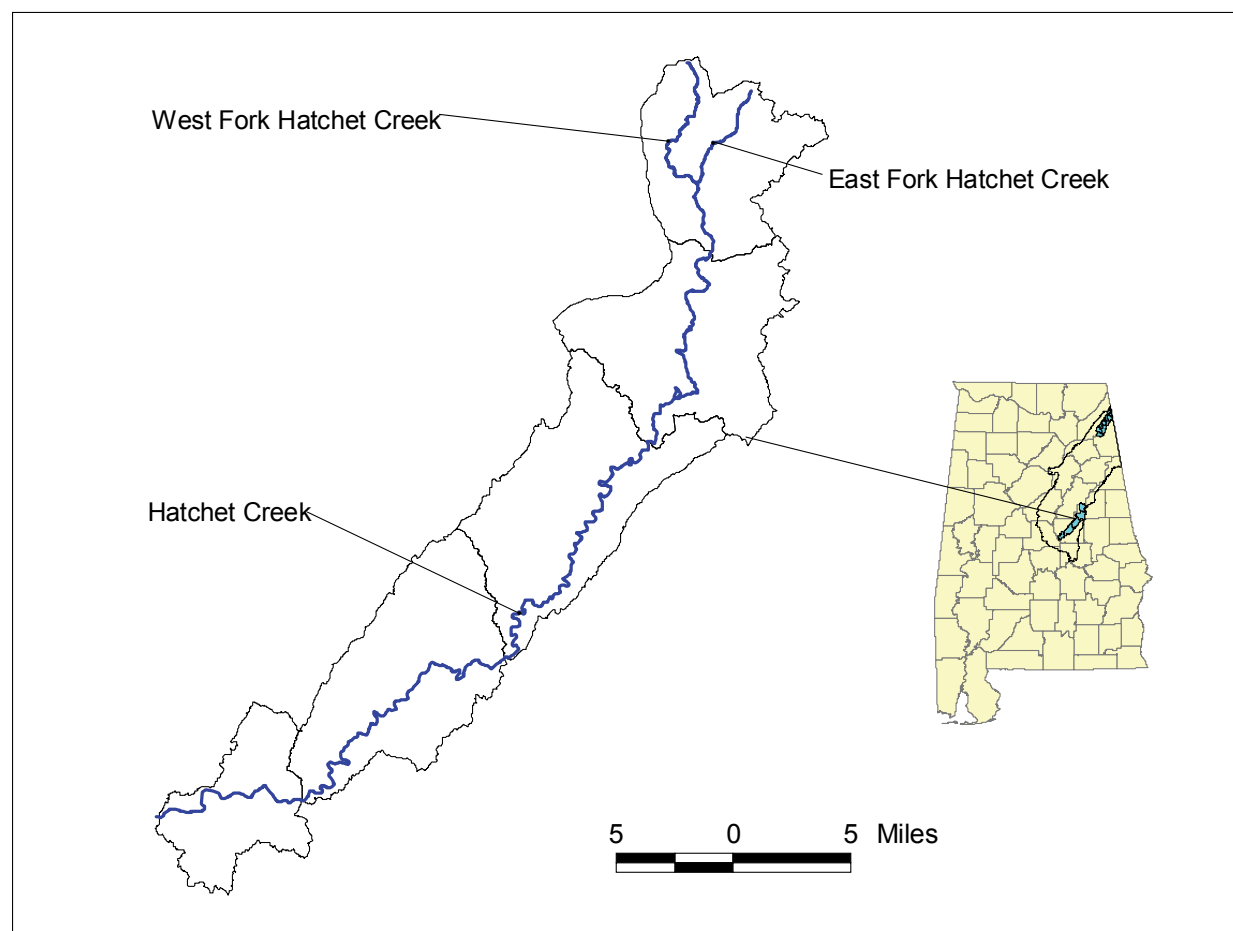


Figure 1-4 Little River and Tributaries

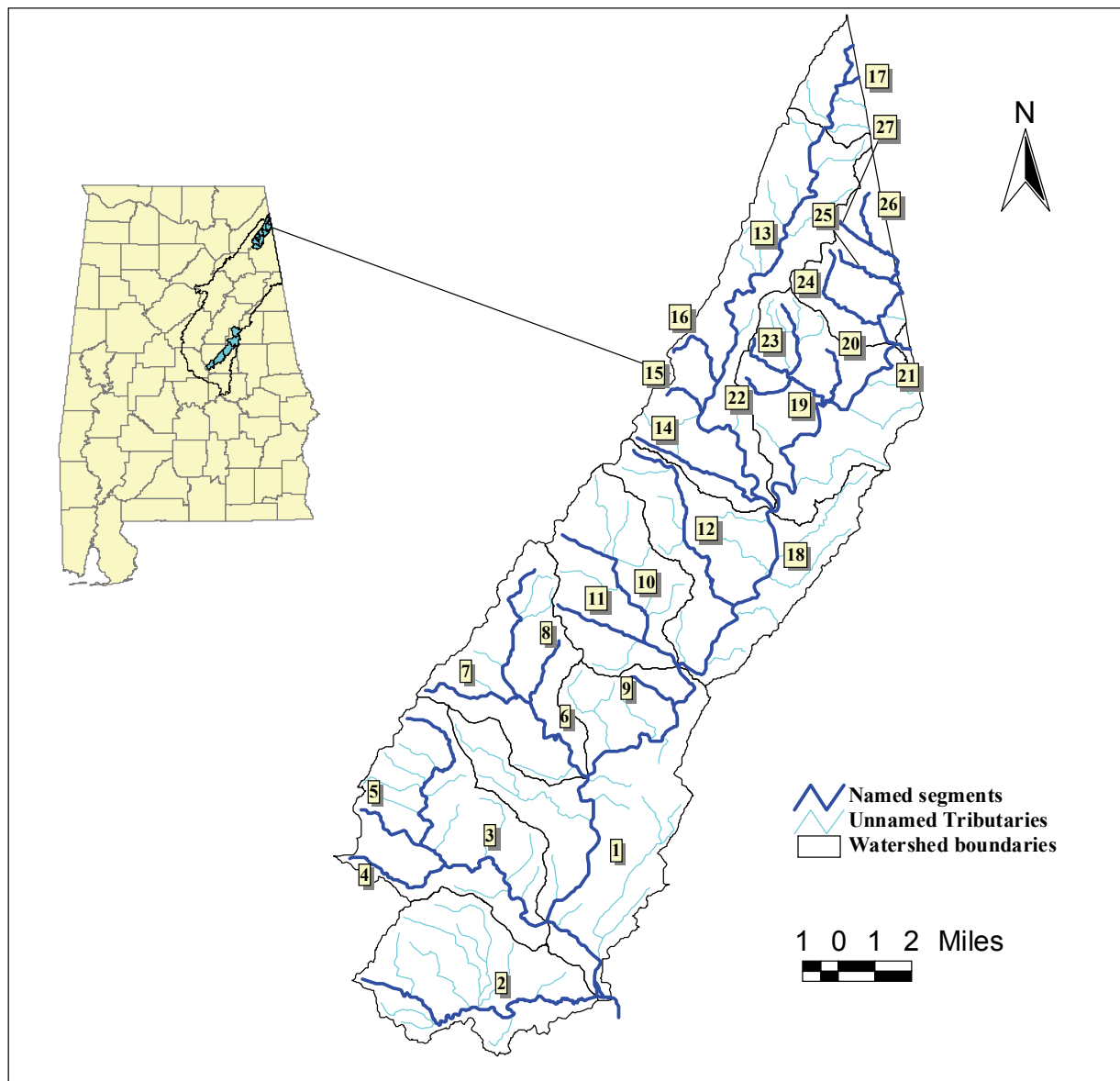


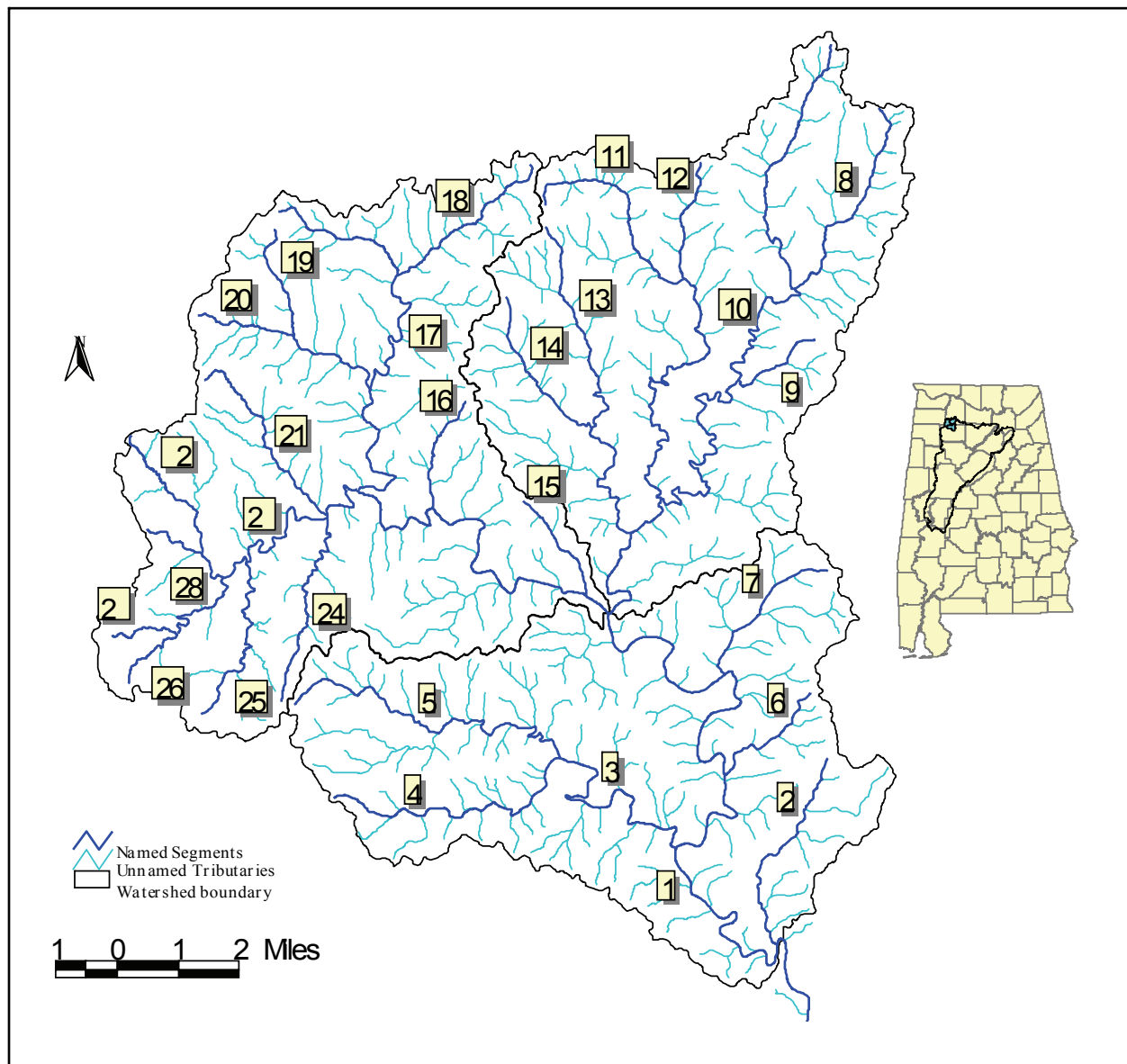
Table 1-4 Hatchet Creek and Tributaries

#	Assessment Unit #	Name	From	To	Use Classification	Miles
1	AL03150107-0807-100	Hatchet Creek	Coosa River	Norfolk Southern Railway	OAW/S/F&W	44.4
2	AL03150107-0802-102	Hatchet Creek	Norfolk Southern Railway	Its source	OAW/PWS/S/F&W	17.7
3	AL03150107-0801-300	East Fork Hatchet Creek	Hatchet Creek	Its source	OAW/F&W	5.3
4	AL03150107-0801-400	West Fork Hatchet Creek	Hatchet Creek	Its source	OAW/F&W	7.7
Total Miles						75.1

Table 1-5 Little River and Tributaries

#	Assessment Unit #	Name	From	To	Use classification	Miles
1	AL03150105-0806-100	Little River	Coosa River	Its source	PWS/S/F&W (ONRW)	22.2
2	AL03150105-0805-100	Wolf Creek	Little River	Its source	PWS/S/F&W (ONRW)	8.9
3	AL03150105-0804-100	Johnnies Creek	Little River	Its source	PWS/S/F&W (ONRW)	11.5
4	AL03150105-0804-200	Camprock Creek	Johnnies Creek	Its source	PWS/S/F&W (ONRW)	3.3
5	AL03150105-0804-300	Dry Creek	Johnnies Creek	Its source	PWS/S/F&W (ONRW)	2.3
6	AL03150105-0803-100	Bear Creek	Little River	Its source	PWS/S/F&W (ONRW)	8.2
7	AL03150105-0803-300	Hicks Creek	Bear Creek	Its source	PWS/S/F&W (ONRW)	3
8	AL03150105-0803-200	Falls Branch	Bear Creek	Its source	PWS/S/F&W (ONRW)	2.1
9	AL03150105-0806-200	Brooks Branch	Little River	Its source	PWS/S/F&W (ONRW)	1.5
10	AL03150105-0802-100	Yellow Creek	Little River	Its source	PWS/S/F&W (ONRW)	5.8
11	AL03150105-0802-200	Straight Creek	Yellow Creek	Its source	PWS/S/F&W (ONRW)	2.7
12	AL03150105-0801-200	Hurricane Creek	Little River	Its source	PWS/S/F&W (ONRW)	6.3
13	AL03150105-0705-100	West Fork of Little River	Little River	AL-GA state line	PWS/S/F&W (ONRW)	18.7
14	AL03150105-0705-200	Straight Creek	West Fork of Little River	Its source	PWS/S/F&W (ONRW)	4.1
15	AL03150105-0705-300	Sharp Branch	West Fork of Little River	Its source	PWS/S/F&W (ONRW)	1.4
16	AL03150105-0705-400	Seymour Branch	West Fork of Little River	Its source	PWS/S/F&W (ONRW)	2.4
17	AL03150105-0704-201	East Fork West Fork of Little River	West Fork of Little River	AL-GA state line	PWS/S/F&W (ONRW)	0.4
18	AL03150105-0703-100	East Fork of Little River	Little River	AL-GA state line	PWS/S/F&W (ONRW)	9.3
19	AL03150105-0703-200	Laurel Creek	East Fork of Little River	Its source	PWS/S/F&W (ONRW)	3.9
20	AL03150105-0703-300	Gilbert Branch	East Fork of Little River	Its source	PWS/S/F&W (ONRW)	1.9
21	AL03150105-0702-101	Middle Fork of Little River	East Fork of Little River	AL-GA state line	PWS/S/F&W (ONRW)	2.4
22	AL03150105-0703-400	Shrader Branch	Laurel Creek	Its source	PWS/S/F&W (ONRW)	1.8
23	AL03150105-0703-500	Armstrong Branch	Laurel Creek	Its source	PWS/S/F&W (ONRW)	1.8
24	AL03150105-0702-200	Brush Creek	Middle Fork of Little River	Its source	PWS/S/F&W (ONRW)	3.3
25	AL03150105-0702-300	Anna Branch	Middle Fork of Little River	Its source	PWS/S/F&W (ONRW)	2.2
26	AL03150105-0702-400	Blalock Branch	Anna Branch	Its source	PWS/S/F&W (ONRW)	3.3
27	AL03150105-0702-500	Stillhouse Branch	Blalock Branch	Its source	PWS/S/F&W (ONRW)	1.1
		Unnamed Tributaries				141
Total Miles						277

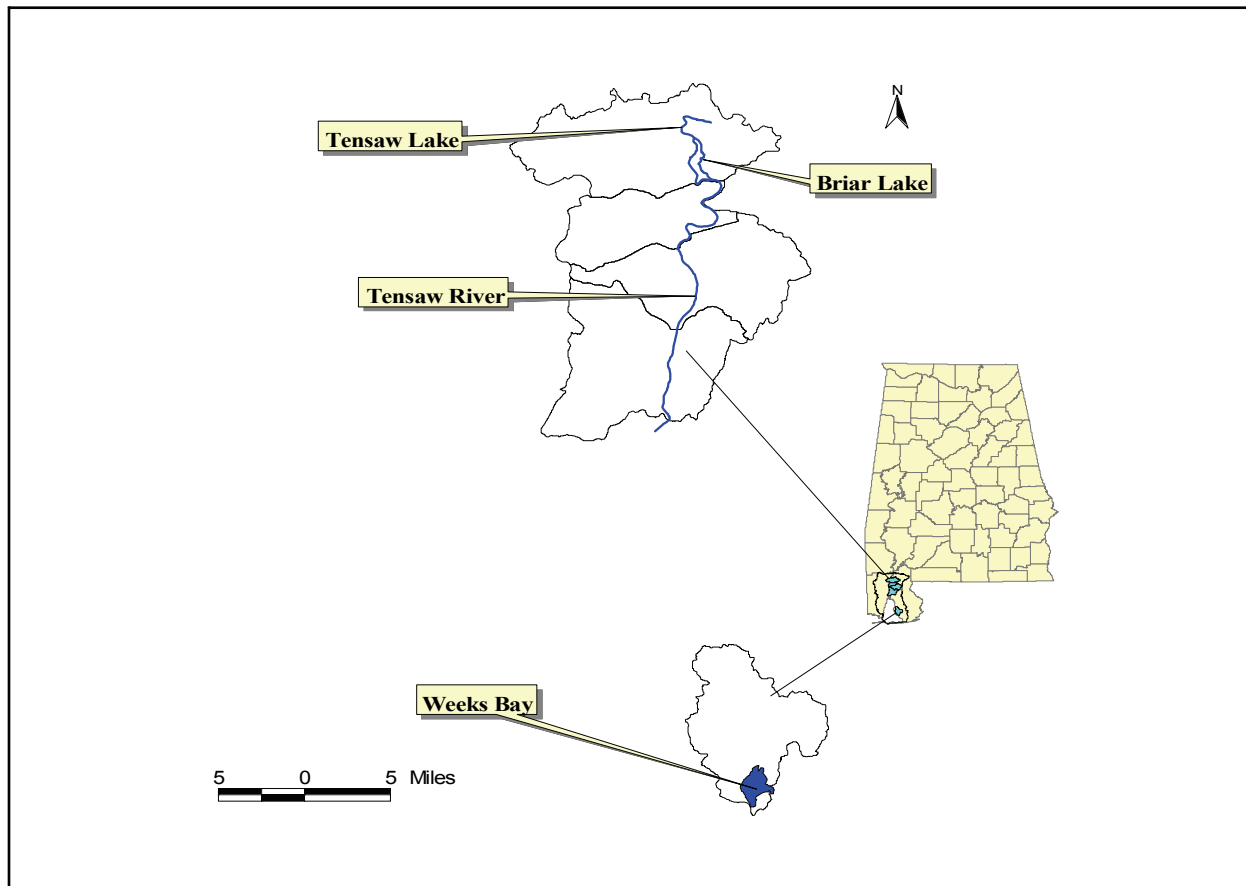
Figure 1-5 Sipsey Fork and Tributaries



1-6 Sipsy Fork and Tributaries

#	Assessment Unit #	Name	From	To	Use Classification	Miles
1	AL03160110-0104-102	Sipsy Fork	Sandy Creek	Its source	F&W (ONRW)	21.23
2	AL03160110-0103-200	Payne Creek	Sipsy Fork	Its source	F&W (ONRW)	3.89
3	AL03160110-0103-300	Caney Creek	Sipsy Fork	Its source	F&W (ONRW)	4.66
4	AL03160110-0103-700	South Fork Caney Creek	Caney Creek	Its source	F&W (ONRW)	5.04
5	AL03160110-0103-600	North Fork Caney Creek	Caney Creek	Its source	F&W (ONRW)	6.38
6	AL03160110-0103-400	Hurricane Creek	Sipsy Fork	Its source	F&W (ONRW)	2.29
7	AL03160110-0103-500	Davis Creek	Sipsy Fork	Its source	F&W (ONRW)	2.83
8	AL03160110-0102-500	Montgomery Creek	Borden Creek	Its source	F&W (ONRW)	3.99
9	AL03160110-0102-400	Horse Creek	Borden Creek	Its source	F&W (ONRW)	1.76
10	AL03160110-0102-100	Borden Creek	Sipsy Fork	Its source	F&W (ONRW)	23.35
11	AL03160110-0102-300	Flannagin Creek	Borden Creek	Its source	F&W (ONRW)	9.99
12	AL03160110-0102-700	Dry Creek	Flannagin Creek	Its source	F&W (ONRW)	2.17
13	AL03160110-0102-600	Hagood Creek	Braziel Creek	Its source	F&W (ONRW)	7.57
14	AL03160110-0102-200	Braziel Creek	Borden Creek	Its source	F&W (ONRW)	13.77
15	AL03160110-0101-200	Fall Creek	Sipsy Fork	Its source	F&W (ONRW)	2.06
16	AL03160110-0101-300	Bee Branch	Sipsy Fork	Its source	F&W (ONRW)	2.09
17	AL03160110-0101-400	Thompson Creek	Sipsy Fork	Its source	F&W (ONRW)	8.59
18	AL03160110-0101-700	Mattox Creek	Thompson Creek	Its source	F&W (ONRW)	3.26
19	AL03160110-0101-800	Ross Branch	Tedford Creek	Its source	F&W (ONRW)	2.06
20	AL03160110-0101-600	Tedford Creek	Thompson Creek	Its source	F&W (ONRW)	10.40
21	AL03160110-0101-900	Quillan Creek	Hubbard Creek	Its source	F&W (ONRW)	3.77
22	AL03160110-0101-140	Basin Creek	Hubbard Creek	Its source	F&W (ONRW)	4.39
23	AL03160110-0101-500	Hubbard Creek	Sipsy Fork	Its source	F&W (ONRW)	6.59
24	AL03160110-0101-110	Parker Branch	Hubbard Creek	Its source	F&W (ONRW)	3.82
25	AL03160110-0101-120	Whitman Creek	Hubbard Creek	Its source	F&W (ONRW)	3.73
26	AL03160110-0101-160	Natural Well Branch	Maxwell Creek	Its source	F&W (ONRW)	1.45
27	AL03160110-0101-150	Dunn Branch	Maxwell Creek	Its source	F&W (ONRW)	1.33
28	AL03160110-0101-130	Maxwell Creek	Hubbard Creek	Its source	F&W (ONRW)	2.02
29	AL03160110-0101-170	White Oak Branch	Thompson Creek	Its source	F&W (ONRW)	1.69
30	AL03160110-0101-180	Wolf Pen Branch	Sipsy Fork	Its source	F&W (ONRW)	1.00
31	AL03160110-0101-190	Ugly Creek	Sipsy Fork	Its source	F&W (ONRW)	3.05
		Unnamed Tributaries				240.37
Total Miles						410.59

Figure 1-6 Tensaw River, Weeks Bay and Tributaries



1-7 Tensaw River, Weeks Bay and Tributaries

Tensaw River and Tributaries						
#	Assessment Unit #	Name	From	To	Use Classification	Miles
1	AL03160204-0505-202	Tensaw River	Junction of Tensaw and Apalachee Rivers	Junction of Briar Lake	OAW/S/F&W	21.73
2	AL03160204-0105-302	Tensaw River	Junction of Briar Lake	Junction of Tensaw Lake	OAW/F&W	2.93
3	AL03160204-0105-700	Briar Lake	Junction of Tensaw River	Junction of Tensaw Lake	OAW/F&W	3.60
4	AL03160204-0105-801	Tensaw Lake	Junction of Tensaw River	Bryant Landing	OAW/F&W	5.20
Total Miles						33.46
Weeks Bay and Tributaries						
#	Assessment Unit #	Name	From	To	Use Classification	Sq Miles
1	AL03160205-0307-101	Weeks Bay	Bon Secour Bay	Fish River	S/F&W (ONRW)	2.7
Total Square Miles						2.7

Chapter 2 Rivers and Streams

2.1 Wadeable Rivers and Streams Monitoring Program (RSMP)

As a first step towards fully implementing the Monitoring Strategy, ADEM initiated a pilot project to evaluate the ability of the Strategy to meet ADEM's monitoring goals and objectives. The 2005 ACT Basin Assessment Pilot Project focuses on the wadeable rivers and streams in the Alabama, Coosa, and Tallapoosa River Basins. This section is therefore used to describe the overall design of ADEM's Monitoring Strategy and how it was implemented in the 2005 ACT Basin Assessment Pilot Project. Because of the new approaches incorporated and the level of detail required to fully explain these approaches, separate Strategy, Data Analysis/Assessment, Reporting, Programmatic Evaluation, and Future Initiatives sections are included for the RSMP only.

2.1.1 Background

ASSESS outlined seven programs established to meet ADEM's monitoring objectives in wadeable rivers and streams. A coordinated monitoring approach was employed to use available resources as effectively as possible. To this end, the Department developed an adaptive monitoring strategy for wadeable rivers and streams that included implementation of a Watershed Management Approach, an Ecoregional Reference Reach Program, and development of tiered and probabilistic monitoring methods.

ASSESS implemented an adaptive management strategy to evolve as the needs of the Department change or better information or sampling techniques become available. An important component of this strategy is a thorough review of ADEM's monitoring programs to address program weaknesses and changing data needs. As part of this effort, ADEM's Wadeable Rivers and Streams Monitoring Programs were reviewed in 2004. The findings of this review are summarized in the following paragraphs.

Review of the first five year monitoring cycle have shown that ADEM's tiered monitoring approach effectively met the needs of both the Office of Education and Outreach (OEO), responsible for administering ADEM's §319 program, and ADEM's Water Quality Branch (WQB), responsible for developing the State's §303(d) list. During the first tier or phase of monitoring, basin-wide screening assessments were conducted at stream reaches where landuse estimates and nonpoint source information from the local Soil and Water Conservation Districts indicated a moderate or high potential for impairment from nonpoint sources in non-urban areas. At that time, the §319 program only needed a method to prioritize waterbodies for funding, thereby concentrating implementation of best management practices in areas with high risk land use practices, but also providing enough flexibility to administer funds in areas where there was also stakeholder interest.

The basin-wide screening assessments also served as the first phase of ADEM's §303(d)/TMDL process. The list of potentially-impaired sub-watersheds generated during the basin-wide screening assessments was prioritized for further monitoring to more accurately assess the extent and cause of impairment.

Recent changes to EPA and ADEM monitoring requirements have impacted the effectiveness of ADEM's tiered monitoring approach as a management tool for ADEM's §303(d) and §319 Programs. First, the EPA required that §319 funds only be used on waterbodies with approved TMDLs. Then in 2004, the EPA released the Integrated Water Quality Monitoring and Assessment Report Guidance which requires that all waters in the state be placed into one of five categories that indicates whether or not a waterbody is meeting all of its use classifications. In 2005, the ADEM Water Quality Assessment and Listing Methodology established minimum data quantity and quality requirements necessary to categorize all waterbodies. With these requirements, the basin-wide screening assessment results were of limited value to both programs because they did not meet the minimum data requirements to categorize any water as impaired and place it on the §303(d) list.

Review of ALAMAP data, ADEM's probabilistic monitoring program, showed that the program did not meet its primary objective of providing an accurate estimate of overall water quality in wadeable rivers and streams. Additionally, the ALAMAP data were too limited to be useful or applicable to ADEM's other monitoring programs.

Additionally, development and evaluation of nutrient and sediment TMDLs throughout the state will require the development of accurate and reliable indicators that can detect both impairment from these sources and any changes in water quality due to decreases in nutrient and sediment loads. The EPA has required that all states have nutrient criteria for wadeable rivers and streams developed or in development by 2008. The first five year basin cycle was used primarily to collect baseline water quality data and to screen water quality conditions of potentially impaired waters and waters with no recent assessment data. Greater emphasis must be placed on intensive-level monitoring to meet these challenges.

Based on analysis of the first five year monitoring cycle described above and emerging data needs, ADEM's Wadeable Rivers and Streams Monitoring Program was modified in 2005.

2.1.2 Objectives

The objectives of ADEM's Wadeable Rivers and Streams Program were to provide data:

- To estimate overall water quality;
- To categorize waters in Alabama's Integrated Assessment Report; and,
- To develop nutrient criteria, sediment criteria, biological condition gradients, and assessment criteria that can be used to assess wadeable rivers and streams statewide.

2.1.3 Monitoring Strategy

ADEM's new monitoring strategy maintained its five basin groups targeted for monitoring on a 5-year rotation and continued to incorporate a combination of targeted and probabilistic monitoring to meet state monitoring goals and objectives. However, the seven individual monitoring programs were combined into four types of wadeable, flowing monitoring sites:

- **Probabilistic sites** are sites in randomly-selected watersheds that reflect both overall water quality conditions within a basin group, as well as the complete gradient of potential human disturbances. They are sampled in accordance with ADEM's five year rotating basin cycle.
- **Targeted sites** are selected by ADEM's Water Quality Branch or Office of Education and Outreach or one of the Clean Water Partnerships of Alabama to provide data for listing/delisting decisions, TMDL development, Use Attainability Analyses, and education and outreach. Where possible, targeted sampling is conducted in accordance with ADEM's five year rotating basin cycle.
- **Long term ecoregional reference reaches**, established to reflect the best available conditions present within a specific ecoregion, are sampled to evaluate assessment results. Reaches to be sampled each year are selected to compliment the Level IV Ecoregions within any given basin group.
- **Ambient trend sites** are sampled to identify long-term trends in water quality statewide and to provide data for the development of TMDLs and water quality criteria. Sampling frequency and parameters collected at these sites vary from other station types. They are sampled statewide annually.

Tiered monitoring efforts are no longer used to screen potentially impaired sites. A set of core indicators are collected at all stations to meet the new data requirements for Alabama's Integrated Assessment Report and Listing and Assessment Methodology. Because these programs meet Alabama's new data requirements, the collected data can be used in listing/delisting decisions and categorizing waters in the Integrated Report.

ADEM's reach-based probabilistic monitoring design was modified to a watershed-based probabilistic monitoring program. A Human Disturbance Gradient (HDG) was developed to classify each watershed by its potential level of disturbance. By monitoring the watersheds in proportion to the number of watersheds in each HDG category, the monitoring strategy will provide an estimate of overall water quality throughout the basin. Additionally, by sampling the entire gradient of watershed conditions within the basin group, the monitoring strategy will increase ADEM's monitoring capacity by providing data to develop indicators and criteria appropriate for wadeable rivers and streams statewide. Because the HDG provides disturbance and landuse information for all stations assessed within the basin group, it will enable ADEM to document the "least-impaired" landuse characteristics to set criteria for reference reach status in each Ecoregion or Bioregion. It will also assist ADEM in stressor identification for §303(d) listing and TMDL development.

Program Coordination and Development: An important aspect of the new strategy involved communication among ADEM's Field Operations and Water Divisions and Office of Education and Outreach. Personnel from each division met on July 7, 2004 to review results from the first five year monitoring cycle, to identify data needs that were not met by the 1997 ASSESS monitoring strategy, and to discuss potential changes to the monitoring design that could address these needs. ADEM drafted a formal proposal outlining a monitoring strategy to meet the above objectives. ADEM also coordinated a series of conference calls between the Environmental Indicators Section and Water Quality Branch of ADEM, USEPA Region 4 (Atlanta, Georgia), responsible for reviewing the monitoring strategies of all Region 4 states, and EPA Western Ecology Division (WED)-Corvallis, Oregon, who have designed many of the probabilistic EMAP programs nationwide. Based on these discussions and subsequent discussions among ADEM personnel, ADEM's Monitoring Strategy was finalized and, in January 2005, a pilot study was initiated in the wadeable rivers and streams in the Alabama, Coosa, and Tallapoosa River Basins.

During the first ASSESS monitoring cycle, ADEM's §303(d) Monitoring Program focused on meeting consent decree requirements of a 1998 lawsuit over Alabama's 1996 §303(d) Impaired Waters List. Because of the sheer number of waterbodies to be assessed statewide, it was difficult for ADEM's Watershed Management Approach and five year rotation cycle to be fully implemented. However, ADEM completed the requirements of the consent decree at the end of 2003. This has enabled ADEM to coordinate its monitoring efforts to a much greater degree. Sixty-eight wadeable stations are being monitored for multiple programs in 2005. Most §303 (d) monitoring is conducted within the ACT target basin group, allowing ADEM to combine the results of this program with those of the probabilistic basin assessment.

2.1.4 Monitoring Design

Indicator selection and sampling frequency: ADEM combined its Tier I or screening-level ALAMAP, NPS Basin-wide Screening Assessment, and §303(d) Monitoring Programs into one watershed-based, probabilistic monitoring program. Core indicators and sampling frequency were selected to meet minimum data requirements as outlined in Alabama's Listing and Assessment Methodology so that all waterbodies monitored during the pilot project can be categorized in Alabama's 2006 Integrated Report and listing/delisting decisions can be made to prioritize sites for §319 funding and BMP implementation.

Monitoring Units: The resulting comprehensive program was further modified from reach-based to watershed-based monitoring to more closely link watershed condition and assessment results. As recommended in the Integrated Water Quality Monitoring and Assessment Guidance, ADEM's WQB delineated the 2004 12-digit hydrologic unit codes (HUCs) into 520 smaller monitoring units (MUs) that represent true watersheds. This system limited the variability in drainage area and waterbody type associated with the 12-digit HUCs. The MUs were classified as one of four waterbody types: flowing wadeable, flowing nonwadeable, embayment, or reservoir, providing an inventory of what has to be monitored using different methods and parameters. The 2005 pilot project concentrated on the 278 wadeable, flowing MUs.

Human Disturbance Gradient: Monitoring watersheds in proportion to an environmental index or Human Disturbance Gradient (HDG) has been recently proposed as a method to limit error or bias associated with targeted sampling, a weakness of *ASSESS* identified during the review of the first monitoring cycle. The use of an HDG has also been recommended by the EPA to develop Tiered Aquatic Life Uses, to correlate suspected stressors to known levels of impairment, and consequently improve the overall assessment of water quality. Sampling MUs with relatively low and high potentials of impairment also provides a method to identify least- and most-impaired sites in support of the Ecoregional Reference Reach and §303(d) Monitoring Programs.

The Landscape Development Intensity Index (LDI) or disturbance gradient, used by the Florida Department of Environmental Protection, relates water quality conditions (physical, chemical, and biological) to human activity within a watershed (Fore 2004) using landuse data and a development-intensity measure derived from energy use per unit area (Brown and Vivas 2004). The Florida LDI was applied to the ACT flowing, Wadeable MUs using the 1990 USEPA MRLC dataset, Departmental permit databases, population estimates, and the number of road crossings to place each MU into one of 8 Human Disturbance Gradient (HDG) categories (1=least potential for disturbance and 8=greatest potential for disturbance).

Table 2-1 Number / % of total Wadeable, flowing MUs in each HDG category

HDG Category	Total # Wadeable Flowing MUs	% Total MUs	# MUs Assessed
1	14	5%	6
2	14	5%	6
3	42	15%	8
4	69	25%	14
5	69	25%	14
6	42	15%	8
7	14	5%	6
8	14	5%	6
Total	278		68

Watershed and Reach Selection: Sixty-eight (24%) of the 278 Wadeable, flowing MUs in the ACT were selected for assessment. They were selected in proportion to the number of MUs in each HDG category as shown in Table 2-1.

All MUs within each category were randomly numbered using Arcview's random number generator function. Using the random number assigned, each MU was selected for assessment in numerical order.

The current HDG lacks information pertaining to some common stressors in Alabama, including silviculture and animal husbandry. Additionally, the landuse information to calculate the HDG was developed in 1993 and has been shown to overestimate percent agriculture and underestimate percent urban as many cities continue to grow, including Montgomery and Auburn/Opelika in the ACT Basin. Two hundred and twenty-two road-accessible sites were visited to evaluate the Wadeability and safety of each site. Visually-based, road side assessments of each MU were also conducted to ground-truth HDG categories and landuse estimates and to ensure that selected sites would be representative of the watershed. Ninety-one accessible stations were selected to fully assess the sixty-eight MUs.

Stations targeted for sampling by ADEM's Water Quality Branch or one of Alabama's Clean Water Partnerships located in the Alabama, Coosa, or Tallapoosa River Basins were prioritized for monitoring. Effort was made to focus target stations in the ACT basin, but stations were

located statewide on an as-needed basis. Data from basin assessment stations will be used for listing/delisting decisions, TMDL development, Use Attainability Analyses, and education and outreach. Forty eight targeted sites located within the ACT basin group were incorporated into the 2005 basin assessment.

2.1.5 Core and Supplemental Indicators

Core indicators and sampling frequency were selected to meet data requirements as outlined in Alabama's Listing and Assessment Methodology so that the majority of waterbodies monitored during 2005 can be categorized in Alabama's 2006 Integrated Report. The Ambient Monitoring Program was designed to provide the required data over the five year monitoring cycle. Sampling frequency and indicators collected at these sites differ from the other Wadeable Rivers and Streams programs.

A primary objective of ADEM's Monitoring Strategy was to collect data to develop indicators and assessment criteria that link chemical, physical, and biological conditions within a Wadeable Stream reach to conditions throughout the stream's watershed. Criteria development requires extensive and intensive monitoring of chemical, physical, and biological indicators under a range of watershed conditions. To this end, ADEM's 2005 Surface Water Quality Monitoring Plan expanded its intensive monitoring efforts to include targeted, basin assessment, and ecoregional reference reaches.

All Wadeable Stream and River stations were visited monthly from March through October of 2005. Due to personnel and equipment limitations in ADEM's Central Chemical Laboratory, metals samples were collected four times during the sampling period, which meets the minimum data requirements for all Wadeable Rivers and Streams in Alabama's Listing and Assessment Methodology. For all Wadeable Rivers and Streams classified as "Outstanding Alabama Water", "Public Water Supply", "Swimming", and "Fish and Wildlife", the Alabama's current Listing and Assessment Methodology requires at least five pesticide (organochlorine and organophosphorus), chlorinated herbicides, and atrazine by immunoassay be collected at each station to fully assess each reach for the Integrated Assessment Report *if a biological community assessment has not been conducted*. Laboratory equipment limitations only allowed for two pesticide and atrazine samples to be collected at each station. ADEM's Laboratory currently does not have the capacity to conduct chlorinated herbicide analysis.

Intensive macroinvertebrate assessments were conducted at one-hundred and twenty seven stations statewide, one-hundred and twenty one of which are located within the ACT Basin Group. ADEM's screening-level macroinvertebrate assessment is essentially a subset of ADEM's intensive-level macroinvertebrate assessment. Therefore, conducting intensive macroinvertebrate assessments will enable ADEM to calibrate metrics resulting from both methods to intensive water quality sampling and watershed conditions and will provide data that can be used to develop new metrics.

This level of effort will be required during the entire five year monitoring cycle to build a database sufficient for accurate metric calibration and testing. Although ADEM has collected approximately one hundred and thirty macroinvertebrate samples annually since 1997, this

effort represents a significant increase in the number of intensive samples that will need to be identified to genus level in the laboratory. Additional taxonomists and field personnel will be needed to fully implement the strategy and to refine ADEM's macroinvertebrate assessment criteria.

ADEM has been developing and evaluating periphyton bioassessment methods since 2002 to collect data to address nutrient TMDLs currently being developed throughout the state and to develop nutrient criteria for Wadeable Rivers and Streams by EPA's 2008 deadline. The effort began as a 2002 104(b)(3) grant from USEPA Region 4 to test the ability of three periphyton bioassessment methods to verify and document nutrient enrichment problems at twenty-nine riffle-run segments with known or suspected nutrient enrichment impairments and to characterize reference conditions based on periphyton assessment data from twelve ecoregional reference reaches. Periphyton sampling in 2004 continued to address nutrient TMDL issues statewide, including low-gradient, sandy-bottomed streams. In 2005, ADEM received an extension on their 2002 104(b)(3) grant to refine their periphyton standard operating procedures based on training received during the 2004 USEPA Region 4 Periphyton Workshop, as well as the 2002 and 2004 sampling results. The grant extension also provided funding to conduct training of nine ADEM personnel to use the 2005 standard operating procedures. These methods were used to collect periphyton biomass as chlorophyll *a*, diatom community assessment samples, and to conduct Rapid Periphyton Surveys (RPS) at one hundred and twenty seven stations encompassing both riffle-run and low-gradient, sandy-bottomed stream reaches. This will provide ADEM with data to calibrate periphyton bioassessment samples to intensive chemical and physical parameters and watershed conditions and to compare with intensive macroinvertebrate assessment results.

One aspect of the periphyton standard operating procedures still under consideration is the timing and number of samples required to fully characterize nutrient conditions at any given stream reach. To help answer this question, monthly periphyton bioassessments were conducted at forty stations in the ACT basin group. The number was determined by chlorophyll *a* laboratory loading limits. The forty sites represent the most complete gradient in watershed condition for six of ADEM's established bioregions. The USEPA Region 4 has recognized the importance of this project for all Region 4 states and has set aside funding to process and identify eighty of the diatom samples collected during 2005 in the ACT Basin Group and one hundred and twenty eight samples collected in conjunction with the Cahaba River Intensive Survey. The diatom community assessment appears to have the greatest potential for addressing nutrient enrichment impairments, particularly in areas prone to scouring due to high percentage impervious surface. However, additional trained personnel and equipment will be required for this program to continue to develop and expand.

ADEM has been conducting fish IBI community assessments since 1997. The methods used were developed by the Geological Survey of Alabama (GSA) specifically for the Black Warrior and Cahaba River Basins (O'Neil and Shepard 1998). Personnel and equipment constraints have limited the number of fish community assessments conducted each year and criteria for the remaining basins have not yet been developed. The GSA has since refined its sampling protocols and is in the process of developing criteria. The GSA trained three ADEM personnel to use the revised protocols, which will be used to conduct fish IBI assessments during 2005.

At a minimum, ADEM will conduct fish IBI assessments at the subset of forty stations where monthly periphyton assessments are conducted. These sites represent the most complete gradient in watershed condition for six of ADEM's established bioregions. The GSA is also working in the ACT Basin Group in 2005 and sampling efforts will be coordinated where possible.

Another important objective of the strategy is to collect data to address siltation TMDLs currently being developed throughout the state. To date, the completion of visually-based, qualitative habitat assessments, physical characterizations, and professional observations are the primary indicators of habitat degradation in wadeable rivers and streams.

Habitat assessments will be conducted at least once at all wadeable stations assessed statewide. This information will provide a good screening-level assessment of habitat impairments caused by siltation impairments. However, more quantitative measures will be needed to measure the extent of the impairment and to assess changes in habitat condition after TMDLs and BMPs have been implemented. ADEM has undertaken an initiative to train ADEM personnel to conduct Geomorphic Assessments as a measure of habitat degradation at wadeable rivers and streams. The effectiveness of this technique will be tested during 2005 at five segments on four streams in the ACT Basin Group listed for habitat degradation from siltation.

2.1.6 Data Analysis and Assessment

The development of indicators and assessment criteria was a primary objective of ADEM's Monitoring Strategy. Therefore, a very significant part of the 2005 ACT Basin Assessment Pilot Project and the 2005 Surface Water Quality Monitoring Plan will be to link results from chemical, physical, and biological indicator sampling to conditions throughout each stream's watershed. These analyses will include the following:

- Methods analysis, including optimal sampling frequencies, timing and number of samples collected, and redundancy among parameters;
- Calculation of method performance characteristics based on duplicate samples, samples collected at reference sites, and known levels of watershed disturbance;
- Development of stream classification (bioregions) based on biological community data; and,
- Development of indicators, criteria, and assessment indices based on correlations among chemical, physical, and biological indicators, and watershed conditions.

2.1.7 Reporting

Results of data analysis will be compiled and documented in a Methods Development Document. All necessary changes to sampling methods, protocols, and assessment indices and criteria will be incorporated into the next revision of the appropriate standard operating procedures manual and the Alabama Listing and Assessment Methodology document.

Once appropriate indicators have been selected and criteria and assessment indices have been

established, data collected during 2005 at Wadeable rivers and streams can be categorized and reported in Alabama's Integrated Assessment Report. Assessment results will also be documented in ADEM's 2005 basin assessment report, which summarizes data and assessment results on the basis of watershed or monitoring unit.

2.1.8 Programmatic Evaluation

Methods and programmatic evaluation is a primary objective of the 2005 ACT Basin Assessment Pilot Project. Analysis of the 2005 monitoring results will be compiled and documented in a Methods Development Document. All necessary changes to sampling methods and protocols will be incorporated into sampling conducted during the remainder of the five year monitoring cycle.

An important component of ADEM's Monitoring Strategy is a thorough review of data and assessment results from ADEM's five year monitoring cycle to address program weaknesses and changing data needs. Further program evaluation will be conducted in 2010, after the five year monitoring cycle is complete. Annual status reports on methods development will be completed and provided to USEPA Region 4 to document interim progress during the monitoring cycle.

2.1.9 Future Initiatives

A primary goal of the 2005 ACT Pilot Project was to develop and evaluate a monitoring strategy that can be used to assess Wadeable rivers and streams statewide and to continue to implement the strategy over the five-year monitoring cycle. The development of indicators and assessment criteria will assist the Department to implement TMDLs and to set water quality standards and criteria. This will likely trigger a greater need for Intensive Surveys and Compliance Monitoring Programs to assess the effect of BMPs and TMDLs on water quality and to ensure that water quality standards are consistently being met. Over the next two five year monitoring cycles, additional personnel and funding resources will be needed to fully implement both phases of the monitoring strategy statewide. A summary of anticipated needs is provided below.

GIS Support: The use of watershed-based monitoring and human disturbance gradients are essential to the successful implementation of ADEM's Monitoring Strategy statewide. Minimum data requirements for Alabama's Listing and Assessment Methodology are determined by both waterbody type and water use classification. ADEM's Water Quality Branch delineated the ACT monitoring units by waterbody type based on Arcview coverages. Delineation of MUs in the remaining basin groups and refinement of the ACT MUs will require staff dedicated to GIS development and management of GIS data. Additionally, GIS coverage of Alabama waters by use-classification as well as waterbody type would greatly assist in the planning and implementation of ADEM's monitoring strategy.

The current HDG lacks information pertaining to some common stressors in Alabama, including silviculture and animal husbandry. The landuse information to calculate the HDG was developed in 1993 and has been shown to overestimate percent agriculture and

underestimate percent urban as many cities continue to grow, including Montgomery and Auburn/Opelika in the ACT Basin. Factors that may mitigate or effect impacts from high-risk landuses, such as buffer zones, distance from source, riparian and channel gradients, have also not been factored into the current HDG. Up-to-date GIS coverages and tools that can incorporate this type of information would greatly improve the accuracy of the HDG as a predictive tool.

Increased intensive surveys and compliance sampling: The development of indicators and assessment criteria will increase the need for Intensive Surveys and Compliance Monitoring Programs to assess the effect of BMPs and TMDLs on water quality and to ensure that water quality standards are consistently being met. Long-term intensive surveys require annual sampling at a larger number of sites to accurately assess the cause and degree of impairment and trends in water quality. Multiple intensive chemical, physical, and biological indicators of water quality will have to be monitored for a minimum of five years. Additional staff and equipment will be needed to meet these challenges.

Laboratory capacity and equipment: Personnel and equipment limitations in ADEM's Central Chemical Laboratory limited the collection of some indicators required to fully assess Wadeable Rivers and Streams for Alabama's Integrated Assessment Report during the 2005 pilot study. These included chlorophyll *a*, trace metals, pesticides, and herbicide sampling. New laboratory facilities are under construction, however, with completion scheduled for June 2006. Increased monitoring of low level metals analyses, particularly mercury in coastal plain streams, will be essential within the next few years. Other potentially important parameters for future analysis include endocrine disrupters and perfluorooctanoic acid (PFOA). PFOA has been manufactured in the Decatur area and an investigation is ongoing to determine the concentration and areal extent of the compound. It has been found in the soil, groundwater, surface water, and fish tissue but, its effects are not well known.

Biological taxonomists: Increased collection of intensive macroinvertebrate samples and fish IBI assessments will require additional trained taxonomists. To date, processing and identification of diatoms for ADEM's Periphyton Bioassessment Program have been completed by outside contractors with federal funding. ADEM will have to incorporate in-house processing and identification of diatom samples for the program to grow.

For more information on the Wadeable Rivers and Streams Monitoring Program contact Ms. Lisa Huff in ADEM's Montgomery Office at (334) 260-2752 or ehh@adem.state.al.us.

2.2 Ecoregions

Innate regional differences exist in climate, landform, soil, natural vegetation, and hydrology. These factors, in turn, affect nutrient regime, substrate characteristics, and the composition of biological communities within aquatic ecosystems. By defining relatively homogeneous ecological areas, ecoregions provide a geographic framework for more efficient management of aquatic ecosystems and their components (Hughes et al. 1986, Hughes 1985, and Hughes and Larsen 1988). The USEPA has recommended the development of ecoregional reference conditions as a scientifically defensible method of defining expected habitat, biotic, and

chemical conditions within streams, rivers, reservoirs, and wetlands. Level IV ecoregions have been developed or are under development in 37 states nationwide. Griffith et al. (2001) delineated six Level III ecoregions in Alabama: Piedmont, Southeastern Plains, Ridge and Valley, Southwestern Appalachians, Interior Plateau, and the Southern Coastal Plain. Within these, they delineated 27 Level IV ecoregions.

ADEM has maintained an Ecoregional Reference Reach Monitoring Program since 1991 (ADEM 2001b). Intensive monitoring assessments, including chemical, physical, habitat, and biological data, are collected to develop baseline reference conditions for each of Alabama's 29 Level IV subcoregions (Griffith et al. 2001). ADEM's ecoregional reference database was analyzed during 2003 to develop assessment guidelines for ADEM's habitat assessments, screening-level macroinvertebrate assessments, and chemical parameters, including nutrient concentrations for 10 of the 29 subcoregions.

2.2.1 ADEM's Ecoregional Reference Reach Program: 1992-2004

Specific selection criteria were used to ensure that reference reaches were typical of the subcoregion and relatively unimpaired. Watersheds containing the highest percentage of natural vegetation were first located using topographic maps and land use information compiled by USEPA and local Soil and Water Conservation Districts. Departmental databases were used to ensure that potential reference watersheds do not contain any point source discharges, mining, or urban runoff, and minimal agricultural sources. Improved GIS capabilities have enhanced ADEM's ability to more accurately quantify land use within each of the reference reach watersheds. Field reconnaissance was then conducted to ground truth land use estimates. In situ field parameters were collected and visual macroinvertebrate surveys were conducted to screen for obvious impacts to chemical and biological conditions. Substrate composition, gradient, canopy cover, sinuosity, and habitat quality and availability were estimated to assess stream condition and comparability to other streams in the subcoregion. Intensive site assessments were then conducted to verify that the reaches were in relatively good condition.

Through this process, a total of 594 locations have been investigated as potential reference reaches statewide. Information from these site visits identified 53 ecoregional reference reaches across the state. An additional 13 candidate reaches are currently being monitored to validate their selection. The program concentrated on wadeable streams and rivers, for which the USEPA and ADEM have developed rapid bioassessment protocols (Plafkin et al. 1989, Barbour et al. 1999, ADEM 1996, ADEM 1999, ADEM in press). Large river ecoregional reference reaches have been recently established on Sipsey Fork and Hatchet Creek to assess specific impacts to Locust Fork, Mulberry Fork, and the Cahaba River.

2.2.2 ADEM's Monitoring Strategy: Identifying Ecoregional Reference Reaches

In 2005, ADEM revised its monitoring strategy to assess wadeable rivers and streams using a watershed-based probabilistic monitoring design. A Human Disturbance Gradient (HDG) was developed to classify each watershed by its potential level of disturbance. By monitoring the watersheds in proportion to the number of watersheds in each HDG category, the monitoring strategy provides an estimate of overall water quality throughout the basin. Habitat assessments, biological assessments (macroinvertebrates, fish, and periphyton), and monthly

Figure 2-1 Subregions of Alabama's Ecoregions

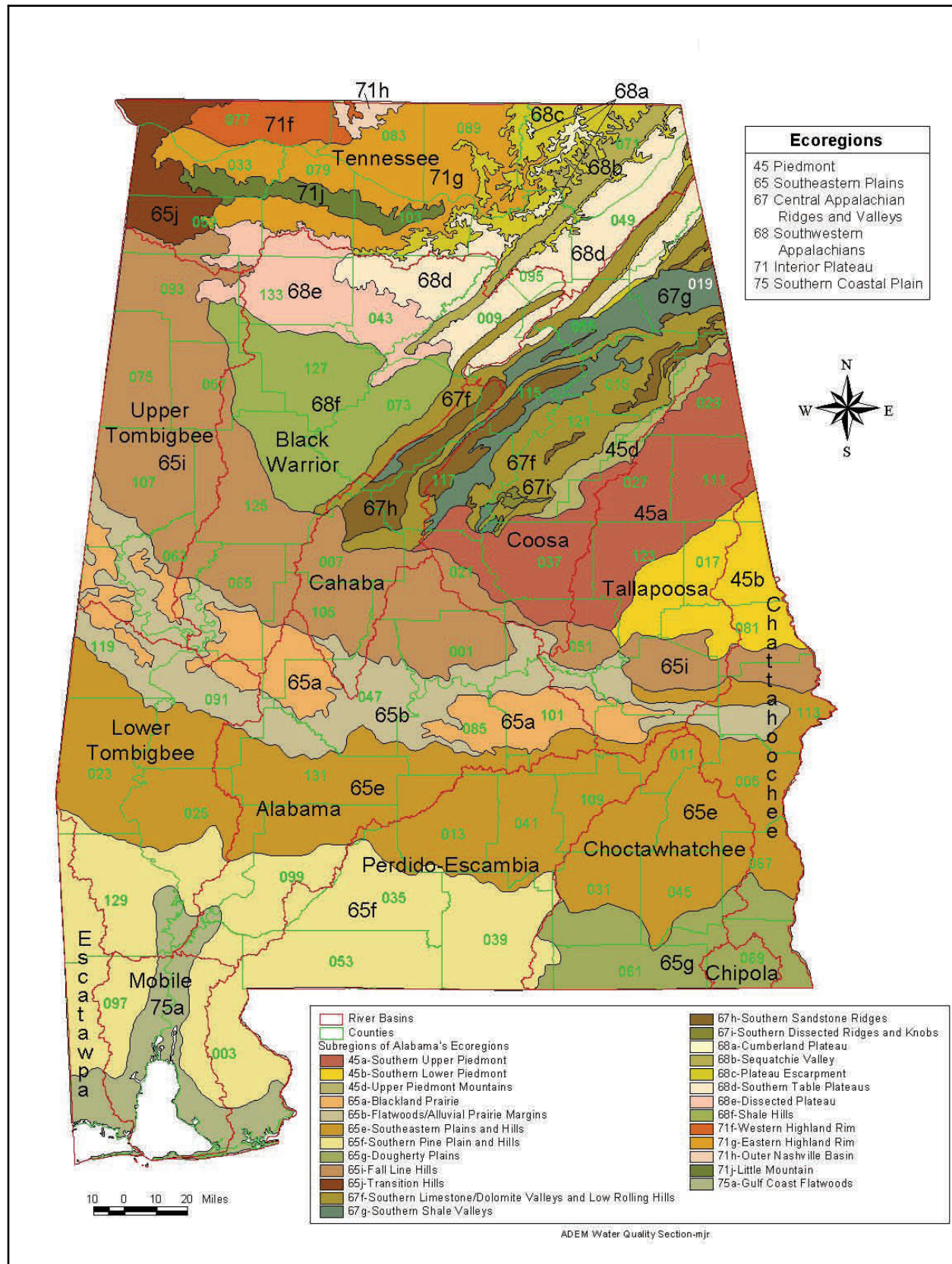


Table 2-2 Alabama Ecoregional Reference Stations

Station	Stream Name	County	Ecoregion	River Basin	Latitude	Longitude
CYD-1	Chaney Creek	Dallas	65a	Alabama River	32.35439	-87.28939
SPD-1	Soapstone Creek	Dallas	65b	Alabama River	32.32220	-86.90630
SRC-1	Silver Creek	Clarke	65q	Alabama River	31.69517	-87.58156
SWFC-1	Swift Creek	Chilton	65i	Alabama River	32.72145	-86.69159
VLYD-1	Valley Creek	Dallas	65i	Alabama River	32.57499	-86.98474
WASP-1	Washington Creek	Perry	65a	Alabama River	32.56997	-87.39136
BLVC-1	Blevens Creek	Cullman	68d	Black Warrior River	34.26736	-87.07761
BRS-3	Brushy Creek	Lawrence	68e	Black Warrior River	34.33068	-87.28578
HNMB-4	Hendrick Mill Branch	Blount	67f	Black Warrior River	33.87612	-86.56885
INMW-1	Inman Creek	Winston	68e	Black Warrior River	34.21525	-87.22447
MRTC-1	Marriott Creek	Cullman	68e	Black Warrior River	34.04211	-86.86283
SSB-1	South Sandy Creek	Bibb	65i	Black Warrior River	32.96994	-87.39775
TPSL-1	Thompson Creek	Lawrence	68e	Black Warrior River	34.34092	-87.47108
MAYB-1	Mayberry Creek	Bibb	67h	Cahaba River	33.07125	-86.93853
BCR-1	Adams Branch	Russell	65i	Chattahoochee River	32.42469	-85.26067
IHGR-1	Ihagee Creek	Russell	65d	Chattahoochee River	32.23850	-84.98069
BRH-1	Bear Creek	Houston	65g	Choctawhatchee River	31.20769	-85.54619
DRYB-1	Dry Creek	Barbour	65d	Choctawhatchee River	31.93467	-85.61036
PATC-1	Patrick Creek	Coffee	65d	Choctawhatchee River	31.43840	-86.11210
BERD-9	Bear Creek	DeKalb	68d	Coosa River	34.38094	-85.69789
CHEC-6	Cheaha Creek	Clay	45d	Coosa River	33.45275	-85.90273
CHOC-2	Choccolocco Creek	Cleburne	45d	Coosa River	33.82946	-85.58173
DRYC-2	Dry Creek	Calhoun	67h	Coosa River	33.84240	-85.59422
FRMS-9	Fourmile Creek	Shelby	67f	Coosa River	33.25649	-86.48980
JNSC-16	Jones Creek	Coosa	45a	Coosa River	32.90492	-86.29758
LCNE-1	Little Canoe Creek	Etowah	67f	Coosa River	33.97006	-86.17892
PNTC-11	Paint Creek	Coosa	45a	Coosa River	33.01838	-86.44741
SHLC-3	Shoal Creek	Cleburne	45d	Coosa River	33.72529	-85.60115
TCT-5	Talladega Creek	Talladega	45d	Coosa River	33.37847	-86.03008
WGFC-1	Weogufka Creek	Coosa	45a	Coosa River	33.07288	-86.24847
WLFS-9	Wolf Creek	St. Clair	67g	Coosa River	33.56883	-86.33817
ULCC-1	Ulcanush Creek	Clarke	65q	Lower Tombigbee River	31.78408	-88.10808
PPM-1	Poplar Creek	Marengo	65b	Lower Tombigbee River	32.27733	-87.60669
HLB-1	Halls Creek	Baldwin	65f	Mobile Bay Area	31.05264	-87.83701
BRE-1	Bear Creek	Escambia	65f	Perdido-Escambia River	31.03334	-86.70961
CLC-1	Clear Creek	Covington	65g	Perdido-Escambia River	31.12153	-86.37575
PYW-1	Pineywoods Creek	Crehshaw	65d	Perdido-Escambia River	31.58378	-86.46186
CHNE-18	Channahatchee Creek	Elmore	45a	Tallapoosa River	32.65024	-85.95085
CRHR-9	Cornhouse Creek	Randolph	45a	Tallapoosa River	33.21195	-85.51806
EMKT-14	Emuckfaw Creek	Tallapoosa	45a	Tallapoosa River	33.05527	-85.69489
HCR-1	Hurricane Creek	Randolph	45a	Tallapoosa River	33.17546	-85.59829
LBM-1	Long Branch	Macon	65i	Tallapoosa River	32.41319	-85.48119
LCC-1	Little Chattahoochee Creek	Chambers	45b	Tallapoosa River	32.90761	-85.51100
LINB-1	Line Creek	Bullock	65a	Tallapoosa River	32.20881	-85.89750
BYTJ-1	Bryant Creek	Jackson	68d	Tennessee River	34.64658	-85.84303
INCL-1	Indiancamp Creek	Lauderdale	71f	Tennessee River	34.92425	-87.62108
BLBP-1	Blubber Creek	Pickens	65i	Upper Tombigbee River	33.14725	-88.17053
BRP-1	Bear Creek	Pickens	65i	Upper Tombigbee River	33.36961	-87.90364
CLKM-4	Clark Creek	Marion	65i	Upper Tombigbee River	34.08091	-88.02659
CTML-6	Cantrell Mill Creek	Lamar	65i	Upper Tombigbee River	34.04098	-88.03327
JNS-1	Jones Creek	Sumter	65a	Upper Tombigbee River	32.70161	-88.14775

water quality data collected at all sites are used to verify the high quality of sites within the least-impaired HDG categories. Additionally, because the HDG provides disturbance and landuse information for all stations assessed within the basin group, it will enable ADEM to document the “least-impaired” landuse characteristics to set criteria for reference reach status in each Ecoregion or Bioregion. Figure 2-1, shows Subregions of Alabama's Ecoregions, and Table 2-2 provides a list of Alabama’s Ecoregional Reference Stations.

For more information on Alabama’s Ecoregions, contact Ms. Lisa Huff in ADEM’s Montgomery Office at (334) 260-2752 or ehh@adem.state.al.us.

2.3 Trend Stations

Sampling frequency presently occurs 3 times a year during the months of May, August, and October at most trend stations. Selected sites are sampled more Frequently. Figure 2-2, and Table 2-3 shows Alabama’s Active Trend Stations (Ambient Monitoring).

A list of water quality survey reports can be found at www.adem.state.al.us.

For more information on Alabama’s Trend Stations contact Mr. Keith Gillian in ADEM’s Montgomery Office at (334) 260-2746 or wkg@adem.state.al.us.

Figure 2-2 Representation of Alabama's Active Trend (Ambient Monitoring) Station Network

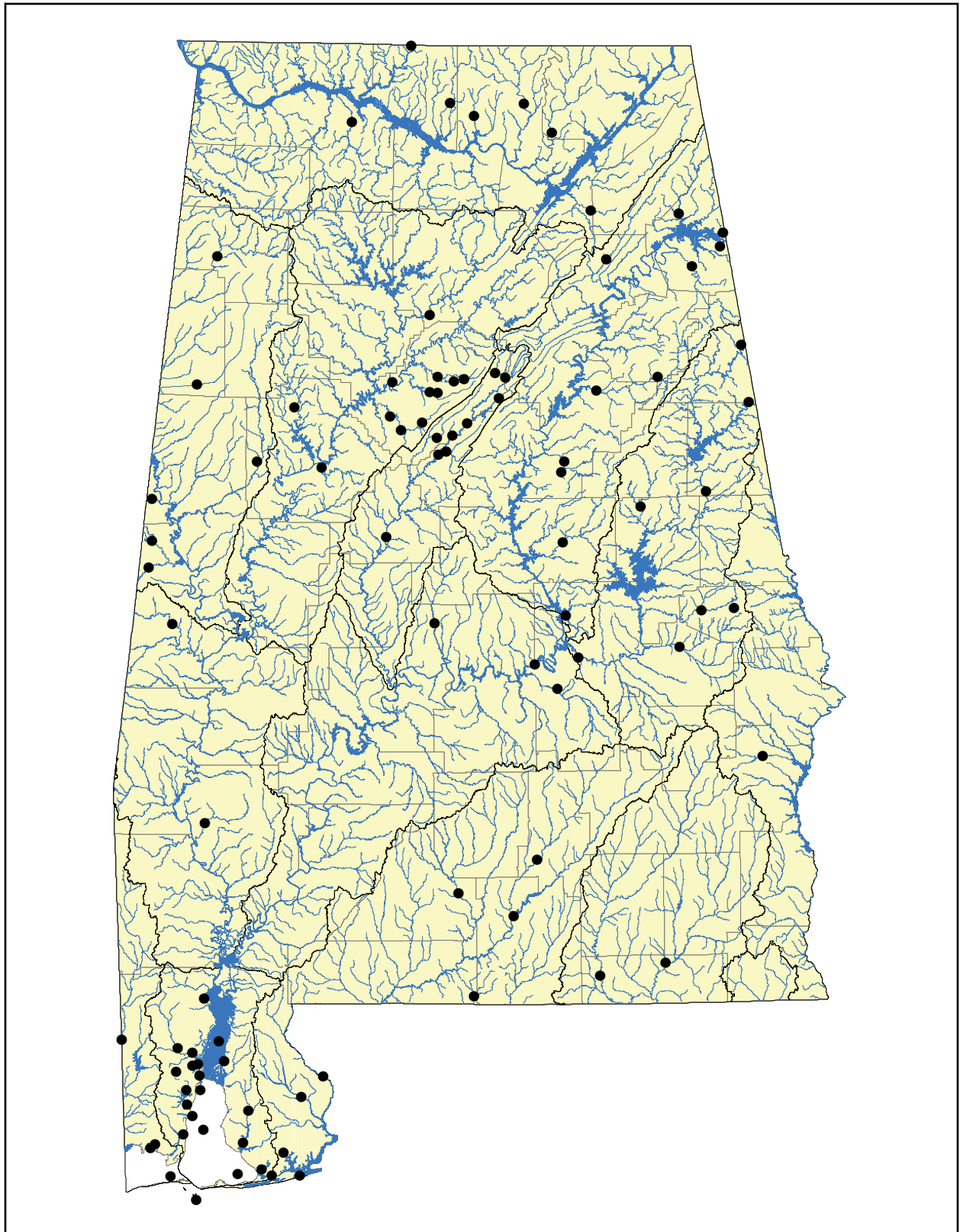


Table 2-3 Alabama's Active Trend Stations (Ambient Monitoring)

Station	Stream	County	Basin Name	Latitude	Longitude
CATM-3A	Catoma Creek	Montgomery	Alabama River	32.30736	-86.29941
MULD-1	Mulberry Cr	Dallas	Alabama River	32.58278	-86.90361
WDFA-2A	Alabama R	Elmore	Alabama River	32.41142	-86.40836
FM1	Five Mile Cr	Jefferson	Black Warrior River	33.59111	-86.803611
FM2	Five Mile Cr	Jefferson	Black Warrior River	33.611111	-86.885556
FMCJ-1B	Five Mile Creek	Jefferson	Black Warrior River	33.60191	-86.75527
H1	Hurricane Cr	Tuscaloosa	Black Warrior River	33.229826	-87.46181
LFKJ-6	Locust Fk	Jefferson	Black Warrior River	33.587257	-87.109325
MBFB-1	Mulberry Fk	Blount	Black Warrior River	33.866667	-86.922222
NRRT-1	North R	Tuscaloosa	Black Warrior River	33.4798	-87.5968055
VA1	Valley Cr	Jefferson	Black Warrior River	33.386944	-87.067833
VALJ-8	Valley Cr	Jefferson	Black Warrior River	33.44722	-87.12222
VC-5	Valley Cr	Jefferson	Black Warrior River	33.419167	-86.963056
VI3	Village Cr	Jefferson	Black Warrior River	33.547974	-86.925667
VLGJ-5	Village Cr	Jefferson	Black Warrior River	33.54316	-86.88603
B-1	Buck Cr	Shelby	Cahaba River	33.296944	-86.842639
C1	Cahaba R	St. Clair	Cahaba River	33.60503	-86.54924
C2	Cahaba R	Shelby	Cahaba River	33.41546	-86.74002
C3	Cahaba R	Shelby	Cahaba River	33.284	-86.88193
CABB-1	Cahaba R	Bibb	Cahaba River	32.94456	-87.1398271
CABJ-8	Cahaba R	Jefferson	Cahaba River	33.62283	-86.60007
CAHS-1	Cahaba R	Shelby	Cahaba River	33.3635	-86.8132
LC1	Little Cahaba R	Jefferson	Cahaba River	33.52128	-86.57939
SH1A	Shades Cr	Jefferson	Cahaba River	33.355278	-86.890556
SFCB-1	S Fk Cowikee Cr	Barbour	Chattahoochee River	32.0175	-85.29583
CHO09	Choctawhatchee R	Geneva	Choctawhatchee River	31.15917	-85.78472
PEAG-2	Pea R	Geneva	Choctawhatchee River	31.112002	-86.09937
BWCE-1	Big Wills Cr	Etowah	Coosa River	34.09805	-86.03809
CHOC10	Choccolocco Cr	Calhoun	Coosa River	33.606111	-85.7901111
CHOT-1	Choccolocco Cr	Talladega	Coosa River	33.54818	-86.0966
CO12	Little R	Cherokee	Coosa River	34.28186	-85.67244
COSE-1	Coosa River	Elmore	Coosa River	32.61396	-86.25498
CT2	Chattooga R	Cherokee	Coosa River	34.14167	-85.468111
HATC-1	Hatchet Cr	Coosa	Coosa River	32.91821	-86.26938
TERC-1	Terrapin Cr	Cherokee	Coosa River	34.06294	-85.61227
TH1	Tallaseehatchee Cr	Talladega	Coosa River	33.256058	-86.25825
WEIC-12	Coosa R	Cherokee	Coosa River	34.202441	-85.452402
BLB-1	Bayou La Batre	Mobile	Escatawpa River	30.4059	-88.2481
BLBM-1	Bayou La Batre	Mobile	Escatawpa River	30.3867	-88.27
E-1	Escatawpa R	Mobile	Escatawpa River	30.8375	-88.416667
LT12	Satilpa Cr	Clarke	Lower Tombigbee River	31.74444	-88.02133
SUCS-1	Sucarnoochee R	Sumter	Lower Tombigbee River	32.5739	-88.1942
BS1	Bon Secour R	Baldwin	Mobile River	30.30221	-87.73575
Channel1a	Mobile Ship Channel	Mobile	Mobile River	30.62973	-88.03263
Channel2	Mobile Ship Channel	Mobile	Mobile River	30.46437	-88.01577
CKSM-3	Chickasaw Creek	Mobile	Mobile River	30.80297	-88.14334
CS1	Chickasaw Cr	Mobile	Mobile River	30.78389	-88.073056
CS2	Chickasaw Cr	Mobile	Mobile River	30.73925	-88.04571
DGRM-3	Dog R	Mobile	Mobile River	30.57	-88.095
DR1	Dog R	Mobile	Mobile River	30.62845	-88.10166

Table 2-3 Alabama's Active Trend Stations (Ambient Monitoring) (Continued)

Station	Stream	County	Basin Name	Latitude	Longitude
FI1	Fish R	Baldwin	Mobile River	30.5458	-87.7983
FR1	Fowl R	Mobile	Mobile River	30.444166	-88.113056
MB2a	Mobile Ship Channel	Baldwin	Mobile River	30.1718	-88.04895
MB3a	Intracoastal Waterway	Baldwin	Mobile River	30.28407	-87.85137
MO1A	Mobile R	Mobile	Mobile River	30.8364	-87.94406
MO2	Mobile R	Mobile	Mobile River	30.69137	-88.03646
MOBM-1	Mobile R	Mobile	Mobile River	31.0137	-88.01853
TC1	Theodore Industrial Canal	Mobile	Mobile River	30.5232	-88.0696
TENB-2	Tensaw River	Baldwin	Mobile River	30.75291	-87.91987
TM1	Three Mile Cr	Mobile	Mobile River	30.733334	-88.070833
TMCM-3	Threemile Creek	Mobile	Mobile River	30.7063	-88.15111
WB1	Weeks Bay	Baldwin	Mobile River	30.41469	-87.82583
BKRE-1	Blackwater R	Escambia	Perdido-Escambia River	31.026555	-86.7100052
CNR-1a	Conecuh River	Covington	Perdido-Escambia River	31.36128	-86.51968
IC1a	Intracoastal Waterway	Baldwin	Perdido-Escambia River	30.2793	-87.687
MB1a	Intracoastal Waterway	Mobile	Perdido-Escambia River	30.27308	-88.17317
PALC-2	Patsaliga Creek	Crenshaw	Perdido-Escambia River	31.5959	-86.40407
PDBB-0	Perdido Bay	Baldwin	Perdido-Escambia River	30.27968	-87.54948
PDBB-5	Perdido River	Baldwin	Perdido-Escambia River	30.69047	-87.44026
SPLC-3	Sepulga River	Conecuh	Perdido-Escambia River	31.45362	-86.7868
STXB-3	Styx River	Baldwin	Perdido-Escambia River	30.60532	-87.547
WO1A	Wolf Cr	Baldwin	Perdido-Escambia River	30.371668	-87.630556
HILT-2	Hillabee Creek	Tallapoosa	Tallapoosa River	33.06635	-85.87993
LTRR-1	Little Tallapoosa River	Randolph	Tallapoosa River	33.49466	-85.33788
PPLL-2	Pepperell Br	Lee	Tallapoosa River	32.6347	-85.4254
SHIRTEE03	Shirtee Cr	Talladega	Tallapoosa River	33.211666	-86.273056
SOGL-1	Sougahatchee Cr	Lee	Tallapoosa River	32.6267	-85.588
TA1	Tallapoosa R	Randolph	Tallapoosa River	33.122665	-85.557111
TA2	Tallapoosa R	Cleburne	Tallapoosa River	33.732723	-85.372167
TARE-1	Tallapoosa R	Montgomery	Tallapoosa River	32.43972	-86.19556
UPHM-3	Uphapee Creek	Macon	Tallapoosa River	32.47751	-85.69554
BGNL-1	Big Nance Cr	Lawrence	Tennessee River	34.67	-87.31722
FLIM-2A	Flint River	Madison	Tennessee River	34.74926	-86.44666
INDM-249	Indian Creek	Madison	Tennessee River	34.69731	-86.7
LIML-300	Limestone Cr	Limestone	Tennessee River	34.7521	-86.8232
PRRJ-1	Paint Rock R	Jackson	Tennessee River	34.62417	-86.30639
SCRL-2	Scarham Creek	Marshall	Tennessee River	34.29843	-86.11664
TN04A	Elk River	Limestone	Tennessee River	35.01415	-86.99465
BCTP-1	Bogue Chitto Cr	Pickens	Upper Tombigbee River	33.09222	-88.300641
BDKS-48	Bodka Cr	Sumter	Upper Tombigbee River	32.806787	-88.3121287
BUTL-2A	Buttahatchee River	Marion	Upper Tombigbee River	34.10597	-87.98869
LUXL-1	Luxapallila Cr	Lamar	Upper Tombigbee River	33.575	-88.0834
NXBS-50	Noxubee Cr	Sumter	Upper Tombigbee River	32.919791	-88.2972847
SPYG-3	Sipsey R	Tuscaloosa	Upper Tombigbee River	33.256764	-87.7816921

2.4 TMDL Program

The 2006 303(d) List is provided in the Appendix. For more information about the TMDL Program, contact Mr. Chris Johnson in ADEM's Montgomery Office at (334) 271-7827 or clj@adem.state.al.us.

Table 2-4 provides the total number of TMDLs that have been developed and approved/finalized by the ADEM Water Quality Branch and by Region 4 EPA. Table 2-5 and 2-6 shows a list of the TMDL Program Initiatives and TMDL Standing as of April 1, 2006 respectively. Table 2-7 shows the current TMDL Development Plan.

Table 2-4 TMDL Development Progress FY 2005

ADEM
<ul style="list-style-type: none"> Proposed Nutrient TMDLs for Cahaba River (4 segments) 22 TMDLs were Finalized and Approved by EPA Region 4 3 TMDLs were Finalized and are Currently Pending EPA Approval
EPA
<ul style="list-style-type: none"> Finalized 34 TMDLs

Table 2-5 TMDL Program Initiatives for FY 2006

<ul style="list-style-type: none"> Finalize all Consent Decree TMDLs (12 waterbodies) Elk River Watershed Study
<ul style="list-style-type: none"> Draft New TMDLs for Several Waters (see FY06 Workplan)
<ul style="list-style-type: none"> Finalize Mobile Bay Model EPA/ADEM will Repropose Weiss Lake Nutrient TMDL ADEM will Repropose Remaining Coosa River TMDLs Continue work on "effects-based" target for the Cahaba River.

Table 2-6 Alabama's TMDL Standing as of April 1, 2006

Activity	ADEM	EPA	Total
Approved TMDLs	83	48	131
Approved Delistings (total)	-	-	-
(1998 to present)	201	-	201
Final TMDLs Pending EPA Approval	-	-	-
Draft TMDLs Pending Finalization/Approval	37	1	38
Draft Delistings Pending Approval (includes Final/Approved TMDLs)	88	-	88
Draft Decision Documents Pending Finalization/Approval	7	-	7
TMDLs Withdrawn & Approved	1	-	1

Table 2-7 TMDL Development Plan for FY 2006 and FY 2007

FISCAL YEAR 2006					
Waterbody Name	Waterbody ID (12-Digit HUC)	River Basin	County	Pollutant	When Will Draft TMDL Be Submitted to EPA?
Alabama River	AL03150203-0703-101	Alabama	Wilcox	OE/DO	4th QTR FY06
Alabama River	AL03150203-0805-102	Alabama	Wilcox	OE/DO	4th QTR FY06
Alabama River	AL03150203-0805-103	Alabama	Wilcox	OE/DO	4th QTR FY06
Alabama River	AL03150203-0805-104	Alabama	Wilcox	OE/DO	4th QTR FY06
Alabama River	AL03150203-0805-105	Alabama	Wilcox	OE/DO	4th QTR FY06
Brindley Creek	AL03160109-0105-101	Black Warrior	Cullman	Ammonia	2nd QTR FY06
Brindley Creek	AL03160109-0105-101	Black Warrior	Cullman	Nutrients	2nd QTR FY06
Bayview Lake	AL03160111-0408-101	Black Warrior	Jefferson	Siltation	2nd QTR FY06
Opossum Creek	AL03160112-0101-200	Black Warrior	Jefferson	OE/DO	2nd QTR FY06
Lee Branch	AL03150202-0103-300	Cahaba	Shelby	Pathogens	4th QTR FY06
Patton Creek	AL03150202-0201-300	Cahaba	Jefferson/Shelby	OE/DO	2nd QTR FY06
Buxahatchee Creek	AL03150107-0502-100	Coosa	Chilton/Shelby	Nutrients	4th QTR FY06
Lake Neely Henry	AL03150106-0309-101	Coosa	Etowah	Nutrients	4th QTR FY06
Lake Neely Henry	AL03150106-0309-101	Coosa	Etowah	pH	4th QTR FY06
Lake Neely Henry	AL03150106-0309-101	Coosa	Etowah	OE/DO	4th QTR FY06
Lake Neely Henry	AL03150106-0309-102	Coosa	Etowah	Nutrients	4th QTR FY06
Lake Neely Henry	AL03150106-0309-102	Coosa	Etowah	pH	4th QTR FY06
Lake Neely Henry	AL03150106-0309-102	Coosa	Etowah	OE/DO	4th QTR FY06
Lake Neely Henry	AL03150106-0104-101	Coosa	Etowah	Nutrients	4th QTR FY06
Lake Neely Henry	AL03150106-0104-101	Coosa	Etowah	pH	4th QTR FY06
Lake Neely Henry	AL03150106-0104-101	Coosa	Etowah	OE/DO	4th QTR FY06
Lake Neely Henry	AL03150106-0104-102	Coosa	Etowah	Nutrients	4th QTR FY06
Lake Neely Henry	AL03150106-0104-102	Coosa	Etowah	pH	4th QTR FY06
Lake Neely Henry	AL03150106-0104-102	Coosa	Etowah	OE/DO	4th QTR FY06
Lake Logan Martin	AL03150106-0801-100	Coosa	St. Clair	Nutrients	4th QTR FY06
Lake Logan Martin	AL03150106-0801-100	Coosa	St. Clair	OE/DO	4th QTR FY06
Lake Logan Martin	AL03150106-0501-101	Coosa	St. Clair	Nutrients	4th QTR FY06
Lake Logan Martin	AL03150106-0501-101	Coosa	St. Clair	OE/DO	4th QTR FY06
Lake Logan Martin	AL03150106-0501-102	Coosa	St. Clair	Nutrients	4th QTR FY06
Lake Logan Martin	AL03150106-0501-102	Coosa	St. Clair	OE/DO	4th QTR FY06
Lay Lake	AL03150107-0401-100	Coosa	Talladega	Nutrients	4th QTR FY06
Lay Lake	AL03150107-0401-100	Coosa	Talladega	OE/DO	4th QTR FY06
Lay Lake	AL03150107-0401-100	Coosa	Talladega	Nutrients	4th QTR FY06
Lay Lake	AL03150107-0401-100	Coosa	Talladega	OE/DO	4th QTR FY06
Lay Lake	AL03150107-0808-102	Coosa	Talladega	Nutrients	4th QTR FY06
Lay Lake	AL03150107-0808-102	Coosa	Talladega	OE/DO	4th QTR FY06

Table 2-7 TMDL Development Plan for FY 2006 and FY 2007 (Continued)

FISCAL YEAR 2006					
Waterbody Name	Waterbody ID (12-Digit HUC)	River Basin	County	Pollutant	When Will Draft TMDL Be Submitted to EPA?
Lake Mitchell	AL03150107-0601-100	Coosa	Chilton	Nutrients	4th QTR FY06
Threemile Creek	AL03160204-0504-101	Mobile	Mobile	OE/DO	4th QTR FY06
Threemile Creek	AL03160204-0504-102	Mobile	Mobile	OE/DO	4th QTR FY06
Threemile Creek	AL03160204-0504-103	Mobile	Mobile	OE/DO	4th QTR FY06
Cahaba River	AL03150202-0503-102	Cahaba	Jeff/Shelby	Nutrients	4th QTR FY06
Cahaba River	AL03150202-0503-102	Cahaba	Jeff/Shelby	Siltation	4th QTR FY06
Cahaba River	AL03150202-0503-102	Cahaba	Jeff/Shelby	Other Habitat Alt.	4th QTR FY06
Cahaba River	AL03150202-0405-100	Cahaba	Jeff/Shelby	Nutrients	4th QTR FY06
Cahaba River	AL03150202-0405-100	Cahaba	Jeff/Shelby	Siltation	4th QTR FY06
Cahaba River	AL03150202-0405-100	Cahaba	Jeff/Shelby	Other Habitat Alt.	4th QTR FY06
Cahaba River	AL03150202-0203-101	Cahaba	Jeff/Shelby	Nutrients	4th QTR FY06
Cahaba River	AL03150202-0203-101	Cahaba	Jeff/Shelby	Siltation	4th QTR FY06
Cahaba River	AL03150202-0203-101	Cahaba	Jeff/Shelby	Other Habitat Alt.	4th QTR FY06
Cahaba River	AL03150202-0203-101	Cahaba	Jeff/Shelby	Pathogens	4th QTR FY06
Cahaba River	AL03150202-0203-102	Cahaba	Jeff/Shelby	Nutrients	4th QTR FY06
Cahaba River	AL03150202-0203-102	Cahaba	Jeff/Shelby	Siltation	4th QTR FY06
Cahaba River	AL03150202-0203-102	Cahaba	Jeff/Shelby	Other Habitat Alt.	4th QTR FY06
Cahaba River	AL03150202-0203-102	Cahaba	Jeff/Shelby	Pathogens	4th QTR FY06
Cahaba River	AL03150202-0201-101	Cahaba	Jeff/Shelby	Nutrients	4th QTR FY06
Cahaba River	AL03150202-0201-101	Cahaba	Jeff/Shelby	Siltation	4th QTR FY06
Cahaba River	AL03150202-0201-102	Cahaba	Jeff/Shelby	Siltation	4th QTR FY06
Cahaba River	AL03150202-0201-102	Cahaba	Jeff/Shelby	Other Habitat Alt.	4th QTR FY06
Cahaba River	AL03150202-0201-102	Cahaba	Jeff/Shelby	Nutrients	4th QTR FY06
Cahaba River	AL03150202-0104-102	Cahaba	Jeff/Shelby	Siltation	4th QTR FY06
Cahaba River	AL03150202-0104-102	Cahaba	Jeff/Shelby	Other Habitat Alt.	4th QTR FY06
Cahaba River	AL03150202-0104-102	Cahaba	Jeff/Shelby	Nutrients	4th QTR FY06
Cahaba River	AL03150202-0101-102	Cahaba	Jeff/Shelby	Siltation	4th QTR FY06
Cahaba River	AL03150202-0101-102	Cahaba	Jeff/Shelby	Other Habitat Alt.	4th QTR FY06
Cahaba River	AL03150202-0101-102	Cahaba	Jeff/Shelby	Nutrients	4th QTR FY06
Puppy Creek	AL03170008-0205-102	Escatawpa	Mobile	Nutrients	4th QTR FY06
Bayou La Batre	AL03170009-0102-100	Escatawpa	Mobile	OE/DO	4th QTR FY06
Tallapoosa River	Tallapoosa R-01	Tallapoosa	Cleburne	OE/DO	4th QTR FY06
Sugar Creek	AL03150109-0503-401	Tallapoosa	Tallapoosa	Chlorides	2nd QTR FY06
Sugar Creek	AL03150109-0503-401	Tallapoosa	Tallapoosa	Nutrients	2nd QTR FY06
Sougahatchee Creek Emb	AL03150110-0204-101	Tallapoosa	Lee	Nutrients	4th QTR FY06
Sougahatchee Creek Emb	AL03150110-0204-101	Tallapoosa	Lee	OE/DO	4th QTR FY06
Pepperrell Branch	AL03150110-0201-700	Tallapoosa	Lee	Nutrients	4th QTR FY06
Mountain Fork	AL06030002-0304-100	Tennessee	Madison	Pathogens	4th QTR FY06
Hester Creek	AL06030002-0304-200	Tennessee	Madison	Pathogens	4th QTR FY06
Hurricane Creek	AL06030002-0403-101	Tennessee	Madison	Pathogens	4th QTR FY06
Flint River	AL06030002-0405-100	Tennessee	Madison	OE/DO	2nd QTR FY06
Flint River	AL06030002-0404-102	Tennessee	Madison	OE/DO	2nd QTR FY06

Table 2-7 TMDL Development Plan for FY 2006 and FY 2007 Continued

FISCAL YEAR 2006					
Waterbody Name	Waterbody ID (12-Digit HUC)	River Basin	County	Pollutant	When Will Draft TMDL Be Submitted to EPA?
Flint River	AL06030002-0401-102	Tennessee	Madison	Pathogens	4th QTR FY06
Town Creek	AL06030002-0604-100	Tennessee	Morgan	OE/DO	4th QTR FY06
Cotaco Creek	AL06030002-0603-102	Tennessee	Morgan	Pathogens	4th QTR FY06
West Fork Cotaco Cr.	AL06030002-0602-102	Tennessee	Morgan	Pathogens	4th QTR FY06
West Fork Cotaco Cr.	AL06030002-0602-102	Tennessee	Morgan	Siltation	2nd QTR FY06
Mill Pond Creek	AL06030002-0601-700	Tennessee	Marshall	Siltation	2nd QTR FY06
French Mill Creek	AL06030002-0802-201	Tennessee	Limestone	Pathogens	4th QTR FY06
Second Creek	AL06030002-1204-102	Tennessee	Lauderdale	Pathogens	4th QTR FY06
Shoal Creek	AL06030004-0102-100	Tennessee	Limestone	Pathogens	4th QTR FY06
Little Bear Creek	AL03160106-0504-202	U. Tombigbee	Pickens	OE/DO	2nd QTR FY06
FISCAL YEAR 2007					
Barbour Creek	AL03130003-1307-100	Chattahoochee	Barbour	Siltation	4th QTR FY07
Poplar Spring Branch	AL03130004-0601-201	Chattahoochee	Houston	pH	4th QTR FY07
Cypress Creek	AL03130012-0201-400	Chipola	Houston	Nutrients	4th QTR FY07
Cypress Creek	AL03130012-0201-400	Chipola	Houston	OE/DO	4th QTR FY07
Hurricane Creek	AL03140201-0502-100	Choctawhatchee	Dale	Pathogens	4th QTR FY07
Dowling Branch	AL03140201-0704-600	Choctawhatchee	Geneva	OE/DO	4th QTR FY07
Dowling Branch	AL03140201-0704-600	Choctawhatchee	Geneva	Pathogens	4th QTR FY07
Beaver Creek	AL03140201-0602-201	Choctawhatchee	Houston	Nutrients	4th QTR FY07
Beaver Creek	AL03140201-0602-201	Choctawhatchee	Houston	OE/DO	4th QTR FY07
UT to Harrand Creek	AL03140201-1001-700	Choctawhatchee	Coffee	Nutrients	4th QTR FY07
UT to Harrand Creek	AL03140201-1001-700	Choctawhatchee	Coffee	Siltation	4th QTR FY07
Walnut Creek	AL03140202-0502-102	Choctawhatchee	Pike	Unknown toxicity	4th QTR FY07
UT to Jackson Lake (2-S)	AL03140103-0102-700	Perdido-Escambia	Covington	OE/DO	4th QTR FY07
UT to Jackson Lake (2-S)	AL03140103-0102-700	Perdido-Escambia	Covington	Pathogens	4th QTR FY07
UT to Jackson Lake (3-C)	AL03140103-0102-800	Perdido-Escambia	Covington	OE/DO	4th QTR FY07
UT to Jackson Lake (3-C)	AL03140103-0102-800	Perdido-Escambia	Covington	Pathogens	4th QTR FY07
Boggy Branch	AL03140106-0302-202	Perdido-Escambia	Escambia	OE/DO	4th QTR FY07
Boggy Branch	AL03140106-0302-202	Perdido-Escambia	Escambia	Zinc	4th QTR FY07
Boggy Branch	AL03140106-0302-202	Perdido-Escambia	Escambia	Chlorides	4th QTR FY07
Brushy Creek	AL03140106-0302-101	Perdido-Escambia	Escambia	OE/DO	4th QTR FY07
Rocky Creek	AL03140303-0302-101	Perdido-Escambia	Butler	Unknown toxicity	4th QTR FY07
Elk River	AL06030004-0105-101	Tennessee	Limestone/ Lauderdale	pH	1st QTR FY07
Elk River	AL06030004-0105-101	Tennessee	Limestone/ Lauderdale	Nutrients	1st QTR FY07

2.5 Summaries of Designated Use Support

Table 2-8 and Table 2-9 show the Size of Rivers and Streams Impaired by causes and sources respectively

Table 2-8 Size of Rivers and Streams Impaired by Causes

Rivers and Streams	Size of Water Impaired
Ammonia	28.92 miles
Chlorides	0.22 miles
Metals (unknown)	21.17 miles
Metals (Al)	3 miles
Metals (As)	19.56 miles
Metals (Cn)	12.43 miles
Metals (Cr)	29.24 miles
Metals (Cu)	1.54 miles
Metals (Fe)	48.07 miles
Metals (Hg)	436.02 miles
Metals (Pb)	31 miles
Metals (Zn)	0.22 miles
Nutrients	382.4 miles
Organic Enrichment/DO	180.3 miles
Other habitat alterations	375.53 miles
Pathogens	418.56 miles
Pesticides (Chlordane)	2.04 miles
Pesticides (DDT)	18.77 miles
Pesticides (Dieldrin)	24.29 miles
pH	40.4 miles
Priority Organics (PCBs)	42.23 miles
Siltation	606.87 miles
Toxicity	9.26 miles
Turbidity	22.59 miles
Unknown	36.38 miles
Unknown Toxicity	30.81 miles
Total	2821.82 miles

Table 2-9 Size of Rivers and Streams Impaired by Sources

Rivers and Streams	Size of Impaired Waters
Agriculture	586.7 miles
Atmospheric Deposition	43.32 miles
Collection system failure	72.94 miles
Contaminated sediments	65.21 miles
Dam construction	15.26 miles
Feedlots	5.64 miles
Flow regulation/modification	19.47 miles
Highway/road/bridge	15.23 miles
In place contaminants	3.8 miles
Industrial	81.67 miles
Total	909.24 miles

Chapter 3 Lakes and Reservoirs

3.1 Lake Water Quality Assessment

3.1.1 Background

Section 314 (a) (2) of the Clean Water Act, as amended by the Water Quality Act of 1987, requires states to conduct assessments of publicly-owned lake water quality and report the findings as part of the biennial §305(b) Water Quality Report to Congress. The assessment process is conducted through the use of federal and matching funding, including that available pursuant to Sections 106 and 319 of the Act.

The Department has defined publicly-owned lakes/reservoirs as those that are of a multiple-use nature, publicly accessible, and exhibit physical/chemical characteristics typical of impounded waters. Lakes designated strictly for public water supply, privately owned lakes, or lakes managed by the Alabama Department of Conservation and Natural Resources (ADCNR) strictly for fish production are not included in this definition. Lakes currently meeting the above definition are included in the tables that follow.

In 1985, the need for information on the trophic state of Alabama's publicly-owned lakes led to the initial survey, conducted by the ADEM with the assistance of the U.S. Environmental Protection Agency Region IV. During the survey, limited baseline data was collected and used to rank the lakes according to trophic condition.

In 1989, Clean Lakes Program funds enabled the ADEM to conduct required water quality assessments of thirty-four (34) publicly-owned lakes in the State and submit collected information as part of the 1990 Water Quality Report to Congress. Trophic state index (TSI) values calculated from data gathered for the water quality assessments indicated potentially significant increases when compared to the TSI values derived from the study conducted in 1985.

In 1990, the Reservoir Water Quality Monitoring (RWQM) Program was initiated by the Field Operations Division of ADEM. Objectives of the program are as follows:

- a) to develop an adequate water quality database for all publicly-owned lakes in the State;
- b) to establish trends in lake trophic status that can only be established through long-term monitoring efforts; and,
- c) to satisfy the requirement of Section 314(a)(1) of the Water Quality Act of 1987 that states conduct assessments of the water quality of publicly-owned lakes and report the findings as part of their biennial "Water Quality Report to Congress".

Acquiring this information enables the ADEM to determine lake water quality and identify lakes in which water quality may be deteriorating. Should deterioration in water quality be indicated by collected data, more intensive study of the lake can be instituted to establish the causes and extent of the deterioration.

From 1990-1992, thirty-one publicly-owned lakes in the State were monitored at least once. Lakes indicated to be use-threatened or impaired from previously collected data were monitored annually. Additional funding received in 1991 through the Clean Lakes Program allowed the expansion of the Program to include all of the thirty-two (32) publicly-owned lakes in the State, with the exception of those in the Tennessee River system. These reservoirs are monitored through the TVA Reservoir Vital Signs Program.

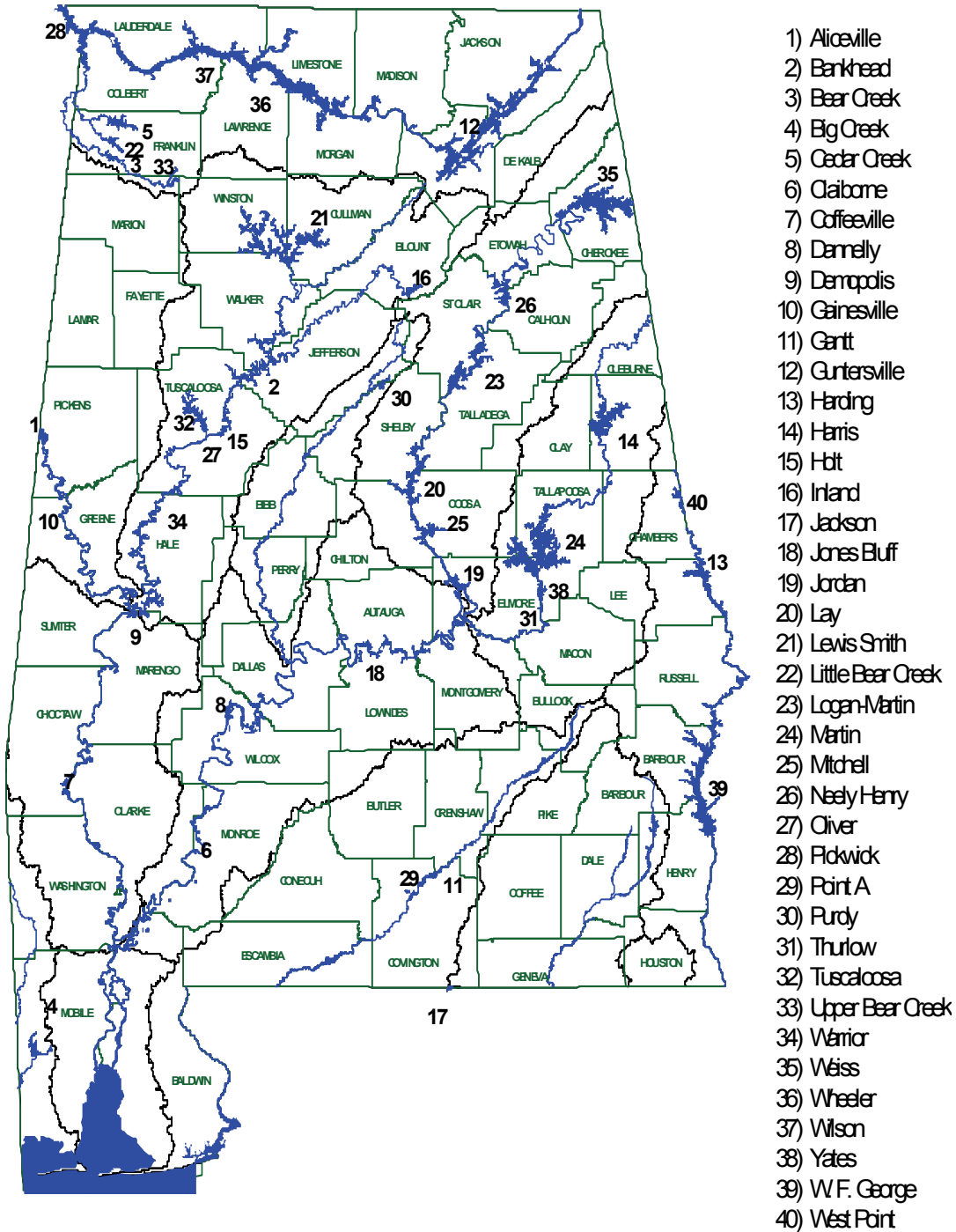
Beginning in 1994, the frequency of reservoir monitoring in the RWQM Program was increased to a minimum of once every two years so that the water quality database and trends in trophic status could be more rapidly developed. Lakes indicated to be use-threatened or impaired continued to be monitored annually. Realignment of the reservoir sampling schedule was also initiated in 1994 so that reservoir sampling by basin could be instituted.

In 1997, intensive monitoring of reservoirs by basin was initiated, with spring season sampling for the RWQM Program discontinued to allow allocation of resources toward this effort. Intensive monitoring consists of monthly sampling of multiple mainstem and tributary embayment stations in each reservoir from April-October. Reservoirs intensively monitored to date are as follows:

- a) Coosa and Tallapoosa River Basin reservoirs, 1997;
- b) Black Warrior River Basin reservoirs, 1998;
- c) Chattahoochee and Conecuh River Basin reservoirs, 1999;
- d) Coosa, Tallapoosa, and Alabama River Basin reservoirs, 2000;
- e) Tombigbee and Escatawpa reservoirs, 2001;
- f) Black Warrior River Basin reservoirs, 2002;
- g) Tennessee River Basin tributary embayments, 2003;
- h) Chattahoochee, Perdido-Escambia, and Choctawhatchee River Basins, 2004; and,
- i) Coosa, Tallapoosa, and Alabama River Basin reservoirs, 2005.
- j) Tombigbee and Escatawpa reservoirs, 2006
- k) Black Warrior River Basin reservoirs, 2007

Initiated in 1989, water quality monitoring of lakes of the Tennessee River system continues through the Tennessee Valley Authority (TVA) Reservoir Vital Signs Monitoring Program. The Program provides results of its monitoring activities to the ADEM on an annual basis through Program reports. Activities of the Program are based on the examination of appropriate physical, chemical, and biological indicators in the forebay, mid-region, and headwater areas of each lake. Objectives of the Program are to provide basic information on the “health” or integrity of the aquatic ecosystem in each TVA lake and to provide screening level information describing how well each reservoir meets the “fishable” and “swimmable” goals of the Clean Water Act. Figure 3-1 shows Publicly Accessible Reservoirs of Alabama.

Figure 3-1 Publicly Accessible Reservoirs of Alabama



For more information about Lakes and Reservoirs, contact Ms. Gina LoGiudice in ADEM's Montgomery Office at (334) 260-2783 or glogiudice@adem.state.al.us.

3.2 Trophic Status

In the RWQM Program, the ADEM uses Carlson's trophic state index (TSI) for determination of the trophic state of Alabama lakes. Carlson suggests the use of chlorophyll a concentrations in calculations of the trophic state of lakes during the summer months. Using chlorophyll a concentrations to determine trophic state is considered to give the best estimate of the biotic response of lakes to nutrient enrichment when phytoplankton is the dominant plant community.

Carlson's TSI provides the limnologist and the public with a single number that serves as an indicator of trophic status of a lake but does not necessarily define it. Lakes with a TSI of seventy (70) or greater are generally considered to be hypereutrophic and in need of regulatory action appropriate for protection and restoration. A TSI of fifty (50) to seventy (70) indicates eutrophic conditions in a lake. Trophic state index values from forty (40) to fifty (50) indicate mesotrophic conditions. Oligotrophic conditions are indicated by TSI values less than forty (40).

The number and surface area of lakes for each trophic classification appear in Table 3-1, which was developed using current monitoring data.

A trophic state ranking of Alabama lakes appears in Table 3-2. TSI graphs for Alabama reservoirs are found in Figures 3-2 thru 3-32.

Table 3-1 Trophic Status of Significant Publicly Owned Lakes

	Number of Lakes	Acreage of Lakes
Total	41	481,757
Assessed	32	285,270
Oligotrophic	2	22,295
Mesotrophic	13	93,273
Eutrophic	16	168,652
Hypereutrophic	1	1050
Dystrophic	0	0
Unknown	9	196,487

Table 3-2 Reservoir and Lake Trophic Status

Trophic State Designation	Index	Reservoir	River Basin	*August TSI Value	August TSI Year	**Average TSI Value
Hypereutrophic	1	Purdy	Cahaba	71	2004	57
Eutrophic	2	Neely Henry	Coosa	61	2005	64
	3	Weiss	Coosa	61	2005	63
	4	Mitchell	Coosa	60	2005	58
	5	Jordan	Coosa	59	2005	56
	6	Aliceville	Tombigbee	58	2004	57
	7	Logan Martin	Coosa	58	2005	59
	8	Lay	Coosa	58	2005	58
	9	West Point	Chattahoochee	57	2004	54
	10	Bankhead	Warrior	57	2005	52
	11	W.F. George	Chattahoochee	57	2004	55
	12	Harris	Tallapoosa	56	2005	48
	13	Dannelly	Alabama	56	2005	57
	14	Claiborne	Alabama	56	2005	54
	15	Big Creek	Escatawpa	52	2005	51
	16	Harding	Chattahoochee	50	2004	53
	17	Coffeeville	Tombigbee	50	2004	52
Mesotrophic	18	Holt	Warrior	49	2005	51
	19	Warrior	Warrior	48	2005	52
	20	Gainesville	Tombigbee	48	2004	53
	21	Gantt	Perdido Escambia	47	2004	46
	22	Tuscaloosa	Warrior	47	2005	42
	23	Oliver	Warrior	46	2005	52
	24	Point A	Perdido Escambia	45	2004	48
	25	Martin	Tallapoosa	45	2005	41
	26	Demopolis	Tombigbee	45	2004	51
	27	Jackson	Perdido Escambia	44	2003	44
	28	Thurlow	Tallapoosa	43	2005	36
	29	Woodruff	Alabama	43	2005	57
	30	Yates	Tallapoosa	42	2005	43
Oligotrophic	31	Smith	Warrior	39	2005	43
	32	Inland	Warrior	39	2004	38

*Analytical holding times for chlorophyll a (used in calculating TSI) in 2005 were exceeded, therefore the reported values are estimated

**Average values (1985-present) from dam forebay stations during August/September.

***Average values may not reflect a lake's current trophic state.

Oligotrophic < 40; Mesotrophic 40-49; Eutrophic 50-69; Hypereutrophic > 69

Alabama River Basin

Figure 3-2 Woodruff Reservoir

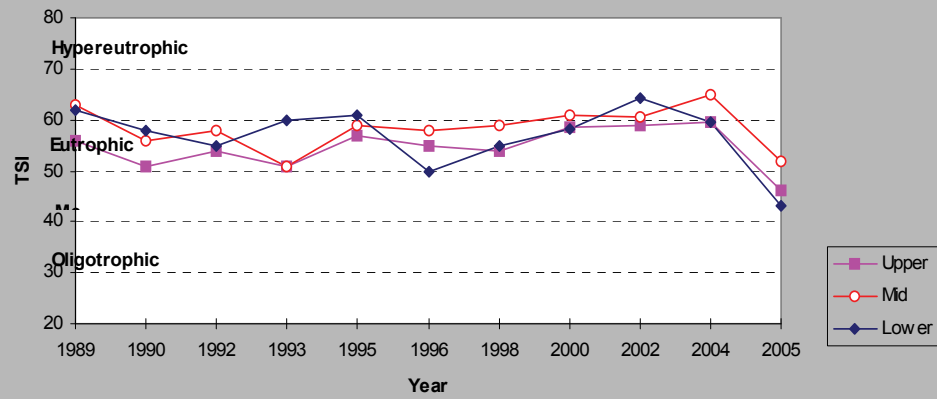


Figure 3-3 Dannelly Reservoir

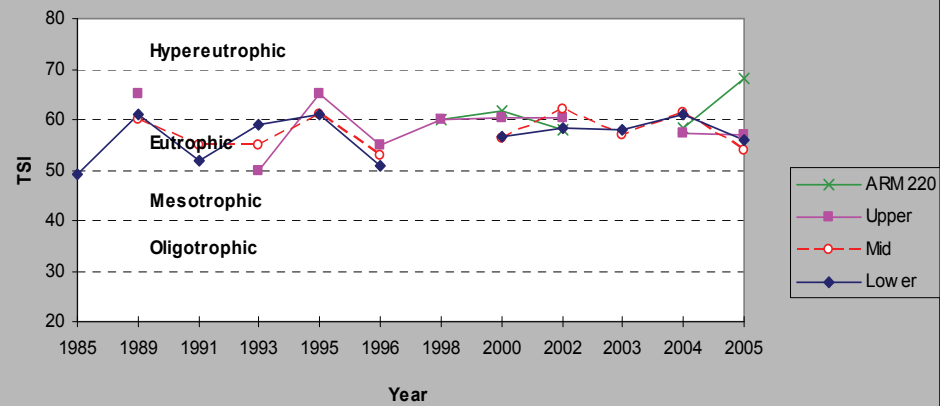
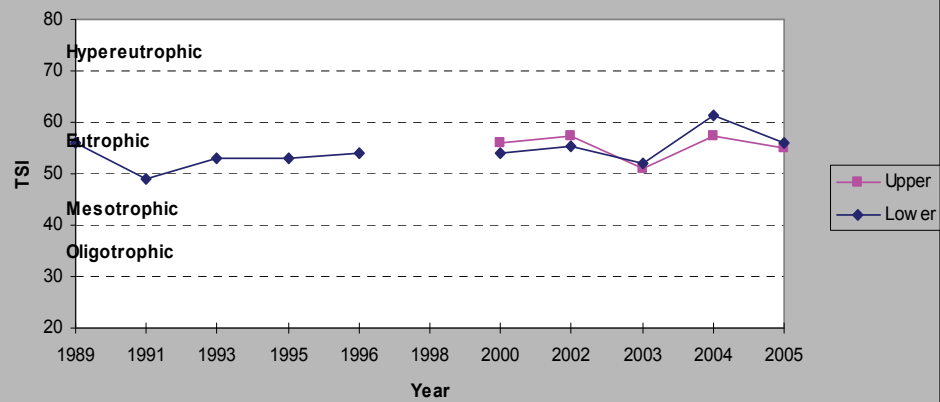
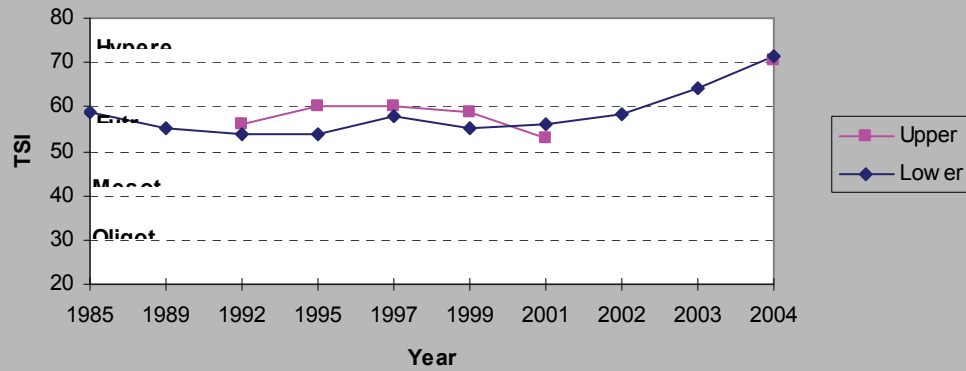


Figure 3-4 Claiborne Reservoir



Cahaba River Basin

Figure 3-5 Purdy Reservoir



Chattahoochee River Basin

Figure 3-6 West Point Reservoir

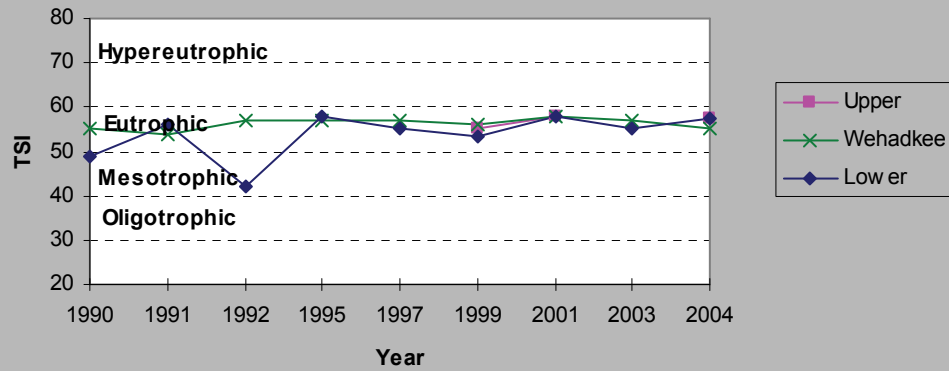
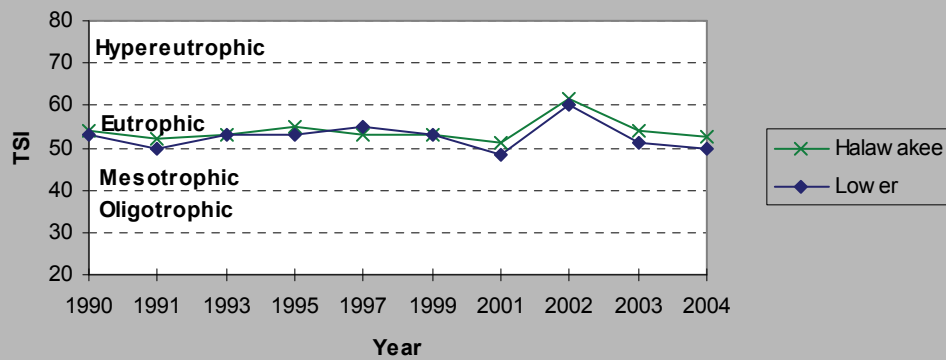
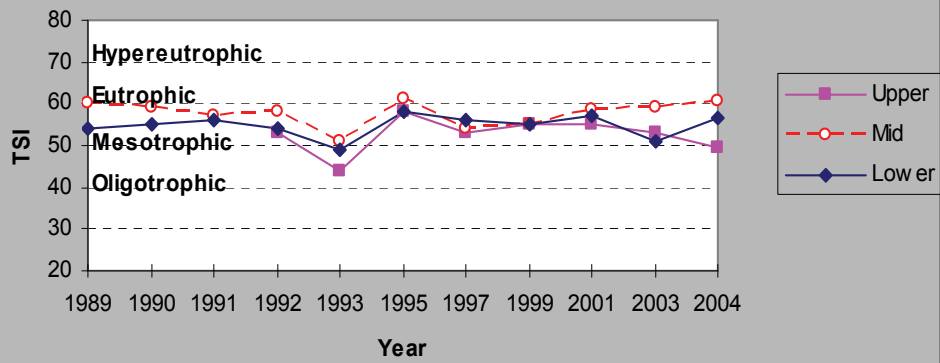


Figure 3-7 Harding Reservoir



Chattahoochee River Basin

Figure 3-8 Walter F. George Reservoir



Perdido Escambia River Basin

Figure 3-9 Gantt Reservoir

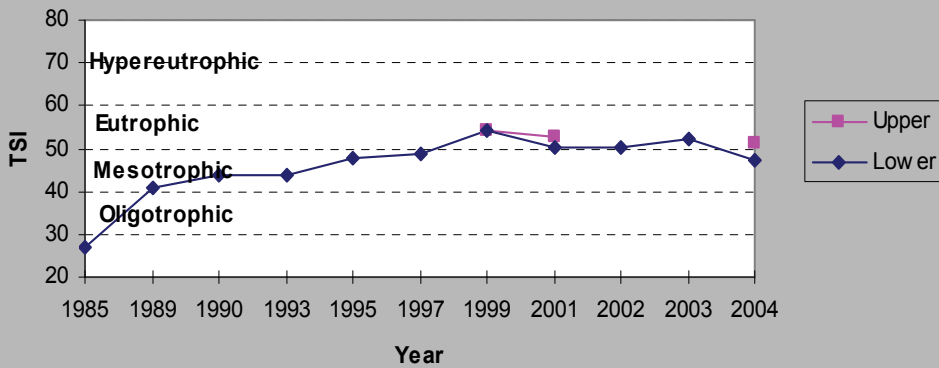
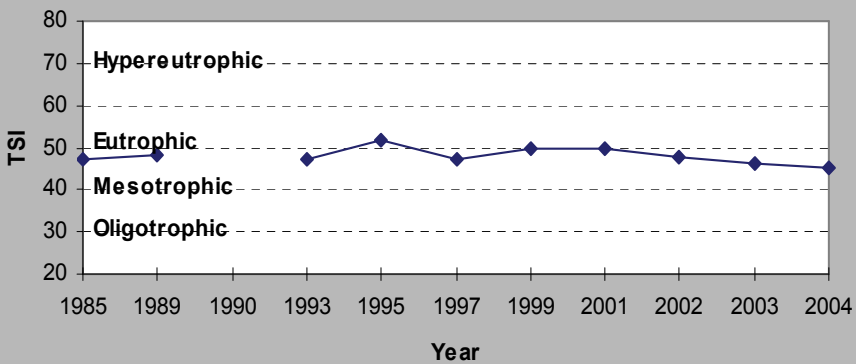


Figure 3-10 Point A Reservoir



Perdido Escambia River Basin

Figure 3-11 Frank Jackson Lake

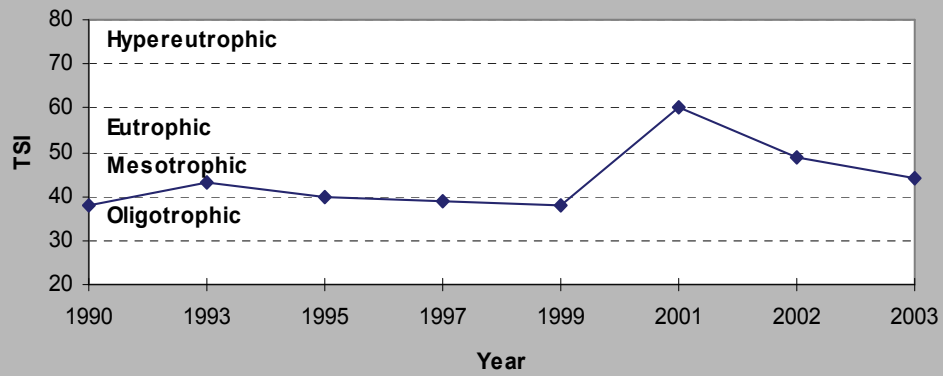


Figure 3-12 Weiss Reservoir

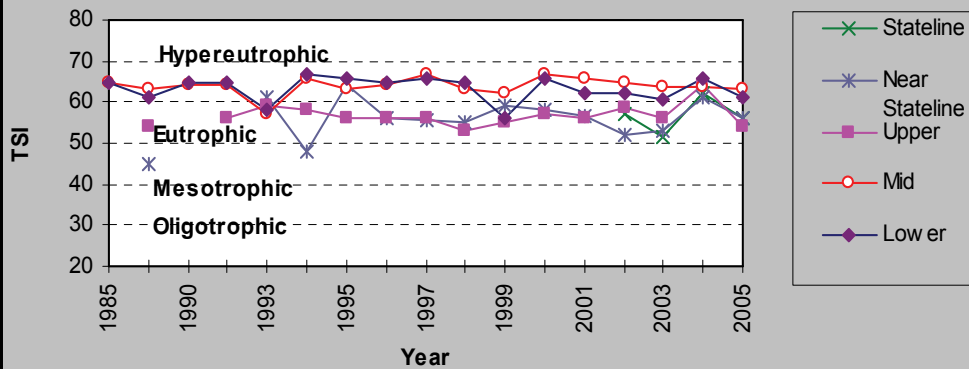
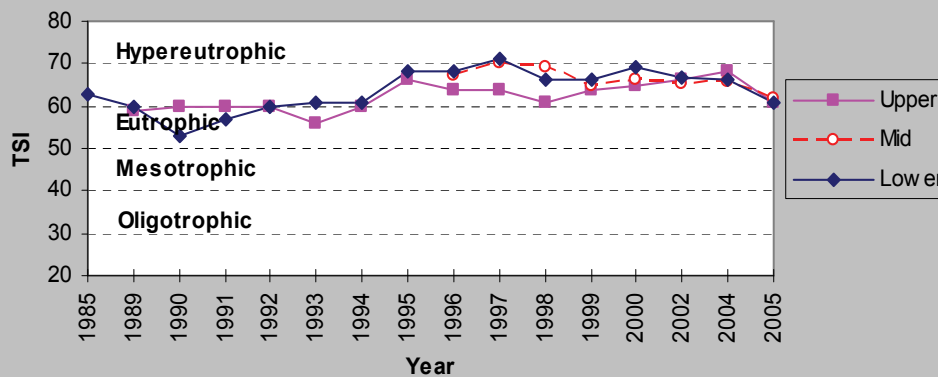


Figure 3-13 Neely Henry Reservoir



Coosa River Basin

Figure 3-14 Logan Martin Reservoir

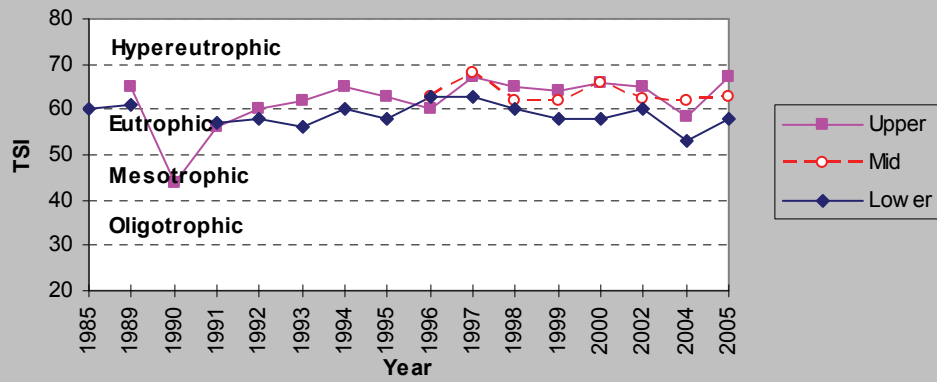


Figure 3-15 Lay Reservoir

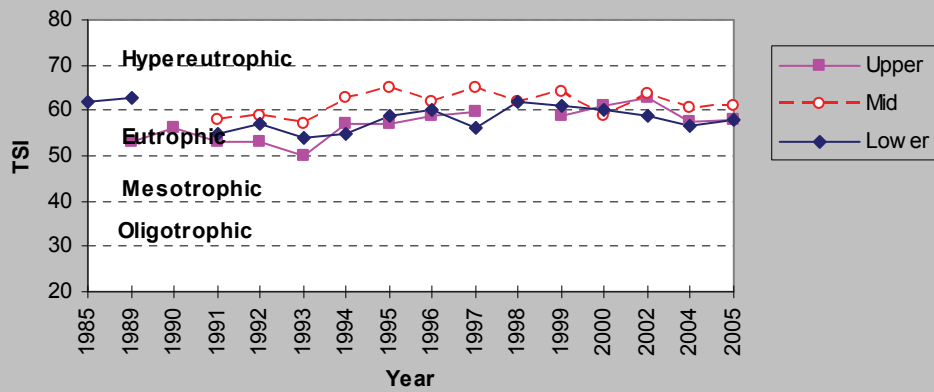
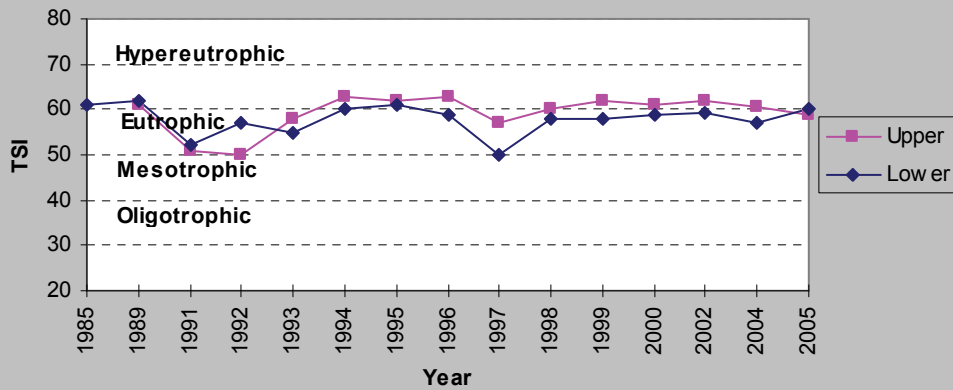
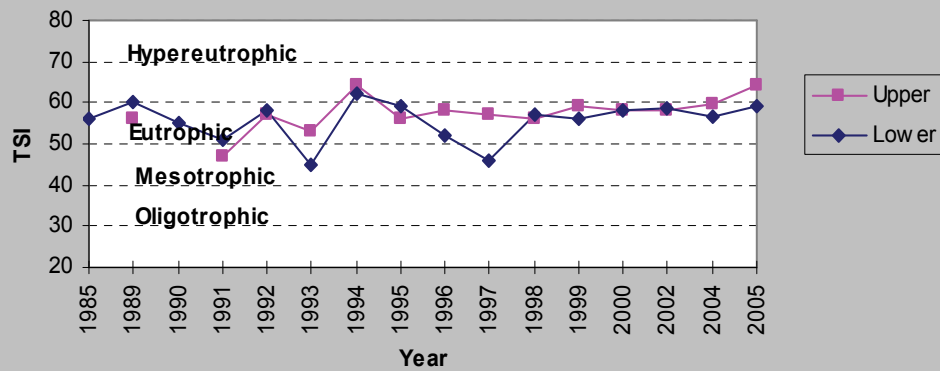


Figure 3-16 Mitchell Reservoir



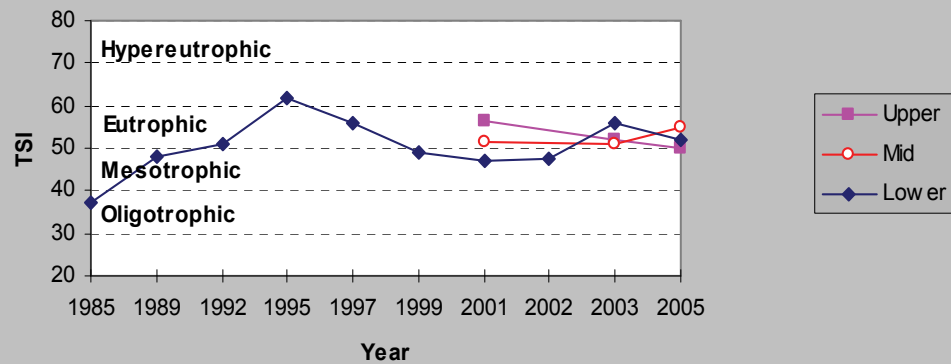
Coosa River Basin

Figure 3-17 Jordan Reservoir



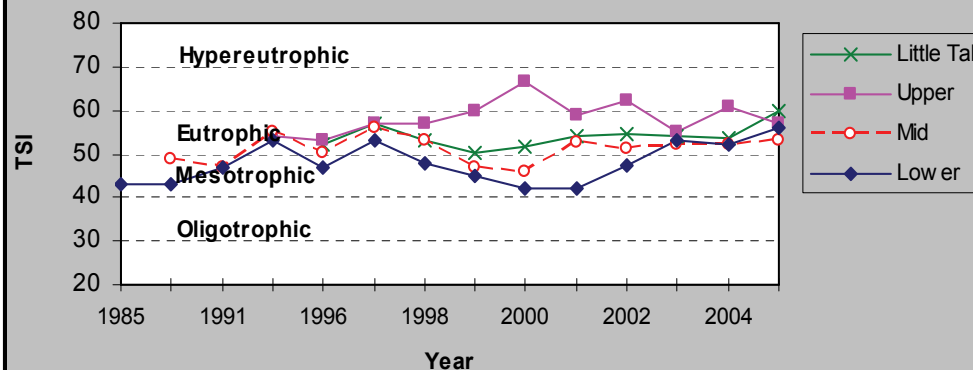
Escatawpa River Basin

Figure 3-18 Big Creek Reservoir



Tallapoosa River Basin

Figure 3-19 Harris Reservoir



Tallapoosa River Basin

Figure 3-20 Martin Reservoir

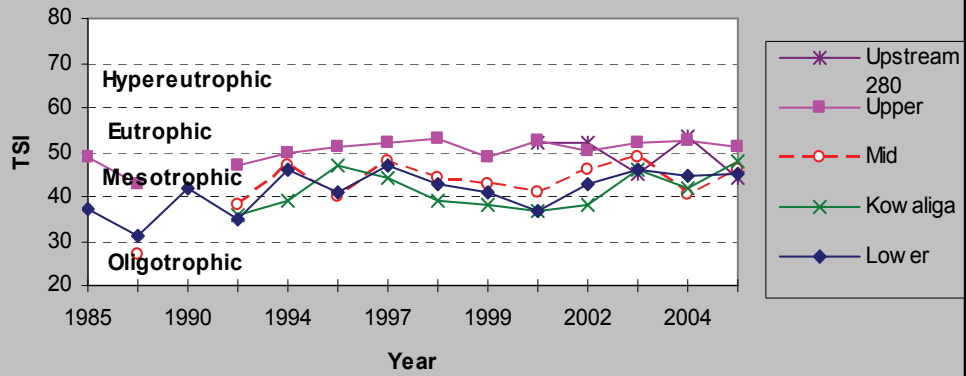


Figure 3-21 Yates Reservoir

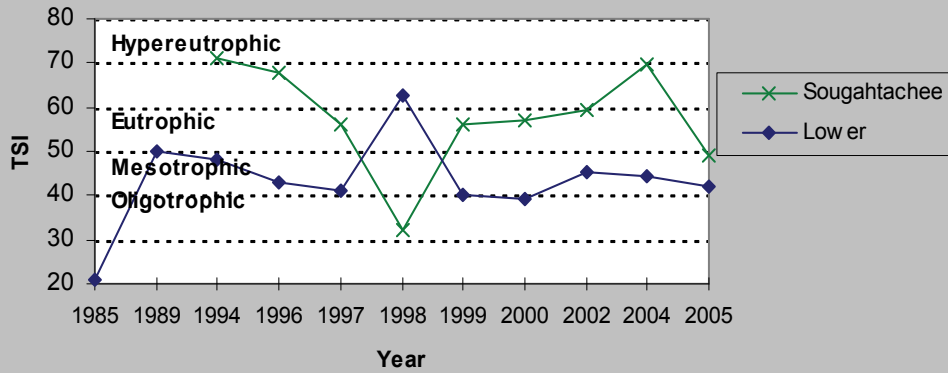
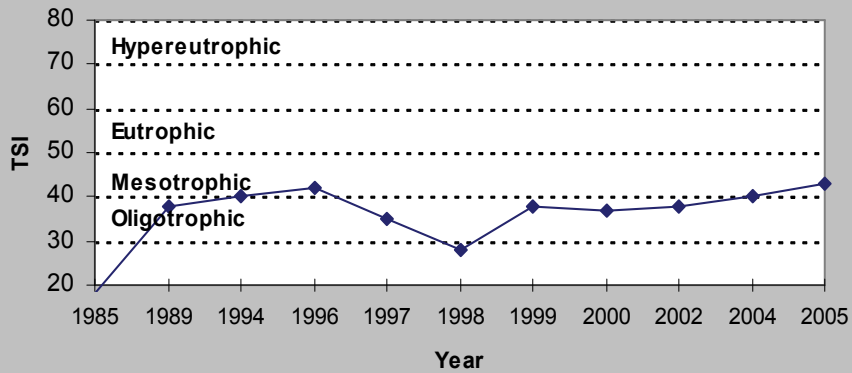


Figure 3-22 Thurlow Reservoir



Tombigbee River Basin

Figure 3-23 Aliceville Reservoir

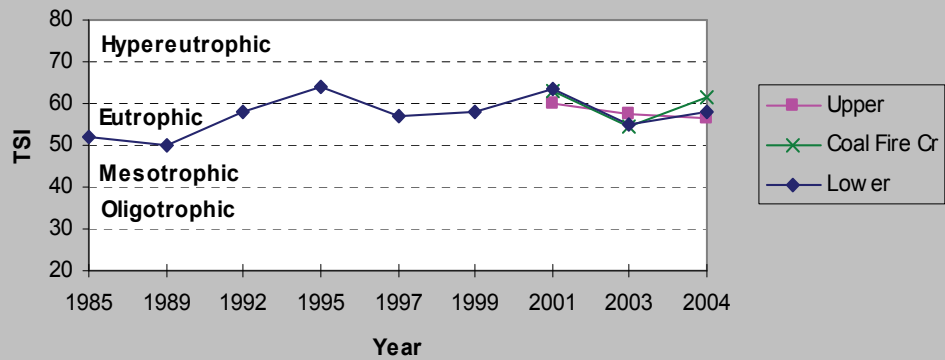


Figure 3-24 Gainesville Reservoir

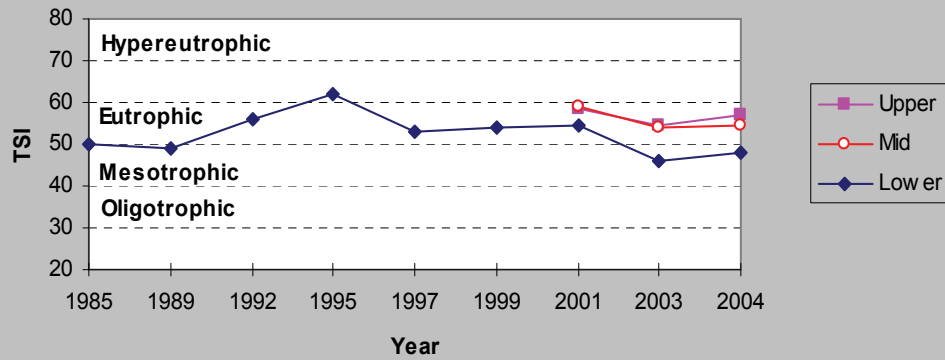
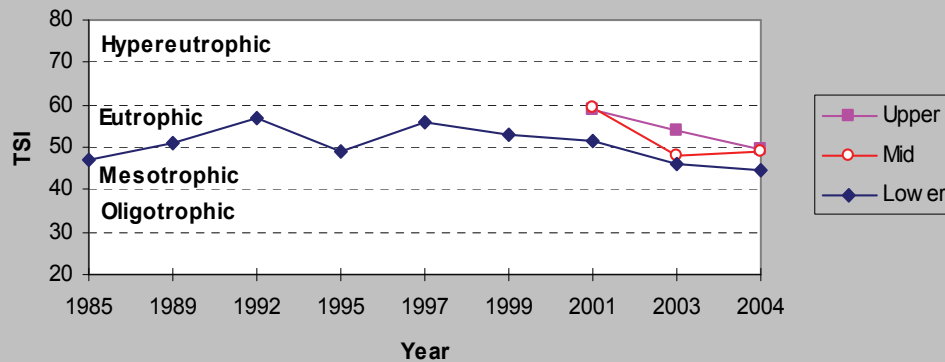
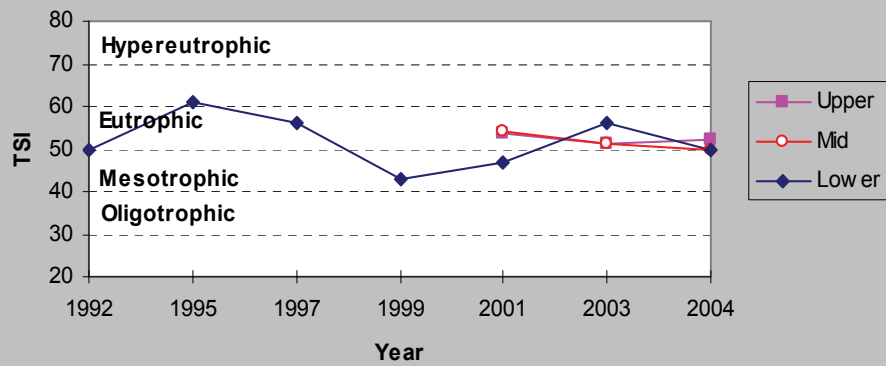


Figure 3-25 Demopolis Reservoir



Tombigbee River Basin

Figure 3-26 Coffeerville Reservoir



Warrior River Basin

Figure 3-27 Inland Reservoir

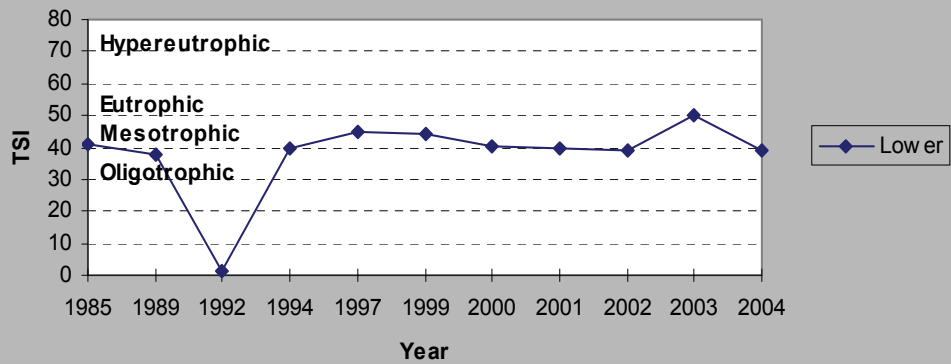
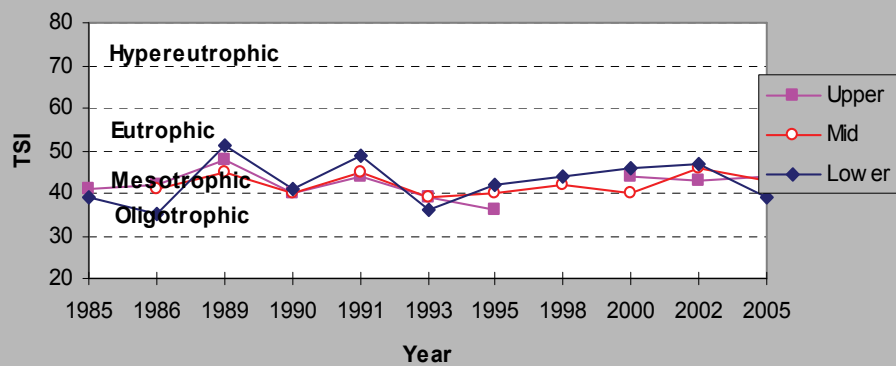


Figure 3-28 Smith Reservoir



Tombigbee River Basin

Figure 3-29 Tuscaloosa Reservoir

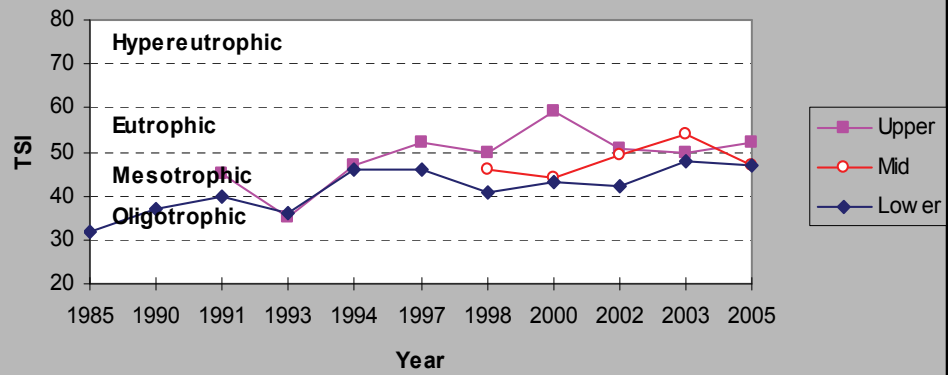


Figure 3-30 Bankhead Reservoir

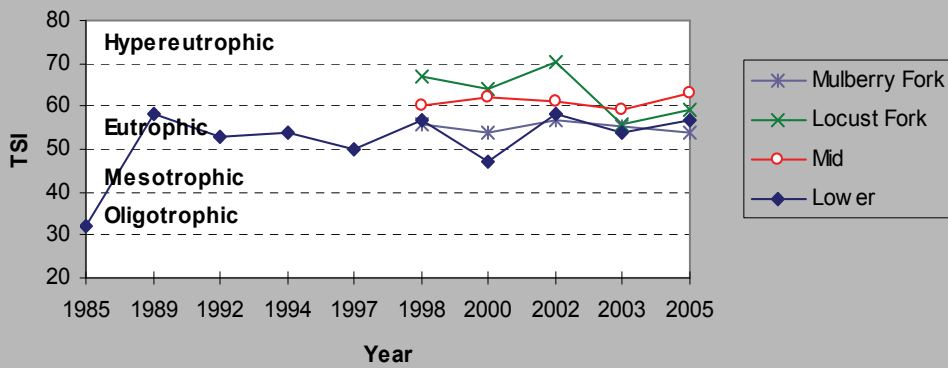


Figure 3-31 Oliver Reservoir

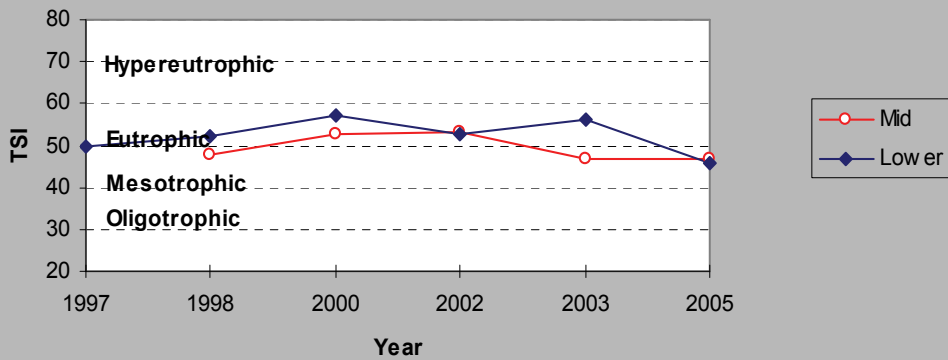


Figure 3-32 Holt Reservoir

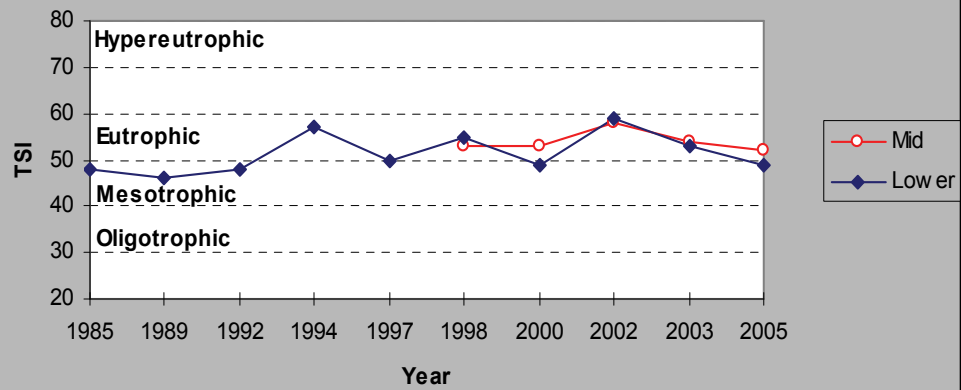
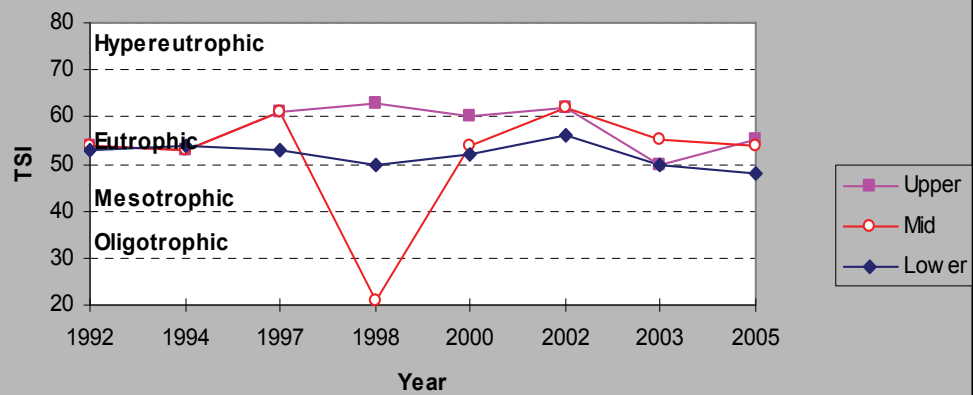


Figure 3-33 Warrior Reservoir



3.3 Control Methods

The ADEM has not defined control methods specifically for lakes. Instead, the pollution controls of ADEM's Point Source Program (NPDES permitting) and the Nonpoint Source Program are applicable for all of the State's surface waters.

3.4. Restoration Efforts

Water quality data collected by the RWQM Program enabled the ADEM to determine lakes in need of Clean Lakes Program Phase I Diagnostic/Feasibility Studies. All Clean Lakes Program Phase I Diagnostic/Feasibility Studies were conducted through cooperative agreements between ADEM and Auburn University. A list of the Clean Lakes Program Projects of Alabama appears in Table 3-3. Table 3-4 shows State Owned and Operated Public Fishing Lakes.

Table 3-3 List of Clean Lakes Program Projects

Name of Project	Type of Project	Federal Funding (\$)	Problems Addressed	Management Measures Proposed or Undertaken
West Point Reservoir	Phase I	100,000	Diagnostic/Feasibility	See Report
W.F. George Reservoir	Phase I	70,000	Diagnostic/Feasibility	See Report
Neely Henry Reservoir	Phase I	92,000	Diagnostic/Feasibility	See Report
Weiss Reservoir	Phase I	142,583	Diagnostic/Feasibility	See Report
Smith Reservoir	Phase I	93,000	Diagnostic/Feasibility	See Report

Table 3-4 State Owned and Operated Public Fishing Lakes

County	County Fishing Lakes	Acres
Barbour	Barbour County Lake	75
Bibb	Bibb County Lake	100
Chambers	Chambers County Lake	183
Clay	Clay County Lakes	74
Coffee	Coffee County Lake	80
Crenshaw	Crenshaw County Lake	53
Dale	Dale County Lake	92
Dallas	Dallas County Lake	100
DeKalb	DeKalb County Lake	120
Escambia	Escambia County Lake	184
Fayette	Fayette County Lake	60
Geneva	Geneva County Lakes	65
Lamar	Lamar County Lake	68
Lee	Lee County Lake	130
Madison	Madison County Lake	105
Marion	Marion County Lake	37
Monroe	Monroe County Lake	94
Pike	Pike County Lake	45
Walker	Walker County Lake	163
Washington	Washington County Lake	84
Totals	20 State Fishing Lakes	1,061

3.5. Impaired Lakes

The Size of Rivers and Streams Impaired by Causes appears in Table 3-5. Size of Rivers and Streams Impaired by Sources appears in Table 3-6.

Water quality data collected by the RWQM Program, Clean Lakes Program Phase I Studies, TVA Reservoir Monitoring Program, and ADEM intensive reservoir surveys were used for determination of use support status. Available data from each reservoir was examined for repeated violations of specific water quality criteria established by the ADEM and evaluated with adherence to the Guidelines For Preparation of the State Water Quality Assessments (305 (b) Reports). Waters affected by health advisories related to fish consumption were determined to be either partially supporting or not supporting. This determination was dependent upon whether advisories specified limited consumption or no consumption of a particular species as directed in the guidelines mentioned above.

Table 3-5 Size of Rivers and Streams Impaired by Causes

Reservoirs and Lakes	Size of Water Impaired
Metals (Hg)	724.6 acres
Nutrients	48359.9 acres
Organic Enrichment/DO	43398.51 acres
Pesticides (DDT)	71.06 acres
pH	12702.49 acres
Priority Organics (PCBs)	32196.12 acres
Total	137452.68 acres

Table 3-6 Size of Rivers and Streams Impaired by Sources

Reservoirs and Lakes	Size of Impaired Waters
Atmospheric Deposition	653.54 acres
Contaminated sediments	59072.22 acres
Dam construction	2008.15 acres
Flow regulation/modification	114281.91 acres
Industrial	33807.4 acres
Municipal	33807.4 acres
Non-irrigated crop production	3545.98 acres
Pasture grazing	3545.98 acres
Upstream sources	73500.81 acres
Urban runoff/storm sewers	38772.95 acres
Total	362996.34 acres

3.6. Toxic Effects on Lakes

Lake-specific monitoring information for toxic pollutants is limited. Point source control efforts are directed at the source of toxic pollutants through NPDES permitting programs. Total lake acres affected by toxicants appear in Table 3-7. Lake acreage monitored for toxicants consists of lakes for which fish have been collected and analyzed through the ADEM Fish

Table 3-7 Total Reservoir Size Affected by Toxicants

Waterbody	Size Monitored for Toxicants	Size with Elevated Levels of Toxicants
Rivers (miles)	-	-
Lakes (acres)	339,406	66,832
Estuaries (sq. miles)	-	-
Coastal waters (miles)	-	-
Freshwater wetlands (acres)	-	-
Tidal wetlands (acres)	-	-

Monitoring Program. Fish tissue sampling results are contained in the Fish Tissue Monitoring section of Part V Public Health Information.

Tissue Monitoring Program and the TVA Reservoir Program. Lake acreage with elevated levels of toxicants consists of lake areas upon which health advisories have been instituted that relate to consumption of fish contaminated with certain priority pollutants.

Fish will continue to be collected from major lakes, rivers, and certain waterbodies of concern and analyzed for toxic pollutants as part of the ADEM Fish Tissue

3.7 Acid Effects on Lakes

The number and acreage of lakes affected by acidity appear in Table 3-8. The number and acreage of lakes affected by sources of high acidity appear in Table 3-9. No reservoirs monitored by the ADEM have been determined to be impacted by high acidity based on data

Table 3-7 Total Reservoir Size Affected by Toxicants

Waterbody	Size Monitored for Toxicants	Size with Elevated Levels of Toxicants
Rivers (miles)	-	-
Lakes (acres)	339,406	66,832
Estuaries (sq. miles)	-	-
Coastal waters (miles)	-	-
Freshwater wetlands (acres)	-	-
Tidal wetlands (acres)	-	-

collected through the RWQM Program. However, the following reservoirs are considered vulnerable to acidity based on low alkalinities and pH values observed in monitoring data that were near limits of specific ADEM water quality criteria: Big Creek; Inland; Jackson; Point A; Smith; and Tuscaloosa. Low pH values measured in Big Creek, Jackson, and Point A Reservoirs are determined to be of natural origin and are considered unlikely to cause adverse impacts. In the case of both Smith and Tuscaloosa Reservoirs, mining activities in the watershed were also considered in determining the vulnerability of the reservoirs to acid effects.

Table 3-8 Lakes Affected By Acidity

	Number of Lakes	Acreage of Lakes
Assessed for Acidity	41	481,757
Impacted by High Acidity	0	0
Vulnerable to Acidity	6	33,030

3.8. Trends

Status of Trends for Lakes and Reservoirs appears in Table 3-10. Trends were determined by

reviewing three (3) or more years of water quality data from multiple sources, if available, for each reservoir during the period 1985 to 2003.

Table 3-9 Sources of High Acidity in Lakes and Reservoirs

Source	Number of Lakes Impacted	Acreage of Lakes Impacted
Acid Deposition	0	0
Acid Mine Drainage	0	0
Natural Sources	0	0
Other (list)	0	0

Table 3-10 Status of Trends for Lakes and Reservoirs

	Number of Lakes	Acreage of Lakes
Assessed for Trends	32	285,270
Improving	0	0
Stable	31	284,220
Degrading	1	1050
Trend Unknown	0	0

The reservoirs considered to be degrading were listed based on data collected through the RWQM Program.

Assignment of a particular reservoir to the “Stable” category does not necessarily indicate desirable water quality but only that the water quality appears stable.

Future data collection is critical in further establishing trends in water quality of reservoirs in the State.

Chapter 4 Wetlands

4.1 Alabama Wetland Management Programs

Alabama's coastal counties contain approximately 271,000 acres of wetlands, based upon ADEM's 305(b) report for 2002 (139-E). This acreage represents 12.5% of the total acreage of the designated Alabama Coastal Nonpoint Pollution Control Program (ACNPPCP) Management Area. Alabama recognizes the resource value and the function of coastal wetlands to abate Nonpoint Source (NPS) impacts and improve coastal water quality.

In addition, approximately 400,000 acres of coastal streams and estuarine waters, comprising 18% of the ACNPPCP Management Area, are contained within the geographic area of Mobile and Baldwin counties. These coastal waters possess a large number of riparian and shoreline vegetative buffers that serve to reduce NPS impacts. The 6th largest watershed area in the United States drains into this deltaic and estuarine complex contained within the ACNPPCP Management Area.

Alabama manages its wetland, riparian areas and adjacent buffer resources to ensure availability for future generations, and to provide for protection of habitat and water quality. Alabama's awareness of these important resources, has caused the development of watershed oriented projects and programs that have proactively incorporated CZARA-§6217 (g) guidance management measures within the ACNPPCP Management Area. ADEM Coastal Facilities Unit participates in the development and approval of wetland mitigation banks. Three local mitigation banks, totaling over 3,000 acres of wetlands, service the ACNPPCP Management Area.

4.2 FY2000 EPA Wetland Restoration

Grant ADEM Coastal Facilities Section has received an EPA Wetland Restoration Grant to implement restoration strategies and address State lands within the ACNPPCP Management Area. The purpose of this pilot project is to locate potential wetland restoration sites throughout Alabama, including those within the ACNPPCP Management area, using extant remote sensing data: overflight photos, National Wetland Inventory maps, and soil type maps. The project focus was limited to areas that are currently experiencing rapid growth and consequently increased potential for associated wetland and riverine impacts. Degraded wetland sites were located in each of the study areas using remote sensing data. Tract sizes are variable and directly relate to the viability of the potential restoration. A scoring system was developed to rank the sites within each watershed providing a comparison evaluation for prioritization. The ACNPPCP organized the local Alabama Wetlands Mitigation Banking Workshop (507-E), held in September, 2001, to publicly present this wetland restoration planning program.

The following narrative contains the specifics of the FY2000 EPA Wetland Restoration Grant:

4.2.1 Project Cooperators

Agency and Public/Private Partnerships involved in the Wetland Restoration Grant are found in Table 4-1.

Table 4-1 Agency and Public/Private Partnerships involved in the Wetland Restoration Grant

Regional, State and local agencies
• Alabama Department of Economic and Community Affairs (Coastal Programs, Team Member)
• ADEM (Co-lead Coordination, Coastal Facilities Unit, Coastal NPCP Education and Outreach, Team Members)
• Alabama Department of Transportation (Technical Support)
• ADCNResources - Lands Division (Co-lead Coordination, Team Member, Technical Support, Restoration)
• Baldwin County Commission (Team Member, Technical Support)
• Baldwin County Soil and Water Conservation District (Team Member, Technical Support)
• Mobile Bay National Estuary Program (Team Member, Education and Outreach)
• Natural Resources Conservation Service (Team Member, Technical Support)
• The Nature Conservancy - Natural Heritage Program (Team Member, Technical Support)
• U.S. Army Corps of Engineers (Team Member, Technical Support)
• U.S. Fish and Wildlife Service (Team Member, Technical Support)
• Weeks Bay Watershed Project Coordinator (Team Member, Outreach and Education)
Public/Private Partnerships:
• Weeks Bay Watershed Project Citizen Advisory Committee (Team Member, Education and Outreach, Technical Support)
• Wolf Bay Watershed Watch (Team Member, Education and Outreach)

4.2.2 Targeted Area

With a current population estimated at 150,000 citizens, Baldwin County is one of the fastest population growth areas in Alabama (e.g., growth rate of approximately 26% from 1990-1996). The urban development boom is not expected to slow in this highly desirable area on the Gulf Coast. Indeed, the rate of wetland loss or degradation is expected to parallel the continued increase in development since waterfront and coastal areas are prime real estate development locations.

This project targets restoration and protection of priority tracts in approximately 50,000 acres of wetlands in Baldwin County as identified by USDA hydric soils maps. Many waterways in the project area are listed on the State of Alabama's latest CWA Section 303(d) list as impaired and include: Fish River, Magnolia River, Bon Secour Bay, and Mobile Bay. Surface water quality problems are generally attributed to runoff or nonpoint source pollution and include urban

development, agriculture, dirt roads, and malfunctioning septic systems. Pollutants of concern include sediment, nutrients, pesticides, and bacteria.

A new Alabama Department of Transportation bridge is under construction in the Wolf Bay watershed. This bridge and the resulting connecting network of roads and associated transportation corridors dramatically increase the need for wetland protection and restoration in this ecologically sensitive area. The Wolf Bay and Weeks Bay Watersheds currently benefit from active grassroots stakeholder support dedicated to the protection of water quality and natural resources.

4.2.3 Area Significance

The U.S. EPA - Region 4 has identified the Mobile Bay coastal drainage area as a wetland restoration priority area. In addition, the Gulf of Mexico Program has identified the Mobile Bay area as a priority area for water quality and habitat improvement projects as well as for projects that will decrease nutrient loading. The Baldwin County Soil and Water Conservation District's Community Based/Locally Led Conservation Watershed Assessment have listed the Fish River (Weeks Bay Watershed), Wolf Creek Watershed, and Mobile Bay as critical need watershed protection priority areas. Weeks Bay is a Gulf of Mexico GEMs site and has been designated as an Outstanding National Resource Water (February 1992).

The Alabama Forever Wild Program, administered by the State Lands Division (ADCNR), recently allocated over \$15 million to acquire pristine and impaired wetlands within the Mobile-Tensaw River Delta, an area nationally recognized as a National Natural Landmark by the National Parks Service. The majority of these wetlands encompass the Tensaw River/Lake Watershed, designated by ADEM as an Outstanding Alabama Waterway. This grant will provide wetland restoration and protection resources that will greatly enhance this significant and nationally recognized State of Alabama wetland acquisition effort.

Federally listed endangered species documented in coastal Baldwin County wetland areas include the Alabama red-bellied turtle (*Pseudemys alabamensis*) and the Alabama beach mouse (*Peromyscus polionotus ammobates*). Additionally, the federally threatened eastern indigo snake (*Drymarchon corais couperi*) and the flatwoods salamander (*Ambystoma cingulatum*) possibly occur in Baldwin County wetlands. An additional 57 plant and animal species are listed within the Mobile-Tensaw River Delta by the State Lands Division's Natural Heritage Section as being either State protected, federally listed under the Endangered Species Act, or recognized as rare.

4.2.4 Description

Wetland types identified in the Baldwin County Wetland Advanced Identification (BC ADID) include riverine (overbank flooding of associated rivers and streams), fringe (shoreline of coastal ecosystems, marshes), flat (wet pine flats, pine savannas, and pitcher plant bogs), and depressional (grady ponds or interdunal swales).

The BC ADID project also identified highly functioning wetlands and connecting corridors. Protection and enhancement will ensure maintenance of the beneficial wetland functions. Many

of the lower functioning ability wetlands identified through the ADID project are also suitable for restoration or enhancement activities. The primary land use surrounding the lower functioning wetlands is agriculture. Landowners are likely to be receptive to wetland restoration activities on areas that are too wet to farm.

Field efforts performed by the State Lands Division Team will focus on state lands (including submerged aquatic vegetation) in four principal areas:

These four principal areas have been selected because they support both ecologically and economically significant wetlands. Examples of the wetland types located in these four areas are: red river hardwood bottomlands supporting sloughs, muck swamp, deepwater swamp, oxbow lakes, river levees and meander scrolls, first and second bottoms, and backswamp; black river hardwood bottomlands supporting sloughs, muck swamp, deepwater swamp, oxbow lakes, river levees and meander scrolls, first and second bottoms, and backswamp; deepwater swamp; muck swamp; piney wet flatwoods (pine savannahs); hardwood wet flatwoods (bay/gum heads); seepage slope bogs; freshwater marsh; salt marsh; submerged aquatic vegetation beds (seagrass); scrub-shrub bogs; citronelle ponds (grady ponds); and maritime forests supporting inter-dune swale wetlands.

National Wetlands Inventory mapping for state lands will be ground-truthed to insure that habitat-type identification was correctly designated. Additional review of pertinent wetland delineation and classification will be incorporated (e.g., review of NRCS hydric soil maps).

4.2.5 Estimation of Wetlands Acreage Needing Restoration

The following estimates of wetlands needing restoration on state lands in the four principal areas of Baldwin County are based on recent field reconnaissance, aerial photography, anecdotal observations, recent natural resource surveys/reports (Weeks Bay NERR), and interviews with local natural resource managers. It is important to emphasize that these data are preliminary estimates, based on the best available information. However, it is fully expected that as these state lands are more thoroughly investigated, via the identification, evaluation, and restoration recommendations phases of this project, actual acres requiring restoration will both increase and decrease within the four principal focus areas.

Best estimates of wetlands needing restoration on state lands in the four principal focus areas of Baldwin County, shown through NWI coverage's in the attached maps, are:

Forever Wild Tracts within the Mobile-Tensaw Delta presently identified as needing restoration - about 10,000 acres. Property recently acquired from Kimberly-Clarke Corporation, which has historically been managed for timber production, has numerous stands/sites which support impaired wetlands. Alterations and impacts include ditched drains, altered hydrology resulting from forest roads, species monoculture, and unnatural species composition resulting from timber harvest and random flood events during the growing season. For example, numerous stands in first and second bottoms were dominated by oak species prior to harvest, and began regenerating in oaks following harvest. Summer floods have resulted in high mortality of naturally regenerating oak saplings, and in-turn favored volunteer species such as cottonwood, ash and willow. Several stands which should be dominated by oak forest

communities are presently dominated by the above mentioned three species, resulting in impaired natural communities and loss of species richness.

GIS coverages provided to SLD by Kimberly-Clarke Corporation allow for a partial delineation of recently harvested stands (see maps; delineated as “Stand Established,” meaning the year re-growth began following harvest: 1985 to 1989- 3,040 acres; 1990 to 1994- 3,018 acres; 1995 to 1997- 2,386 acres [1997 partial data-set]). However, harvest data (GIS) for 1997 and 1998 was unavailable from Kimberly-Clarke Corporation. Data derived through the evaluation phase of this grant for stands harvested during 1997 and 1998 are likely to increase the present estimate of acres requiring restoration on these tracts. Such restoration will likely involve tree planting for community restoration from monocultural species composition, as well as reduction of exotic species (e.g., chinese tallow tree; leaves toxic to aquatic invertebrates).

Weeks Bay - over 2,000 acres of state lands (SLD and ADECA), as well as about 600 acres presently being considered for purchase by the Forever Wild Program. The predominant habitat within this area is classified by NWI maps (see attached GIS maps) as broad-leaved deciduous and needle –leaved evergreen forests (1,662 acres). This habitat is largely pine savannah being encroached by hardwood species because of a lack of naturally occurring fires and prescribed fires; an impaired wetland community. While prescribed burning will likely be a primary restoration activity, the extent of other anthropogenic alterations and impairments will be more fully understood following the evaluation phase of this grant proposal. Additional restoration may involve replanting sea-grass beds in adjacent waters (state of Alabama submerged lands managed by SLD).

Perdido Bay - 420 acres of Mental Health Trust Lands managed by SLD within Lillian Swamp, which are adjacent to 640 acres of an Alabama Department of Transportation Wetland Mitigation Bank (restoration plans presently being evaluated by ALDOT). The surrounding 2,600 acres of property is presently being reviewed by state and federal officials as an entrepreneurial Wetland Mitigation Bank. Thus restoration of impaired wetlands within the 420 acre tract managed by LD will compliment present state and private plans for wetland restoration within Lillian Swamp, an area identified in the 1992 Fish and Wildlife Service National Wetlands Priority Conservation Regional Plan as a major interior wetland area, and a priority wetland for Alabama, a declared GEMS Site, and identified as an ecologically significant wetland within the 1988 Statewide Comprehensive Outdoor Recreation Plan for Alabama. The extent of other anthropogenic alterations and impairments will be more fully understood following the project’s evaluation phase. A primary restoration activity will likely involve development and implementation of a prescribed burning program within needle-leaved evergreen palustrine forests (pine savannah) and adjacent broad-leaved evergreen scrub-shrub (pitcher plant bogs) habitats. Additional restoration may involve replanting sea-grass beds in adjacent waters (State of Alabama submerged lands managed by SLD).

Other candidate sites include, but are not limited to, state lands within Wolf Bay, Bon Secour Bay, Fort Morgan Peninsula, and Gulf Shores State Park. Wolf Bay is an area with tremendous wetland acreage, but no state owned wetlands other than submerged aquatic vegetation (SAV) within submerged lands of adjacent waters. Possible restoration activities for these candidate sites could include prescribed burning programs, replanting and posting sea-grass beds, and exotic species control programs.

Department of Agriculture/Forest Service General Technical Report SO-26 A Practical Field Method of Site Evaluation for Commercially Important Southern Hardwoods by Baker and Bradfoot. Native oaks which are covered under this technique include swamp chestnut oak, cherrybark oak, nuttall oak, willow oak, shumard oak, and water oak. Oak seedlings from the Alabama Forestry Commission cost between \$185-250/1,000 seedlings. Site evaluation may determine that more advanced saplings are required for some locations due to competition. Of the 10,000 acres within the Forever Wild Mobile-Tensaw Delta Tracts which have been identified as impacted, perhaps 6,000 acres necessitates planting to restore community/species balance. Standard planting of hardwoods is at a rate of 300 seedlings/acre, however, underplanting and micro-site planting will likely require only 150 seedlings/acre. Thus, a rough estimate of cost for seedlings (without cost of planting) to cover 6,000 acres is \$166,500 to \$225,000. Based on an estimate of acres that will require replanting, it is clear that this value exceeds resources available through this grant for this principal site. During the course of the project, efforts will be made to secure donations of seedlings (of some species) from the corporate timber industry. Efforts will also be made to pursue other mechanisms by which funds can be secured to purchase seedlings.

Evaluation of **wetland condition**, relative to the need for restoration, will be performed on state wetlands within the above four principal areas (“d” above). Evaluation methodology will focus on impact’s which impair functional values of wetland habitats (e.g., flood retention, water filtration, fish and wildlife habitat). Specifically, evaluations will be conducted for exotic species (e.g., cogon grass, chinese tallow tree, Japanese climbing fern), hydrologic alteration (e.g., roads constricting natural drains), unnatural species composition related to anthropogenic effects (e.g., stand monoculture resulting from timber management and random fluctuations in hydro-period [flood induced tree mortality of oaks in 1st and 2nd bottoms]), altered ecological processes (e.g., restriction of fire in pine savannah wetlands), other habitats impairments (e.g., propellar scars in seagrass beds).

Evaluation procedures will follow a selected **standard methods protocol** (e.g., Wetlands Rapid Assessment Process [WRAP]), following review of all applicable procedures. Empirical data will be gathered, and documentation procedures will incorporate digital and chemical photographs, DGPS, as well as data analysis that incorporates additional information coverages within the State Lands Division and other resource agency GIS.

4.2.8 Objectives and Deliverables

Note: Overall project milestones will generally follow those presented in “9: Project Schedule” below. However, tasks milestones for each of the four principal wetland areas may be implemented at various times and phases during the expected three year duration of the project.

Task 1. Identify wetland areas in need of restoration or enhancement.

Methods: Compile list of wetlands considered appropriate for restoration or enhancement activities based on input from Team members and other local, state, and federal stakeholders.

4.2.6 Restoration

Allocation of restoration funds are tentatively scheduled to target the following four principal areas: 1.) Forever Wild Tracts within the Mobile - Tensaw Delta, 50% of restoration funds, 2) Weeks Bay, 20% of restoration funds, 3) Perdido Bay, 20% of restoration funds, 4) Other candidate sites (e.g., Wolf Bay, Bon Secour Bay, 10% of restoration funds Fort Morgan Peninsula, and Gulf Shores State Park).

Recommendations: Recommendations will be prepared for restoration of wetlands on state lands, based on data gathered during evaluation procedures. Recommendations will incorporate all data available for analyses, including any public domain GIS coverages. Recommendations will consider incorporation of restoration funds available through this grant, as well as other state and federal resource agency options.

Implementation: Restoration activities will be implemented on state lands as deemed appropriate via the Restoration Recommendations Process/Stage. Physical restoration of wetlands will use Wetland Grant federal funds augmented by SLD match (personnel). Restoration activities will make full use of resources available from grant Team Partners (e.g., trees of select species for replanting altered palustrine forest sites may be available from the Alabama Forestry Commission; heavy equipment necessary for correcting altered hydrology may be available through the Baldwin County Public Works Department).

Monitoring: Physical restoration of wetlands will be monitored and success/failure assessed through empirical pre- and post-restoration data. All restoration activities are expected to exhibit measurable success and failure criteria such as:

1. road beds holding water in up-stream areas of natural drains can be re-contoured with swales that allow water within drains to flow through road beds, resulting in restoration of natural hydro-periods for areas upstream and downstream of the road.
2. man-made ditches draining wetlands can be plugged, and hydrology restored, with pre- and post-restoration conditions measured to evaluate success/failure.
3. success/failure of habitat maintenance via implementation of prescribed burning in pine savannahs and pitcher plant bogs can be measured through pre- and post-analyses of species richness for wetland plants representative of those habitats.
4. success/failure of planting of trees and other wetland specific plants intended to restore species richness and natural community composition (both terrestrial and aquatic) can be measured through data-derived species richness indices and monitoring of post-planting mortality, whereby planting criteria standards for wetland mitigation banking within Alabama would be applied.
5. success/failure of control of exotic plants measured via monitoring of mortality of target non-native species following applied control treatments (e.g., herbicides approved for wetland sites, tree girdeling).

4.2.7 Evaluation

Evaluation for replanting native hardwoods in bottomland forest sites will follow U.S.

Milestones:

1. Identify low functioning wetlands as ranked by the BCADID.
2. Identify restoration recommendations suggested by the BC Wetland Conservation Plan.
3. Request local technical expertise in developing restoration lists (create Technical Advisory Committee).
4. Identify hydric soils listed as altered in the Baldwin County soil survey.
5. Identify wetlands listed as ditched or drained (d/h) on FWS National Wetland Inventory (NWI) maps.
6. Prioritize wetlands for restoration activities based on the above information. Ground truthing of maps and acquired information will be conducted before prioritized restoration activities proceed.

Task 2. Obtain landowner permission for restoration projects.

Methods: Secure MOAs or other agreements with landowners willing to participate in wetland restoration projects. Explain the importance of wetland function and restoration in regards to stormwater retention, flood control, nutrient/sediment sinks, etc. Cost share programs such as the Natural Resources Conservation Service Wetland Reserve Program will be promoted to offset landowner cost and provide a vehicle for long term preservation. Conservation easements and deed restrictions will be explored for long term management possibilities.

Milestones:

1. Use Baldwin County plat maps, tax assessor records, and local contacts to identify landowners whose property is suitable for restoration/enhancement projects. Field work will accompany to ensure accurate assessment of prioritization areas.
2. Approach landowner to request cooperation. Create restoration plans with input from landowners and technical input from Team members.

Task 3. Restore, enhance, or facilitate other activities that protect wetlands and improve functions.

Methods: Develop a restoration plan for each principal wetland area based on the technical advice of Team members. Return wetlands to historical functioning conditions. Use GPS and GIS technologies to facilitate restoration construction work such as plugging ditches, removing fill and/or sediment, implementing best management practices on surrounding lands, and removing invasive, exotic species.

Milestones:

1. Complete restoration or enhancement work to restore hydrology of impaired wetland areas.
2. Complete restoration or enhancement work to remove invasive, exotic species and plant native vegetation to improve habitat quality and environmental integrity. \
3. Complete restoration or enhancement work to promote improved wetland functions, including implementation of best management practices on lands contributing stormwater to wetland areas.
4. Complete restoration or enhancement work to remove fill and/or sediment from impaired wetlands.

Task 4. Increase public awareness of wetlands and their importance.

Method: Develop educational program on wetlands in coastal Baldwin County and implement recognition program for landowners who participate in wetland restoration activities.

Milestones:

1. Partner with stakeholders to produce a wetland education program (e.g., Georgia Adopt-a-Wetland).
2. Facilitate a minimum of 10 presentations to target local governments, civic groups, and schools
3. Create or utilize current wetland educational brochures and handouts. Make these available at presentations and in public locations such as the Weeks Bay National Estuarine Research Reserve.
4. Promote National Wetlands Month activities in the project area.
5. Co-sponsor wetland technical workshops with Baldwin County, Weeks Bay Watershed Project, and the Army Corps of Engineers.
6. Investigate and facilitate posting of workshop outreach and training materials on an interactive web site, similar to the EPA “Watershed Academy” format, for statewide applications.
7. Implement a participating landowners recognition program using newsletters/ press releases and/or placing of acknowledgment signage on properties.

Task 5. Monitor wetland restoration activities and successes.

Method: Evaluate wetland function restoration success based on subsequent site visits and observation of hydrology, established native vegetation, and proper installation/functioning of management measures.

Milestones:

1. Conduct site visits to restoration areas before, during, and after restoration activities to empirically assess, monitor water quality, and/or photo-document improvements or failures.
2. Based on restoration plan and desired wetland function enhancement/restoration, determine if function is likely to be improved through observation and onsite monitoring. Determine whether functioning has improved and goals have been achieved.
3. Develop contingency actions for wetlands where functions have not been adequately restored or other goals have not been achieved. Take additional actions to correct situations in which exotics re-invade the site, native plants do not survive, ditch plug failures, etc.

4.2.9. Long-term Onsite Management Support and Commitments

Local cooperators that will provide long-term management include the Weeks Bay National Estuarine Research Reserve (on properties within their boundaries), Wolf Bay Watershed Watch, Weeks Bay Watershed Project, Baldwin County Soil and Water Conservation District, Baldwin County Commission, and participating landowners. Each of these entities has exhibited a strong interest in wetland protection and are working to achieve long-term, holistic restoration and protection of coastal natural resources. Landowner management commitments will be secured based on wetland restoration type and geographical location. Additionally, the use of deed restrictions and conservation easements will be explored and implemented where possible. Landowner participation in established programs that promote long term management, such as the NRCS Wetlands Reserve Program, will also be encouraged.

4.2.10. Integration with Other Programs in the Area and State

1. Resources provided by this grant provide a logical next step for wetland restoration activities identified by previous EPA-Region 4 wetland grants. For example, the BC ADID identified poorly functioning wetlands in the project area appropriate for restoration and/or enhancement efforts. In addition, the Baldwin County Wetland Conservation Plan will identify priority areas not included in the BC ADID project area for restoration activities through resource inventories and functional assessments. Table 4-2 shows the Project Schedule (Fall 2001-Fall 2003).
2. Local environmental groups have been working to increase awareness of wetland functions and values. The Weeks Bay Watershed Project and the Wolf Bay

Watershed Watch have a history of local stakeholder commitments have already implemented numerous water quality degradation solutions which are intricately tied to wetland functions. In addition, the Weeks Bay Watershed Project Management Plan lists habitat restoration and protection - in particular wetlands - as one of four categories for watershed water quality maintenance. Their support and willingness to partner on this grant project is definitive.

3. Alabama's Land Trust Program "Forever Wild" exemplifies the state's commitment to the preservation of unique coastal wetlands. A \$15 million land acquisition represents a significant contribution toward maintenance of ecosystem functions within the Delta and also provides tremendous benefits to the commercial and recreational fisheries in the Mobile Bay Estuary downstream. Further, the acquisition initiative supports national wetland loss prevention and restoration efforts. Overall, this endeavor supports the protection, restoration, and monitoring of over 100,000 acres of state and federal wetlands within the Delta. Pending wetland acquisitions by

Table 4-2 Project Schedule (Fall 2001 - Fall 2003)

Activity	F 00	W 01	Sp 01	Sm 01	F 01	W 02	Sp 02	Sm 02	F 02	W 03	Sp 03	Sm 03	F 03
Reporting/Status Updates to EPA			X		X		X		X		X		X
Technical Advisory Committee Created	X												
Identify wetland areas in need of restoration or enhancement		X	X	X						X	X		
Create wetland restoration/enhancement plan for selected areas			X	X	X	X				X	X		
Seek ADEM & EPA project administrator approval for wetland restoration plans			X	X	X	X				X	X		
Obtain landowner permission for enhancement/restoration projects				X	X	X	X						
Restore, enhance, or implement activities which protect and/or improve wetland functions							X	X	X	X	X		
Monitoring of restoration success							X	X	X	X	X	X	X
Promote wetland restoration grant, participate in educational activities.		X		X		X		X		X		X	
Partner on wetland technical workshop.				X								X	
Press releases and landowner recognition program.				X	X	X	X	X	X	X	X	X	X

Forever Wild in Baldwin County are not limited to the Delta area. Several active projects are on-going and include the Maritime Forest near Orange Beach, as well as tracts near Bon Secour National Wildlife Refuge, Gulf Shores State Park and the Weeks Bay National Estuarine Research Reserve.

4. State agency support is also high as demonstrated by Alabama Department of Environmental Management (ADEM) and the Alabama Department of Economic and Community Affairs (ADECA) Coastal Programs. These two programs offer invaluable technical advice and guidance based on years of work in the wetland arena.
5. The USDA-Natural Resources Conservation Service (NRCS) and the U.S. Fish and Wildlife Service (FWS) will serve as technical advisors to the project. These federal agencies have been partners in past endeavors regarding wetland issues and serve as important local landowner contacts. As wetland delineators, the U.S. Army Corps of Engineers will also partner.

4.2.11 Measureable Environmental Results

Environmental indicators and project success will be measured by:

1. The number of wetland acres protected, restored, and/or enhanced.
2. Visual inspection of the entire area for any problems such as re-invasion by exotic plants species.
3. Monitoring of wetland hydrology to assure that:
4. a minimum of one primary hydrology indicator (inundation, saturation in the upper 12", water marks, drift lines, or sediment deposits) or,
5. a minimum of two secondary hydrology indicators (oxidized root channels in the upper 12", water stained leaves, passing of the FAC-Neutral test) can be identified at all times with the exception of extended periods of little or no precipitation
6. Qualitative assessments of successful native plant communities established.

4.2.12 Wetland Grant Project Coordinator

This grant provides resources to support a Project Coordinator staff position. The Project Coordinator will be assigned to the ADEM Mobile Field Operations Office, and will coordinate grant activities between the project co-lead grant implementation agencies (ADEM, ADCNR); workplan cooperators and additional stakeholders as identified; and other coastal, natural resource, and wetland associated efforts.

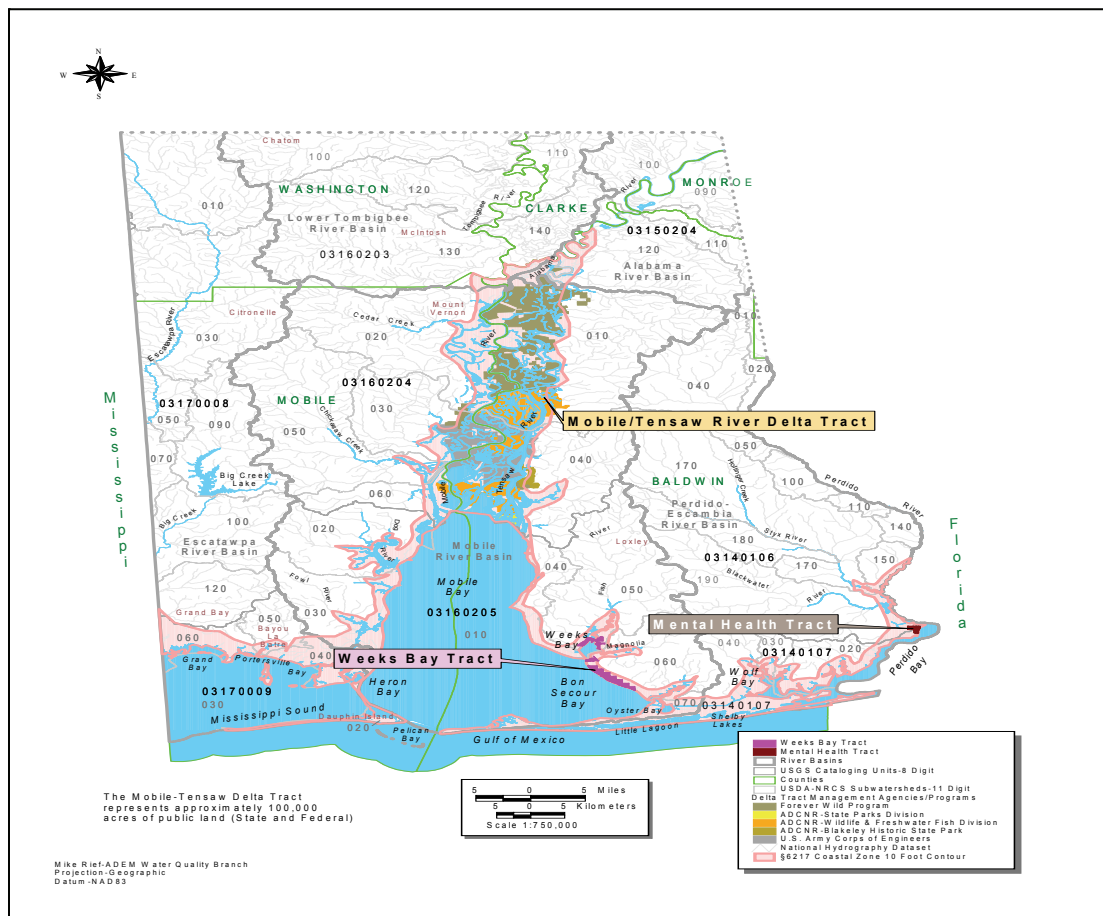
1. Specific project coordinator tasks are as follows:

- a. Provide technical assistance and local point-of-contact to stakeholders involved in this project
 - b. Provide educational outreach and training coordination and assistance
 - c. Prepare and submit semiannual and annual progress reports of project status and accomplishments
 - d. Provide training for certification of citizen volunteer water quality monitors
 - e. Facilitate grant implementation assistance to ADEM and ADCNR and other stakeholders:
 - plan , coordinate, form, and/or participate in wetland related stakeholder committees and meetings.
 - track project activities and progress toward achievement of workplan goals and objectives.
 - respond to public inquiries about the project and to wetland related matters in general
 - provide assistance in planning, installing, operating, and maintaining wetland restoration strategies.
 - provide input into a long-term conservation plan for Baldwin County wetland acreage.
 - f. Provide and/or promote wetland educational outreach activities through multi-media presentations, task forces, work groups, committees, tours, etc.
 - g. Establish, organize, and manage an Adopt-A-Wetland program similar to the Georgia Adopt-A-Wetland.
 - h. Submit annual project update newsletter articles to various newsletters, newspapers, and/or to other public outreach media.
2. Outputs and Deliverables:
- a. Semiannual report of plans, accomplishments, and additional program needs including photographic documentation of individual project tasks for the duration of the project.
 - b. An annual report of plans, accomplishments, and additional program needs including photographic documentation of individual tasks for the duration of the project.

- c. A comprehensive final report of accomplishments and additional program needs including photographic documentation of individual tasks within 60 days of grant end date.
- d. Wetland educational outreach activities and Alabama Water Watch certified water quality monitoring citizen volunteers sampling wetland project areas.
- e. Facilitated education outreach and training using conferences, workshops, electronic/slide presentations, tours, etc, to promote the project.

Figure 4-1 shows Alabama's Coastal Wetlands Restoration Grant Management Areas. For more information about Alabama's Wetlands Programs, contact Mr. Scott Hughes at in ADEM's Montgomery at (334) 271-7700 or ash@adem.state.al.us, Mr. Greg Lein at the Alabama Department of Conservation and Natural Resource's at (334) 242-7998 or glein@dcnr.state.al.us, or Mr. Scott Brown in ADEM's Mobile Office at (334) 432-6533 or jsb@adem.state.al.us.

Figure 4-1 Alabama's Coastal Wetlands Restoration Grant Management Areas



Chapter 5 Groundwater

5.1. Overview of State Ground Water Protection Programs

Many of elements of Alabama's ground water programs listed in Table 5-1 are managed by subdivisions within the Alabama Department of Environmental Management (ADEM), including the Land, Field Operations, and Water Divisions. The Ground Water Branch in the Water Division provides the hydrogeological support for these programs. Other programs related to ground water management and protection are managed by other state and federal agencies. The on-site sewage program is managed by the Alabama Department of Public Health and the Class II Underground Injection Control Program is managed by the State of Alabama Oil and Gas Board. Ground water quantity issues are addressed by the Alabama Department of Economic and Community Affairs Office of Water Resources. Other ground water monitoring and regulatory programs are managed by the Geological Survey of Alabama and the Alabama Surface Mining Commission. The U.S. Environmental Protection Agency (EPA) provides oversight on all federally funded and delegated ground water programs.

5.2 Coordination of State Ground Water Programs

The State of Alabama recognizes that there is a need to coordinate management of ground water programs and as a result set up the Ground Water Programs Advisory Committee (GWPAC) in 1994 to aid in completing the requirements for EPA's Core Comprehensive State Ground Water Protection Program (CSGWPP). The ADEM Ground Water Branch and the GWPAC continue to work toward a fully integrated CSGWPP. This work includes coordinating ground water regulatory programs and addressing program refinements identified during the CSGWPP core review process.

Meetings of the GWPAC were not held during 2005 however one will be scheduled for 2006. This committee includes representatives of other state and federal agencies, consultants, water system representatives, and others who work in ground water related fields. The meetings are used to provide ground water program information, receive feedback and coordinate ground water projects. A subcommittee of agencies involved in area wide ground water monitoring programs was formed in late 1997. This subcommittee is working to maximize resources to provide the best monitoring coverage of the state.

5.3 Significant State Ground Water Program Developments

Table 5-1 shows a Summary of State Ground Water Protection Programs. The following items summarize some of the recent ground water developments that are underway in Alabama:

Table 5-1 Summary of State Ground Water Protection Programs

Programs or Activities	Check	Implementation Status	Responsible State Agency (1)
Active Sara Title III Program	X	Fully established	EPA/ADEM/FOD/EMA
Ambient ground water level monitoring program	X	Fully established	GSA
Aquifer vulnerability assessment	X	Fully established Being updated	ADEM/GWB
Aquifer mapping	X	Fully established	GSA
Aquifer characterization	X	Fully established	GSA
EPA-Endorsed Core Comprehensive State Groundwater Protection Program	X	Fully established	ADEM/GWB
Ground water discharge permits	X	Established in UIC Regs.	ADEM/UIC
Ground water Best Management Practices			
Ground water legislation			
Ground water classification		Established in UIC Reg Definition	ADEM/UIC
Interagency coordination for ground water protection Initiatives		Continuing efforts	ADEM/GWB
Non-point source controls	X	Ongoing education	ADEM/FOD
Pesticide State Management Plan	X	Under review	ADAI
Pollution Prevention Program	X	Fully established	ADEM/OEO
Resource Conservation and Recovery Act (RCRA) Primacy	X	Fully established	ADEM/HWB
Source Water Assessment Program	X	Fully established	ADEM/WSB
State Superfund	X	Fully established	ADEM/LD
State RCRA Program incorporating more stringent requirements than RCRA Primacy	X	Fully established	ADEM/HWB
State septic system regulations	X	Fully established	ADPH
Underground storage tank installation requirements	X	Fully established	ADEM/GWB
Underground Storage Tank Remediation Fund	X	Fully established	ADEM/GWB
Underground Storage Tank Registration Program	X	Fully established	ADEM/GWB
Underground Injection Control Program	X	Fully established	ADEM/GWB/OGB
Vulnerability assessment for drinking water/wellhead protection	X	Fully established	ADEM/GWB
Well abandonment regulations	X	WSB Regs & Guidelines	ADEM/WSB GWB
Wellhead Protection Program (EPA-approved)	X	Fully established	ADEM/WSB
Well installation regulations	X	Fully Established	ADEM/WSB
State Ground Water Program	X	Statute Based Program	ADEM/GWB
NPDES Permits for Land Application Sites	X	Fully established	ADEM/MUN/IIND
Subtitle D Solid Waste Program	X	Fully established	ADEM/SWB
Ground Water Use	X	Fully established	ADECA/WRD

1. ADEM = AL Dept Env Mngt, FOD = Field Operations Division, GWB = Ground Water Branch, WSB = Water Supply Branch, LD = Land Division, HWB = Hazardous Waste Branch, OEO=Office of Education and Outreach, SWB=Solid Waste Branch, MUN=Municipal Branch, IND=Industrial Section GSA = Geological Survey of Alabama, ADPH = AL Dept. of Public Health, ADAI = AL. Dept. Agriculture & Industries, OGB = Oil & Gas Board; ADECA=Alabama Department of Economic and Community Affairs, Office of Water Resources, EPA= Environmental Protection Agency, EMA= Emergency Management Agency

- Implementation of the Source Water Assessment Program within the ADEM Water Supply Branch regulations.
- Implementation of guidance for Risk Based Corrective Action (RBCA) for petroleum fuels.
- ARBCA approach for releases other than petroleum related fuels that are regulated under the State Ground Water Program was developed and is in draft and being tested.
- Initiation of a ground water quality database for reporting.
- The deadline for UST upgrades with spill, overfill and corrosion protection was December 22, 1998. Tanks should have been upgraded, replaced with a new system or permanently closed by this date. The compliance rate with these regulations is increasing with continuing enforcement of these requirements.
- A contract was signed with the Geological Survey of Alabama, in September 1997, to revise a series of 13 Aquifer Vulnerability Reports. These reports are being revised by updating geologic names and terms to match the most recent state mapping, revising vulnerability maps from 1:250,000 scale to 1:100,000 scale, revising the vulnerability rating methods, update information on public supply wells and to include text, maps, and figures in an electronic CDROM format and GIS interactive maps. Area 13 (Baldwin and Mobile Counties), Area 10 (Washington, Choctaw and Clarke Counties), Area 5 (Coosa, Cleburne, Clay, Randolph, Tallapoosa, Chambers and Lee Counties), Area 11 (Covington, Escambia, Monroe, Clarke, Butler and Crenshaw Counties), and Area 4 (Jefferson, St. Clair, Calhoun, Talladega and Shelby Counties) have been completed and published as a compact disc. Area 2 has completed the review process and will be available for distribution in 2006. Area 7 is under going review and should be available in late 2006.
- Regulations have been developed by ADEM and implemented to deal with Concentrated Animal Feeding Operations (CAFOs). Hydrogeologic site evaluations and ground water monitoring requirements have been included in the regulations as part of siting and operation requirements for CAFO lagoons and land application sites.
- The U.S. Geological Survey has completed the National Water Quality Assessment that includes significant parts of Alabama's Mobile River and Lower Tennessee River Basins.
- The Alabama Department of Public Health has completed its on-site sewage regulations. These regulations go into effect on March 9, 2006.

5.4 Summary of Ground Water Contamination Sources

5.4.1 Reporting Area

Previous 305(b) reports have documented the Physiographic Provinces of the Highland Rim,

Cumberland Plateau, and Coastal Plain. The Alabama Department of Environmental Management has selected the Alabama Valley and Ridge physiographic section in Alabama for evaluation during the 2006 reporting period. The Piedmont province will be reported on in 2008 and will complete the total physiographic and geographic coverage of Alabama. These aquifers in the reporting area are significant sources of drinking water supplies for private residential use as well as for municipalities. Counties included in the reporting area in whole or part are Bibb, Blount, Calhoun, Cherokee, Chilton, Cleburne, Coosa, Etowah, Jefferson, Shelby, St. Clair, Talladega, and Tuscaloosa. Data contained in Table 5-2 and 5-3 were queried and retrieved by county. Some overlap of data from physiographic districts not included in the reporting area is shown where the above mentioned counties that do not lie wholly within the report's selected physiographic districts.

5.4.2 Data Review and Compilation

Hydrogeologists from the ADEM Ground Water Branch are assigned to the major ground water regulatory programs as part of the Comprehensive State Ground Water Protection Program. The information contained in Table 5-2, Ground Water Contamination Summary, was researched from ADEM's electronic databases and prepared by the hydrogeologists assigned to each of the programs listed under the Source Type column.

5.4.3 Superfund CERCLIS and DOD Sites

ADEM's Land Division works with EPA and the Department of Defense to manage these types of sites. Three (3) facilities identified in Table 5-2 are listed on the National Priority List (NPL).

The CERCLIS listings include three (3) non-NPL sites located in the report area. These are sites where State and Federal Funds have been used to conduct preliminary and secondary assessments by ADEM and EPA. Two (2) of the three sites have had confirmed releases of contaminants into groundwater.

Three Department of Defense Sites (DOD) are listed in Table 5-2. The ongoing site assessments are being funded by the Defense Environmental Restoration Fund.

5.4.4 Underground Storage Tank Program

The largest category of sites listed in Table 5-2 is underground storage tanks (UST). These sites are managed by the ADEM Ground Water Branch. Assessment and clean up of eligible sites is funded through the State UST Trust Fund. Many of the cleanups listed include free product, source and soil removals. Active ground water remediation systems are also included. Most of these cleanups involve gasoline spills and leaks, but also include diesel and fuel oils. These petroleum fuels include soluble compounds such as Benzene, Ethyl Benzene, Toluene, Xylene (BETX), Polynuclear Aromatic Hydrocarbons (PAH's), Methyl Tertiary Butyl Ether (MTBE) and lead that affect ground water quality. Monitoring for MTBE at UST sites has been required since 1996. A monitoring effort for all public water supplies for MTBE was conducted in 2000.

Table 5-2. Ground Water Contamination Summary

Source Type	Number of Sites	Number of Sites that are listed and/or have confirmed releases	Number with confirmed ground water contamination	Contaminants	Number of Site Investigations (optional)	Number of sites that have been stabilized or have had the source removed	Number of sites with corrective action plans (optional)	Number of sites with active remediation (optional)	Number of sites with cleanup completed (optional)
NPL	3	3	3	Metals, VOCs, SVOCs, Hydrocarbons, Nitroaromatics, Perchlorate	1	2		1	
CERCLIS (non-NPL)	3	2	2	VOCs, Metals	1			1	
DOD/ DOE	3	3	3	VOCs, SVOCs, Metals, Nitroaromatics, Hydrocarbons	23	1	1	1	0
Brownfield & VCP Sites	20	18	13	Metals, VOCs, SVOCs, PCBs, BTEX, Hydrocarbons	25	5	3		5
Drycleaning Trust Fund	6	5	5	VOCs, Petroleum distillates	2				
UST	5,464	586	586	BETX, MTBE, PAHs, Lead		586	109		108
RCRA Corrective Action	22	22	21	VOCs, SVOCs, RCRA Metals, Pesticides, Herbicides, Sulfate, Chloride	22	14	10	7	1
Underground Injection	67	0	0	Hydrocarbons, Metals					
State Sites	95	84	72	VOCs, SVOCs, Metals, Herbicides, Pesticides	25	20	15	9	5
Solid Waste	22	22	22	VOCs, SVOCs, Metals	Remainder of sites are in detection monitoring				
Totals	5,705	745	727		99	628	138	19	119

Hydrogeologic Setting: Annuchee Ridge, Birmingham-Big Canoe Valley, Cahaba Ridges, Cahaba Valley, Coosa Ridges, Coosa Valley, and Wiesner Ridge Districts of the Alabama Valley and Ridge Section of Alabama Valley and Ridge Physiographic Section Map Available: See Figure 5-1. Data Reporting Period: 2004-2005.

5.4.5 Hazardous Waste Management Program (RCRA)

Twenty two (22) hazardous waste sites (RCRA) were identified in the study area. The ADEM Land Division manages these sites. These sites include extensive assessment, permitting and reporting requirements. Releases associated with these sites are persistent and difficult to assess and remediate. Compounds such as Chlorinated Volatile Organic Compounds (VOCs), and Non-Aqueous Phase Liquids (Dense and Light) associated with Wood Treating Activities are present in many instances and have properties that make remediation problematic.

5.4.6 Alabama Brownfield & Voluntary Cleanup Program

The ADEM's Land Division administers the Brownfield Redevelopment and Voluntary Cleanup Program pursuant to the Alabama Land Recycling and Redevelopment Act, Code of Alabama 1975, § 22-30E-4. The Program provides a mechanism for the implementation of a cleanup program that encourages applicants to voluntarily assess, remediate, and reuse rural and urban areas with actual or perceived contamination. Twenty (20) sites are located within this study area.

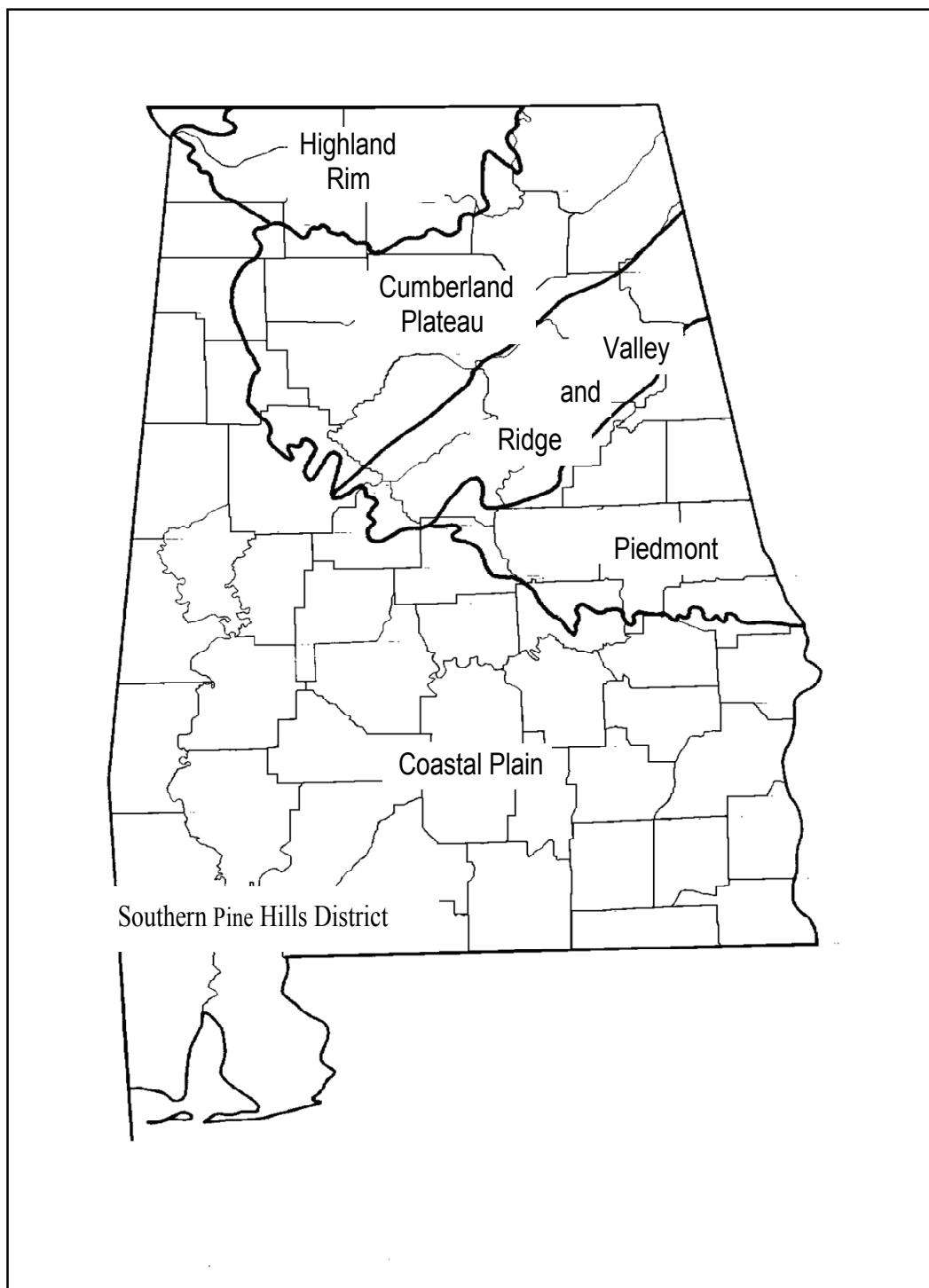
5.4.7 Alabama Drycleaning Trust Fund Program

The ADEM's Land Division administers the Alabama Drycleaning Environmental Response Trust Fund Program pursuant to the Alabama Drycleaning Environmental Response Trust Fund Act, Code of Alabama, 1975, § 22-30D-1 et. seq. The Program established: (1) the performance standards for facilities brought into use after May 24, 2003, (2) a schedule for the retrofit of facilities that were in existence prior to May 24, 2000, (3) the criteria required for reporting a suspected release or site discovery, and (4) the requirement for initial investigation, assessment, and remediation of contamination.

5.4.8 Underground Injection Control Program

The Underground Injection Control (UIC) program is managed by the ADEM Ground Water Branch. Each Class V UIC facility in the State is required to operate under an individual performance based discharge permit issued by the UIC Program. The UIC program reviews permit applications, issues individual performance based discharge permits for all Class V facilities, and inspects and tracks Class V facilities for compliance. In this reporting area, permits are issued to Class V facilities for the subsurface injection of treated wastewater from various industrial and commercial activities, and for the injection of materials intended to aid remediation at existing contamination sites. Some types of activities that are permitted and regulated by the UIC Program include discharges from clustered on-site sewage WWTPs, coal washing operations at coal mines, poultry processors, laundromats, truck and car washes, and other industrial or commercial activities. State Underground Injection Control regulations prohibit the discharge from a Class V injection well from causing an exceedance of MCLs in receiving groundwater. Class I and Class IV UIC wells are prohibited in the State, and Class II injection wells are managed by the State of Alabama Oil and Gas Board. One Class III operation is located in the State, outside of this reporting area.

Figure 5-1 Alabama Ground Water Provinces



5.4.9 State Ground Water Program

State Ground Water Program sites are those that are not regulated by established programs such as RCRA, UST, UIC or CERCLA. Sites such as releases from bulk petroleum storage tanks, pipelines, and otherwise unregulated chemical spills are assessed and remediated using the authority of the Alabama Water Pollution Control Act (AWPCA). Releases from these sites are in many cases reported by the responsible party through company initiated environmental audits or are discovered as a result of real-estate assessments during property transactions. Other ground water incidents are discovered and reported to the Department by citizens or discovered through inspections. Assessment and cleanup of these sites is required to be conducted by the responsible party. Many types of contaminant releases have been addressed by this program.

5.4.10 Ambient Monitoring Network

Aquifer monitoring data listed in Table 5-3. and 5-4 was evaluated for counties in the study area. The monitoring data were obtained from the Geological Survey of Alabama (GSA) and from ADEM's computer databases. The GSA maintains an ambient ground water level monitoring network throughout the state. Four hundred ninety (490) sites are monitored in the fall for water levels. Fifty of these water level sites are springs. Seventy-eight sites are located within the Valley and Ridge Province of Alabama. Fifty of these sites are wells, 28 are springs where discharge measurements are made. In Jefferson and Tuscaloosa Counties, the GSA operates a continuous recording water level station. Table 5-5 shows the Estimated Groundwater Withdrawals For Selected Alabama Counties 2004

5.5 Summary of Groundwater Quality

5.5.1 Physiography

The physiographic section in this 305(b) Report is the Alabama Valley and Ridge. It includes several valley and ridge districts. From west to east, the districts are the, Birmingham-Big Canoe Valley, the Cahaba Ridges, the Cahaba Valley, the Coosa Ridges, the Coosa Valley, Armuchee Ridge, and the Weisner Ridges. Twelve counties in Alabama contain one or more of these valley and ridge districts. The counties are Bibb, Blount, Etowah, Cherokee, Chilton, Cleburne, Coosa, Jefferson, Shelby, St. Clair, Talladega, and Tuscaloosa. (Figure 5-1)

Birmingham-Big Canoe Valley District

Altitudes in the Birmingham-Big Canoe Valley range from about 500 feet in Jefferson County to about 600 feet in St. Clair County. Drainage is generally west to southwest into the Black Warrior River tributaries across Jefferson County; St. Clair County drainage is primarily east to Big Canoe Creek which flows to the Coosa River.

Cahaba Ridges District

The Cahaba Ridges trend northeast through parts of Shelby, Jefferson, and St. Clair Counties. Altitudes in the Cahaba Ridges range from about 300 feet in Shelby County to about 1,100 feet in St. Clair County. Drainage from the ridges is southeast to the Cahaba River which flows along the eastern edge of the ridges.

Cahaba Valley District

The Cahaba Valley district lies to the east of the Cahaba River and extends northward into St. Clair County east of the Birmingham-Big Canoe Valley district. Altitudes in the Cahaba Valley range from 300 feet in Shelby County to 700 feet in St. Clair County and drainage is generally west to the Cahaba River.

Coosa Ridge District

The Coosa Ridge district lies east of the Cahaba Valley and consists mainly of the Double Oak Mountains with altitudes as high as 1,400 feet. Westward drainage off the mountains is generally into the Cahaba River tributaries; east-ward drainage is primarily into Coosa River tributaries.

Coosa Valley District

The Coosa Valley district extends from the Coosa Ridge district on the west to the Weisner Ridge district and Piedmont Upland section on the east. Altitudes of about 400 and 500 feet dominate the Coosa Valley west of the Coosa River; but east of the Coosa River, altitudes in the valley range from about 500 feet to as much as 1,540 feet. Drainage from the Coosa Valley district is primarily into the Coosa River.

Armuchee Ridge District

The Armuchee Ridge district in Cherokee County has topography controlled by geology and is characterized by a series of relatively narrow, linear ridges. These ridges trend northeastward and have altitudes of about 1,500 to 1,600 feet.

Weisner Ridge District

The Weisner Ridge district, located in the northeastern corner of Talladega County and the eastern part of Calhoun County, consists primarily of the Choccolocco and Coldwater Mountains. Drainage from the Weisner Ridge district is into tributaries of the Coosa River, namely Choccolocco, Terrapin, and Tallassee hatchee Creeks.'

5.5.2 Geology

The geology of the reporting area, along with the diverse physiography, is quite complex due to large-scale tectonic activity, most of which took place during the Appalachian orogeny. The reporting area is in the Appalachian fold and thrust belt which consists of shallow marine to deltaic Paleozoic sedimentary strata that were deposited on a continental platform (Thomas, 1985). Paleozoic metasedimentary rocks crop out along the southeastern border of the area, and are separated from the fold and thrust belt by the Talladega fault.

5.5.3 Hydrogeology of the Major Aquifers

The geologic formations of a representative area within the Alabama Valley and Ridge physiographic section designated as Area 4 are in Figure 5-2. The formations can be grouped into three major aquifers and one minor aquifer—the Valley and Ridge aquifer system; the Mississippian aquifer system (consisting of the Hartselle, Bangor, and Fort Payne-Tusculumbia aquifers); the Pottsville aquifer; and the metasedimentary and metavolcanic aquifers. The Monteagle aquifer is included within the Mississippian aquifer system. Figure 5-3 shows

Aquifers in Alabama.

The complex geologic structure of the reporting area has disrupted the regional continuity of rock units so that major aquifers or aquifer systems exhibit disjunctive distributions. Aquifers consisting of limestone, sandstone, and fractured rock are exposed in valleys that are separated by ridges. A given major aquifer may be present in adjacent valleys, but the two valleys may not be hydraulically connected because of faulting or folding. Most high-yield aquifers are carbonates, and the highest yields are from wells that penetrate interconnected dissolution cavities. Most rocks within the valleys are covered by a mantle of residuum, which is the product of the weathering of the underlying parent material. The presence of a mantle of residuum may or may not be permeable. It allows water to occur under either water-table or artesian conditions within the aquifers. Most carbonate aquifers are productive not because of primary porosity but because they contain networks of fractures that have been enlarged by dissolution. The dissolving waters enter the rock units from the surface, which means that, in general, porosity and permeability decrease with depth. Johnston (1933) recommended that wells drilled in lithified carbonates be abandoned if an adequate supply of water is not encountered within the first 200 feet of depth. The ridges dividing the valleys and the rock types that cap them are as follows: Weisner ridges, quartzite; western edge of the Northern Piedmont, slate; Cahaba ridges, sandstone and conglomerate; and Blount Mountain, sandstone. These rocks are highly resistant to weathering, are not significantly faulted, and are relatively impermeable.

Valley and Ridge Aquifer System

The Valley and Ridge aquifer system is found in the Coosa, Cahaba, Birmingham-Big Canoe, and Murphrees Valleys. Formations included in this aquifer system are the Weisner Formation; Shady Dolomite; Conasauga Formation; Copper Ridge and Chepultepec Dolomites; and the Longview, Newala, Lenoir, and Little Oak Limestones. In some areas the Copper Ridge, Chepultepec, Longview, and Newala are united as the Knox Group. This aquifer system includes in the western part of Area 4 (Shelby County) the Ketona, Brierfield, and Bibb Dolomites. In the southeastern part of Area 4, the Sylacauga Marble Group is also included in the Valley and Ridge aquifer system. Most other rock units of Cambrian to Devonian age are included within the Valley and Ridge aquifer system because they do not form effective barriers to ground water movement among permeable units of the Valley and Ridge aquifer system. However, these other units also are not significant sources of ground water. The Valley and Ridge aquifer system is the Knox-Shady aquifer of Planert and Pritchett (1989) and the Valley and Ridge aquifer system of Moore (1998).

As an indication of the variability of potential yield of water from the Valley and Ridge aquifer system, the maximum yields for wells and springs, respectively, are given for the counties where the aquifer is used: Calhoun, 1,100 gpm (gallons per minute) and 32.0 mgd; Jefferson, 750 gpm and 3.6 mgd; St. Clair, 400 gpm and 3.2 mgd; Shelby, 1,600 gpm and 0.8 mgd; and Talladega, 400 gpm and 6.9 mgd (Planert and Pritchett, 1989). A potentiometric map of the Valley and Ridge aquifer system can be used to estimate regional trends of ground water movement in the unit.

Mississippian Aquifer System

The Mississippian aquifer system is roughly equivalent to the Tuscumbia-Fort Payne aquifer of Planert and Pritchett (1989) and to the combined Bangor, Hartselle, Monteagle, and Fort Payne-Tuscumbia aquifers of Moore (1998). The Mississippian aquifer system is found in the Cahaba, Birmingham-Big Canoe, Murphrees, and Coosa Valleys. Formations included in the Mississippian aquifer system are the Fort Payne Chert, Tuscumbia Limestone, Hartselle Sandstone, Bangor Limestone, and Monteagle Limestone (but not in Area 4) of Mississippian age. The five formations listed are united in a single aquifer system for two reasons. First, they are not separated by impermeable strata on a regional scale; on lithologic grounds, they are inferred to contain a single interconnected ground water system. Second, further evidence for the unity of the Mississippian aquifer system is provided by ground-water level measurements, which define a single potentiometric surface in Area 4 for this group of aquifers.

To illustrate the variability of the Fort Payne-Tuscumbia aquifer's potential, note the maximum yields for wells and springs, respectively, for the counties where the aquifer is used: Jefferson, 1,200 gpm and 0.2 mgd; and St. Clair, 250 gpm and 2.2 mgd (Planert and Pritchett, 1989).

Pottsville Aquifer

The youngest Paleozoic aquifer in Area 4 is the Pottsville aquifer, which consists of the Pottsville Formation. The Pottsville Formation is not a reliable source of large amounts of ground water, but for much of Areas 3 and 4, and parts of Areas 1 and 2, it is the only aquifer available. Ground water in the Pottsville aquifer is found chiefly in fractures and weathered zones; primary porosity is not an important part of the aquifer (Stricklin, 1989). In addition, ground water in the Pottsville aquifer is commonly confined by sharp permeability contrasts within the aquifer (Stricklin, 1989). The Pottsville yields small quantities of water suitable for domestic use almost everywhere it is exposed in Area 4 (Johnston, 1933). Yields typically are less than 10 gallons per minute per well.

5.5.4 General Statement of Ground Water Quality and Vulnerability

The source of recharge to the major aquifers in the reporting area is rainfall. Alluvial and terrace deposits along major streams overlie parts of the recharge areas for the major aquifers of this report. The various aquifers principally receive recharge from their outcrop areas within the various counties in the study area. All recharge areas for the major aquifers are susceptible to contamination from the surface.

For more information about Groundwater, contact Mr. Whit Slagle in ADEM's Montgomery Office at (334) 271-7831 or cws@adem.state.al.us

Table 5-3 Aquifer Monitoring Data

Monitoring Data Type	Total No. of Wells Used in the Assessment	Parameter Groups	Number of Wells						
			No detections of parameters above MDLs or background levels	Nitrate concentrations range from background levels to less than or equal to 5 mg/l	Nitrate ranges from greater than 5 to less than or equal to 10 mg/l	Parameters are detected at concentrations exceeding the MCLs	Re-moved from service	Special Treatment	Back-ground parameters exceed MCLs
			No Detects above the method detection limit	Number of wells in sensitive or vulnerable areas (Optional)	Nitrate \leq 5 mg/L VOC, SOC, and Other parameters not detected	Number of Wells in Sensitive or Vulnerable Areas	Other parameters are detected at concentrations exceeding the MCLs		
Ambient Monitoring Network		Manganese	26						
		NO ₃	99						
		Antimony	4						
		Chlorides	157						
		Iron	46						
		TDS	196						
Raw Water Quality Data from Public Water Supply Wells	NOT AVAILABLE								
Finished Water Quality Data from Public Water Supply Wells					111				

Hydrogeologic Setting: Armuchee Ridge, Birmingham-Big Canoe Valley, Cahaba Ridges, Cahaba Valley, Coosa Ridges, Coosa Valley, and Wiesner Ridge Districts of the Alabama Valley and Ridge Physiographic Section (See Figure 1)

Reporting Period: years 2004 and 2005 (2000 and 2001 for Ambient Monitoring Network)

Table 5-4 Basic Tables by Category, Totals, Overall by categories, by County - Alabama, 2000

Basic Tables by Category, Totals, Overall by categories, by County - Alabama, 2000																		
Water withdrawals (Mgal/d)																		
County	Public Supply		Commer- cial	Domestic	Industrial		Thermoelectric		Mining		Livestock	Aquaculture		Irrigation	Total			
	Fresh	Saline			Fresh	Saline	Fresh	Saline	Fresh	Saline		Fresh	Saline		Fresh	Saline		
Bibb	3.78			0.22	0		0					0		0	4			
Blount	2.55			0.38	0		0					0		0	2.93			
Calhoun	18.8			0.97	1.28		0					0		0	21.05			
Cherokee	1.2			0.18	0		0					0		0.01	1.39			
Chilton	2.11			1.1	0.49		0					0		0.01	3.71			
Cleburne	0.06			0.81	0.62		0					0		0	1.49			
Coosa	0.01			0.3	0		0					0		0	0.31			
Eto- wah	3.91			1.24	0		0					0		0	5.15			
Jefferson	3.9			4.95	0.3		0					0.43		0	9.58			
Shelby	11.19			2.39	0		0					0		0.35	13.93			
St. Clair	5.54			1.97	0		0					0		0.1	7.61			
Talladega	7.06			2.54	1.51		0					0		0	11.11			
Tuscaloosa	3.37			4.32	0.35		0					0.75		0.43	9.22			
Total:	63.48			21.37	4.55		0					1.18		0.9	91.48			

Table 5-5 Estimated Groundwater Withdrawals For Selected Alabama Counties 2004

County	Public	Non-Public	Irrigation	Total GW Use	% Public	% Non-Public	% Irrigation
Bibb	1202.821292	-	-	1202.821292	100.00%	0.00%	0.00%
Blount	1021.7988	-	-	1021.7988	100.00%	0.00%	0.00%
Calhoun	422.3341	355.5436	-	777.8777	54.29%	45.71%	0.00%
Cherokee	718.6418	-	-	718.6418	100.00%	0.00%	0.00%
Chilton	545.7133	89.5968	39.2175	674.5276	80.90%	13.28%	5.81%
Cleburne	20.0105	225.6408	-	245.6513	8.15%	91.85%	0.00%
Coosa	18.3	-	-	18.3	100.00%	0.00%	0.00%
Etowah	49.6474	-	-	49.6474	100.00%	0.00%	0.00%
Jefferson	2774.2105	144.936	874.58	3793.7265	73.13%	3.82%	23.05%
Shelby	4728.961341	-	37.905	4766.866341	99.20%	0.00%	0.80%
St. Clair	1959.9005	-	21.5752	1981.4757	98.91%	0.00%	1.09%
Talladega	2004.505	454.9407	0.25048	2459.69618	81.49%	18.50%	0.01%
Tuscaloosa	282.2528	264.984	-	547.2368	51.58%	48.42%	0.00%
Totals	1574909.73%	153564.19%	97352.82%	1825826.74%	86.26%	8.41%	5.33%

Source: Tom Littlepage, Alabama Office of Water Resources, ADECA, 2004 Water Use Reporting Data

Figure 5-2 Physiography of Area 4 (modified from Planert and Prichett, 1989)

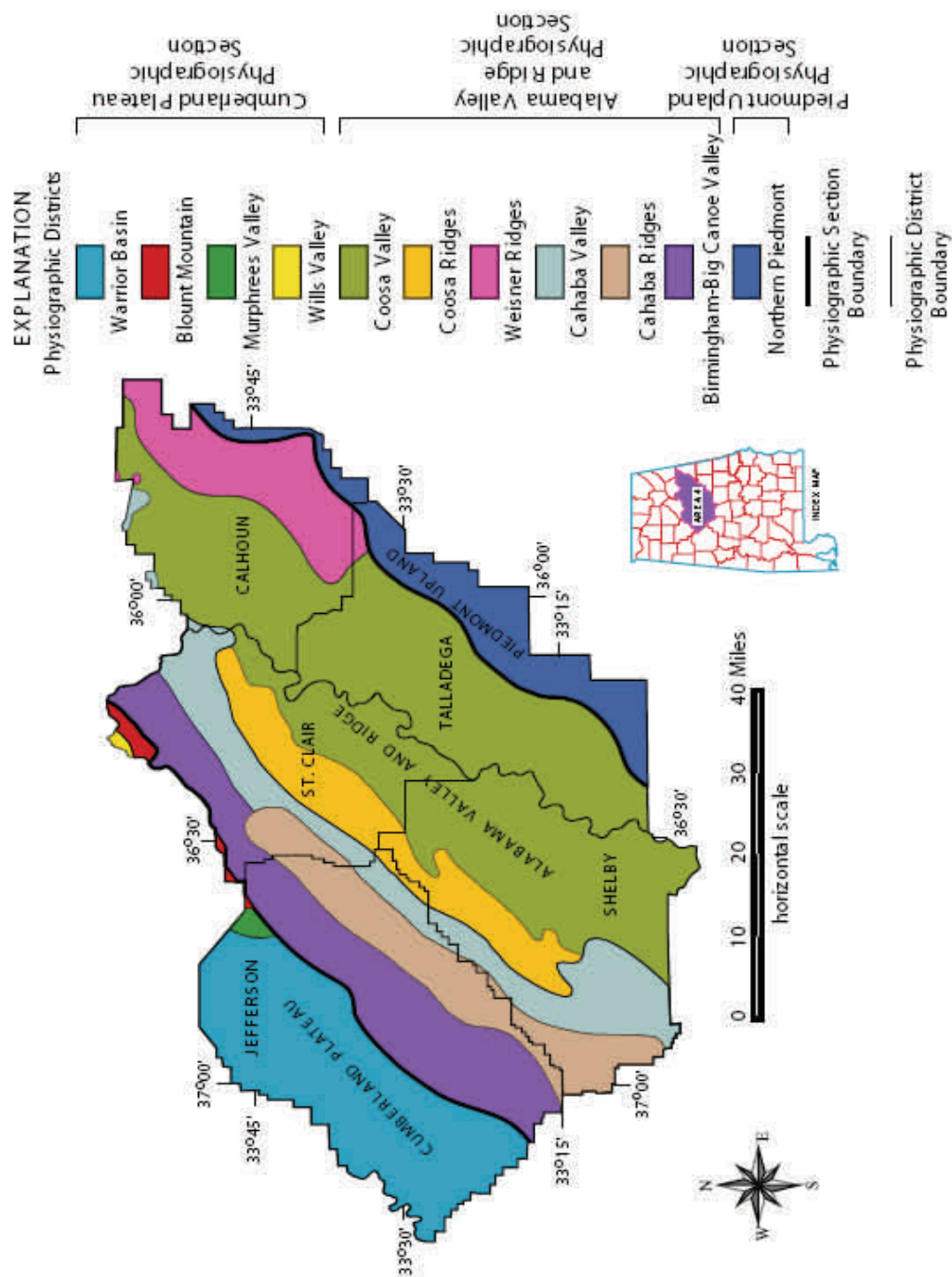
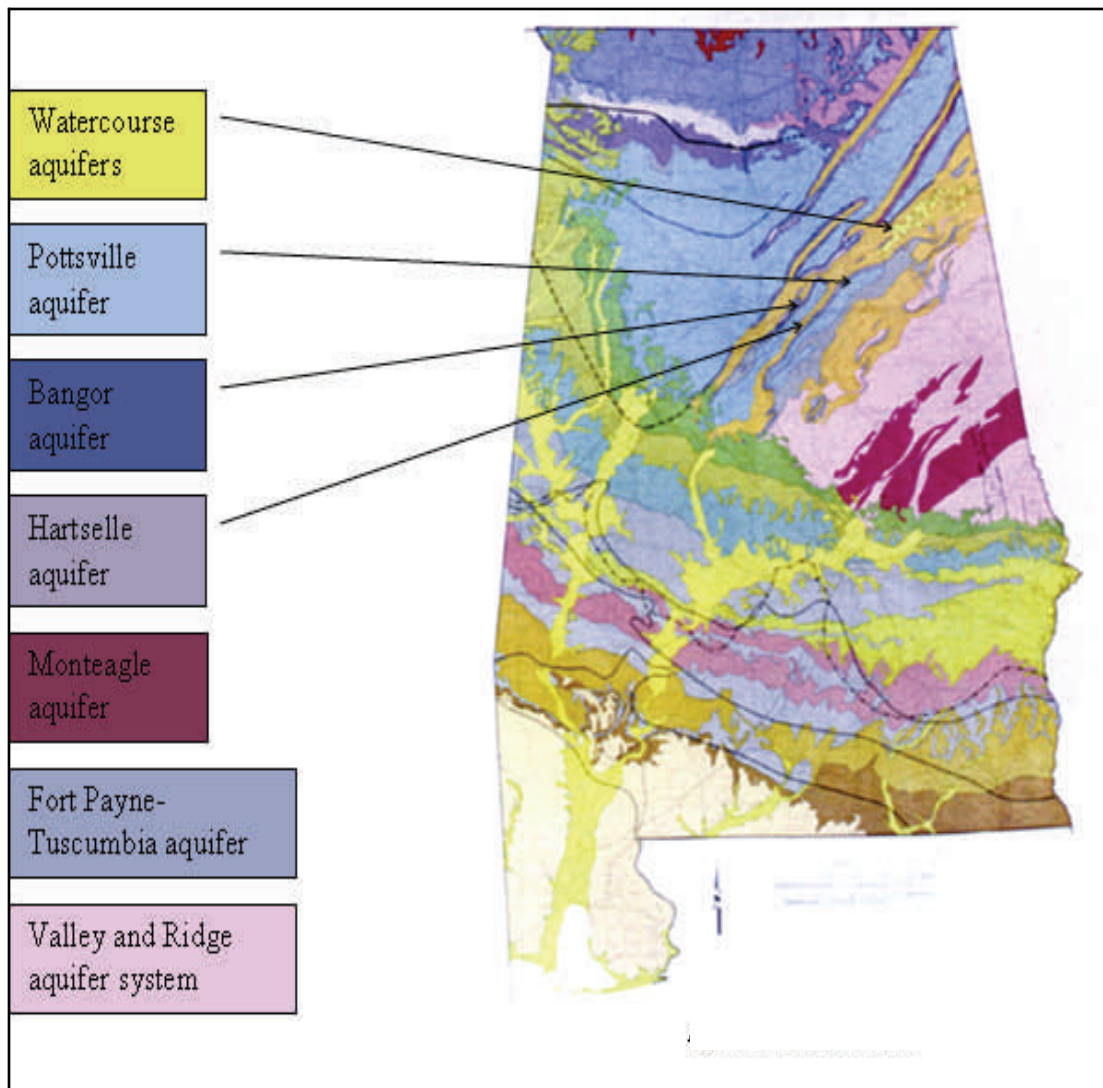


Figure 5-3 Aquifers in Alabama



Chapter 6 Coastal Waters

6.1 Alabama Coastal Nonpoint Pollution Control Program (ACNPCP)

In June 1998, the NOAA-Office of Coastal and Resource Management (OCRM) and USEPA awarded conditional approval to the Alabama Coastal Nonpoint Pollution Control Program (ACNPCP). Since achieving conditional approval, ADEM has developed the ACNPCP, seeking full program approval, and to ensure that program components are implemented to the maximum extent practicable. The approved Management Area is inclusive of the sub-watersheds of the Escatawpa, Mobile-Tensaw, and Perdido Sub-Basins, that are contained within the geo-political boundaries of Baldwin and Mobile Counties.

ADEM continues to work with ADCNR-State Lands, NOAA-OCRM, USEPA and other State and federal agencies to coordinate the Alabama Coastal Nonpoint Pollution Control Program (ACNPCP). ADEM submitted the, ACNPCP: 2003 Submission Documentation; Response to NOAA/EPA Conditional Approval Items; July 31, 2003, wherein the State described new and expanded program components that demonstrate an approvable ACNPCP. This submission included a 250 page description with over 500 supporting documents, which include statewide and coastal projects and programs that have been developed or tailored to address the ACNPCP management measures. This documentation was augmented by the submission of the ACNPCP: Response to “Final Administrative Changes” Guidance; ACNPCP 2003 Submission Support Document; October 31, 2003, that provided the enforcement policy, long term strategy and implementation planning documentation requested by the federal review agencies to complete their approval review process. The State has just received the joint NOAA/EPA Interim Decision Document for Unapproved Conditions of ACNPCP (February 16, 2005) that outlines recommended actions to help the State gain federal approval and allow full program implementation.

The ACNPCP utilizes partnerships with Federal, State and Local agencies, businesses, organizations and decision makers to influence the implementation of items necessary to achieve program approval and operation. The ACNPCP has facilitated the development of a broad-based Technical Advisory Committee (TAC), the Coastal Alabama Nonpoint Source Resources Matrix (Matrix) and the Coastal Alabama-Clean Water Partnership. The ACNPCP also works with the ADEM-319 program to address nonpoint source pollution management program needs and issues. These various forums are being utilized to enhance coordination and cooperation regarding coastal water quality resources management. NOAA-OCRM, USEPA, ADEM-319, ADCNR-State Lands, and many other agency environmental partners have helped to further administrative coordination and interagency cooperation.

ADEM is currently engaged in many ongoing projects pertinent to the ACNPCP that monitor and promote the effectiveness of nonpoint source pollution controls, CZARA-§6217

management measures and program approval criteria. ADEM developed the Monitoring Plan for the ACNPCP; Mobile and Baldwin Counties, Alabama. This plan incorporates monitoring activities being conducted through ADEM, within the ACNPCP Management Area. ADEM staff continue extensive field monitoring efforts to conduct Land Use Category (LUC) BMP Surveys, Targeted Water Quality Studies, inspections of construction and mining operations, and Targeted Watershed Studies within the ACNPCP Management Area. The ACNPCP is currently concluding a targeted Marina BMP Survey and initiating a Targeted Agriculture Water Quality Study, within the Management Area. ADEM monitoring continues to focus on a watershed approach by monitoring targeted sub-watersheds that impact the coastal waters of Alabama. The new coastal sub-watershed survey is to be conducted for the Fowl River, sub-watershed (HUC 03160205-030), in Mobile County, Alabama. These watershed surveys are a key component of the ACNPCP Five-Year Implementation Plan and 15-Year Strategy Plans. The data from many of these activities are utilized to develop database and GIS information applications that support the ACNPCP. Figure 6-1 shows the ACNPCP Management Area.

For more information about Alabama's Coastal Nonpoint Pollution Control Program, contact Randy C. Shaneyfelt in ADEM's Mobile Office at (251) 450-3408 or rcs@adem.state.al.us.

6.2 Surface Water Monitoring Program

Seven monitoring programs were in place during the reporting period to monitor the quality of Alabama's coastal waters. First, described in ADEM's Technical Report entitled "Water Quality and Natural Resource Monitoring Strategy For Coastal Alabama" (March 1993) is a statistically based long-term monitoring program with probabilistically chosen stations distributed throughout Mobile Bay, Mississippi Sound, Perdido Bay, Mobile River, Tensaw River and the Mobile River Delta. The monitoring program's design is based on the USEPA's Environmental Mapping and Assessment Program (EMAP) and ADEM's knowledge of its estuarine system. The strategy provides a design that allows unbiased estimates of the status of Alabama's coastal water environment as a whole or within each of seven sub-areas (regions) and will allow long-term statistical trends to be identified by once-per-year sampling during a summer index period. This program was incorporated into the Alabama's "ASSESS (ADEM's Strategy for Sampling Environmental indicators of Surface water quality Status) Program" as Coastal ALAMAP (ALAMAP-C) in October 1997. Sampling has recurred annually since 1993.

In 1998 concerns about seasonal nutrient level variation occurred. At that time ADEM developed the ALAMAP QUARTERLY program (ALAMAP-Q). ALAMAP-Q supplements ALAMAP-C efforts by collecting additional water column nutrient data with the objective of measuring nutrient stressors on a seasonal basis. Figure 6-2 and Table 6-1 shows the Active Coastal Trend Stations. Table 6-2 provides a Coastal Alamacp Conventional Parameter Sampling Summary. A report similar to ALAMAP's March 1998 publication, A Report on the Condition of the Estuaries of Alabama in 1993-1995: A Program in Progress, summarizing additional data collections, will be published in the future.

Third, the State's monitoring efforts, water quality data is also gathered by the volunteers of the Baywatch Citizen's Volunteer Water Quality Monitoring Program as administered by the Alabama Coastal Foundation.

Figure 6-1 ACNPCP Management Area

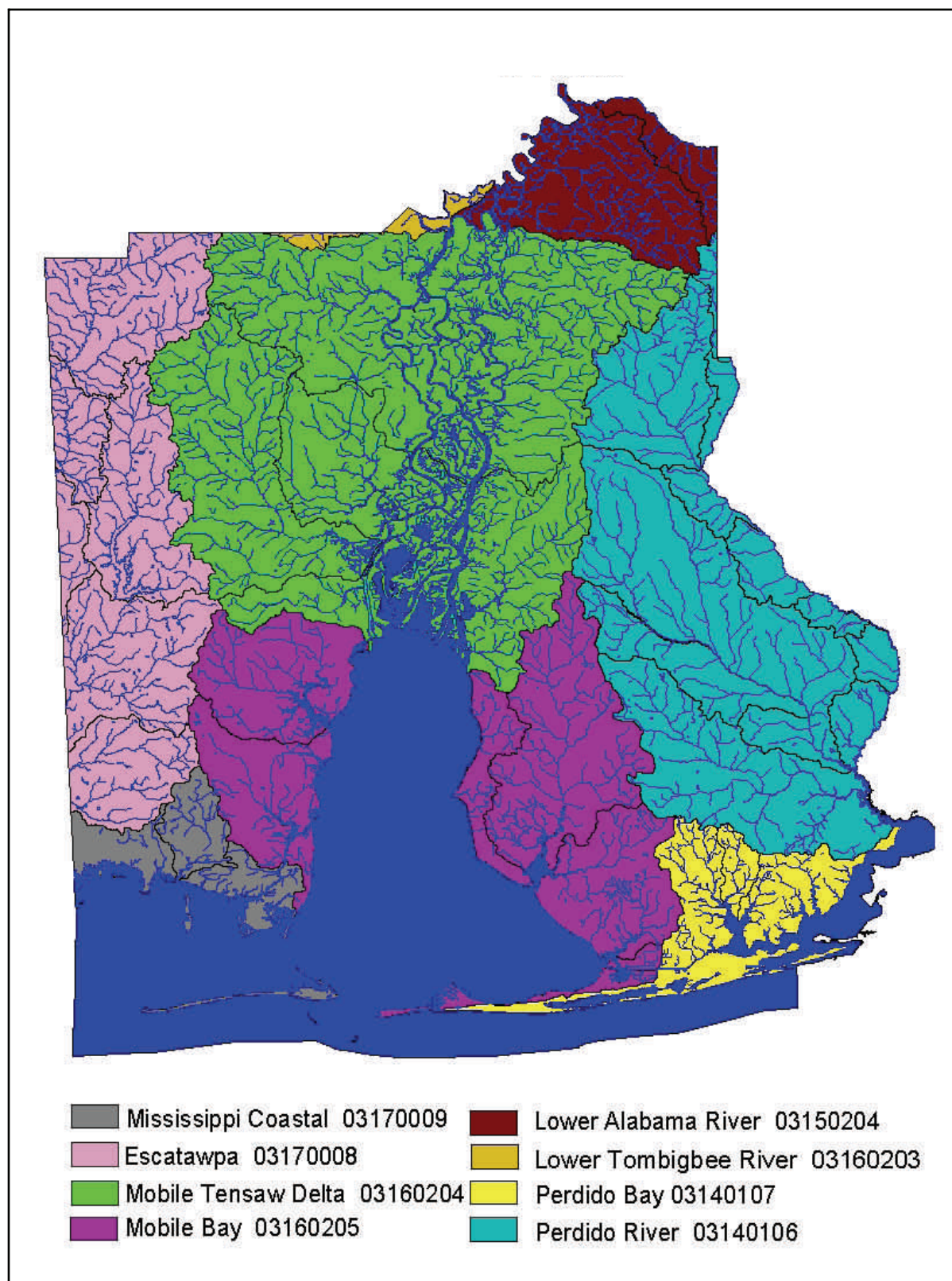


Figure 6-2 Active Coastal Trend Stations

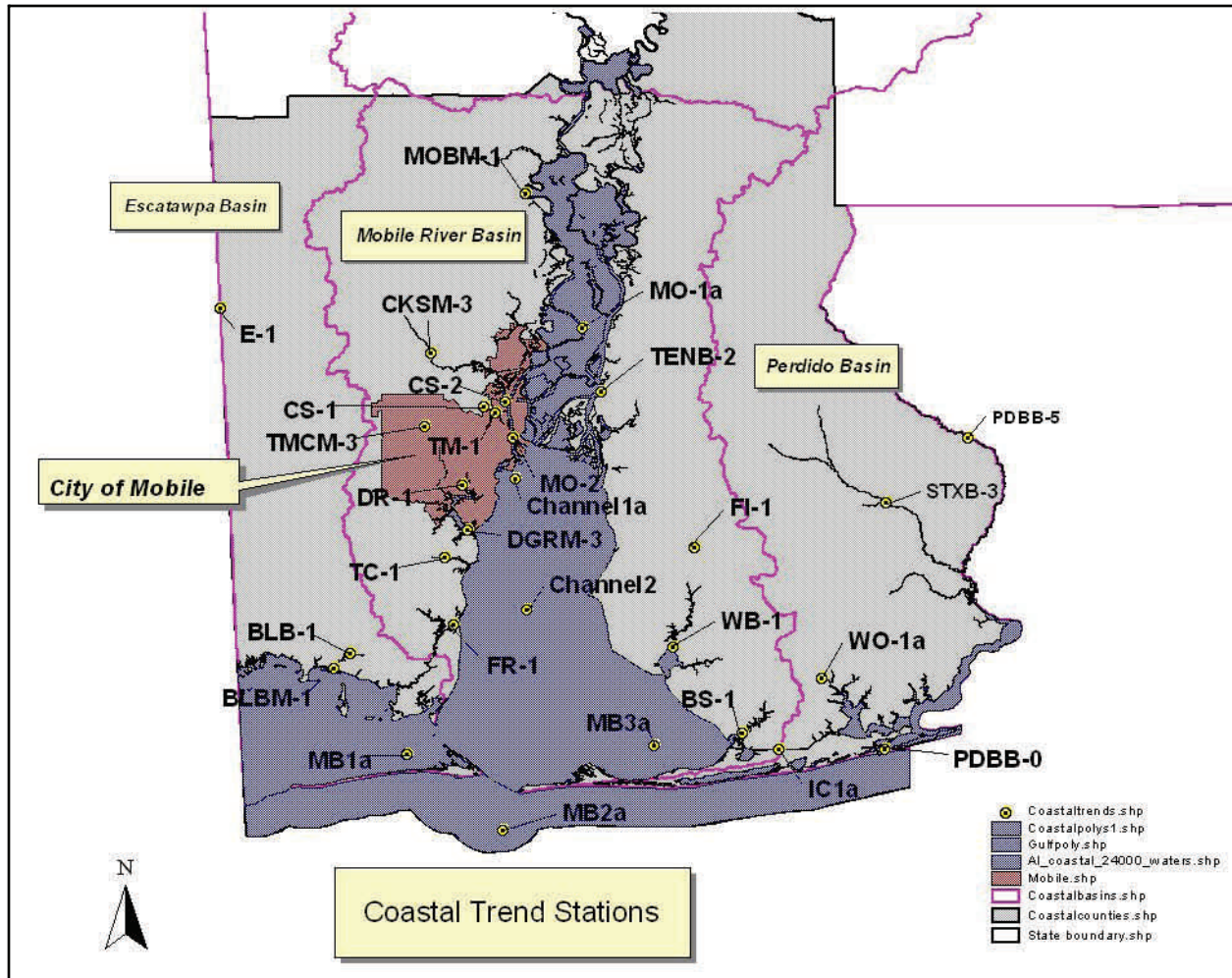


Table 6-2 Coastal Almap Conventional Parameter Sampling Summary

2004 NCA: DO, Ph, & Temperature Summary
Dissolved Oxygen Violations were 18% (9 of 50 stations) with 5.0mg/L as criteria
Dissolved Oxygen Violations were 8% (4 of 50 stations) with 4.0 mg/L as criteria
Ph Violations were 0% (0 of 50 stations) below 6 or above 8.5 pH
Temperature violations were 2% (1 of 50 stations) above 90F (32.2C)

Table 6-1 Active Coastal Trend Stations

Station	Station Location	Latitude	Longitude
BLB-1	BAYOU LA BATRE @ AL HWY 188	30.405556	-88.248056
BLBM-1	Bayou La Batre in channel next to light approx. 0.4 miles uPSTREAM of mouth	30.3867	-88.27
BS-1	BON SECOUR RIVER NEAR BON SECOUR	30.301389	-87.735417
Channel1a	Mobile Ship Channel just south of Arlington ship channel @ channel marker 76	30.63637	-88.03165
Channel2	Mobile Ship Channel south of Galliard Island @ channel marker 51	30.46424	-88.01657
CKSM-3	Chickasaw Creek @ State Highway 158	30.80297	-88.14334
CS-1	CHICKASAW CREEK @ NORTH SIDE U.S. HWY 43 BRIDGE CROSSING	30.73258	-88.0733
CS-2	CHICKASAW CREEK @ NORTH SIDE CSX R xR CROSSING @ CONFLUENCE WITH MOBILE RIVER	30.73911	-88.04561
DR-1	DOG RIVER @ LUSCHER PARK BOAT LAUNCH NEAR I-10	30.628611	-88.101389
DGRM-3	Dog River in main channel approx. 0.6 miles uPSTREAM from State Highway 163	30.57	-88.095
E-1	ESCATAWPA RIVER @ U.S. HWY 98 (MOFFAT ROAD) NEAR MISSISSIPPI	30.86241	-88.41769
FI-1	FISH RIVER @ U.S. HWY 104	30.545417	-87.798611
FR-1	FOWL RIVER @ HWY 193	30.444028	-88.113333
IC1a	Intracoastal Waterway @ State Highway 59	30.2793	-87.687
MB1a	Intracoastal Waterway on east side of Portersville Bay @ buoy 25	30.27308	-88.17317
MB2a	Mobile Ship Channel just south of Sand Island Light in the Gulf of Mexico @ buoy 10	30.1718	-88.04895
MB3a	Intracoastal Waterway in Bon Secour Bay @ channel marker 127	30.28407	-87.85137
MO-1a	MOBILE RIVER @ CSX R xR CROSSING	30.836667	-87.944722
MO-2	MOBILE RIVER @ GOVERNMENT STREET (BANKHEAD TUNNEL)	30.690833	-88.035556
MOBM-1	Mobile River @ APCO water intake (near Bucks @ doppler gage)	31.0137	-88.01853
PDBB-0	Perdido Bay @ approx. 0.25 miles us of State Highway 182 bridge	30.27968	-87.54948
PDBB-5	Perdido River @ Duck Place Rd. on AL/FL line (off State Highway 112)	30.69047	-87.44026
STXB-3	Styx River @ Baldwin County Rd. 87 (near Elsanor)	30.60532	-87.547
TC-1	THEODORE INDUSTRIAL CANAL @ HWY 193 (RANGELINE ROAD)	30.533333	-88.123889
TENB-2	Tensaw River approx. 0.3 miles ds of power line (near Blakely Park and Steam Mill Landing)	30.75291	-87.91987
TM-1	THREE MILE CREEK BETWEEN U.S. HWY 43 & R xR CROSSING	30.724028	-88.059028
TMCM-3	Three Mile Creek @ Spring Hill Ave.	30.7063	-88.15111
WB-1	WEEKS BAY @ U.S. HWY 98 (MARINA)	30.4147	-87.82575
WO-1a	WOLF CREEK @ SWIFT CHURCH ROAD	30.373611	-87.6325

Fourth, Alabama is a partner with the U.S. EPA in its National Coastal Assessment (NCA). NCA is a multi-year partnership among EPA's Office of Research and Development (ORD), EPA's Office of water (OW), EPA's Regional Offices, all coastal states, and selected territories. As part of this effort, ORD has developed a coastal monitoring program with EPA Region 4 and the Alabama Department of Environmental management (ADEM). This joint effort will determine the condition of estuarine waters in the coastal resources of Alabama, and allow comparison to other U.S. coastal areas. The ORD National Health and Environmental effects Research Laboratory's Gulf Ecology Division in Gulf Breeze, Florida is coordinating this effort. NCA is a strategic partnership between EPA and the coastal states and other Federal Agencies. Each state uses a compatible probabilistic design and a common set of environmental indicators to survey its coastal resources and assess their condition. These estimates can then be aggregated to assess conditions at the EPA Regional, biogeographical, and national levels. All data will be made available for public access on the Internet. Fifty sampling locations in Alabama's coastal area have been determined by NCA. Each of these locations was sampled during the summers' 2000 - 2003 index periods and will continue to be sampled through 2004. NCA and ALAMAP-C programs were designed to work together so that the condition of geographical sub-areas within Alabama's coastal area can be assessed with known confidence. Additional intensive ALAMAP - C locations are sampled during the same index period. One hundred forty (140) NCA / ALAMAP-C sites were sampled during 2000, one hundred sixty-six (166) NCA / ALAMAP-C sites were sampled in 2001, one hundred twelve (112) NCA / ALAMAP-C sites were sampled in 2002, and one hundred twelve (112) NCA/ALAMAP-C sites were sampled in 2003.

The Coastal Alabama Recreational Water Quality Monitoring Program (Beach Monitoring) is the fifth monitoring program in place during the reporting period. In June of 1999, the Alabama Department of Environmental Management (ADEM), in cooperation with the Alabama Department of Public Health (ADPH), initiated a program to routinely monitor bacteria levels at five select swimming beaches on the Gulf Coast. The effort was later expanded to include six additional sites along the Gulf Coast and Mobile Bay. In October of 2000 the federal Beaches Environmental Assessment and Coastal Health (BEACH) Act was signed into law. This act mandates the monitoring and assessing of coastal recreational waters and the prompt notification of the public when applicable water quality standards are not being met. The act also authorizes EPA to award grants to help governments implement monitoring and notification programs consistent with published EPA guidance and criteria. The ADEM was designated as the State's lead agency and was awarded grant money to carry out this program. Through the BEACH Act, the ADEM and the ADPH have greatly expanded and enhanced monitoring and notification efforts for Alabama's public recreational waters. The goal of this program is to increase public awareness and provide valuable water quality information to help the public make more informed decisions concerning their recreational use of Alabama's natural coastal waters. The program now involves the routine collection of water samples from 24 high use and/or potentially high risk public recreational sites from Perdido Bay to Dauphin Island. The selection of sites and the frequency of sampling are determined using a risk based evaluation and ranking process. This process considers a number of factors for a given site, most importantly the amount of use and the amount of risk. Depending on the site, samples are collected twice per week, once per week or once every other week during the swimming season (June through September) and once per month during the cooler months. The samples are

analyzed for the indicator bacteria *Enterococci*. These bacteria, by themselves, are not considered harmful to humans but often occur in the presence of potential human pathogens. The indicator bacteria used and the threshold concentration, which triggers an advisory, are based on recommendations provided by the EPA in the documents *Ambient Water Quality Criteria for Bacteria* (1986) and *Water Quality Standards Handbook*, second addition (1983). The Mobile Branch of ADEM conducts sampling and fecal coliform analyses while the ADPH also conducts sampling and performs *Enterococcus* analyses, and is responsible for issuing swimming advisories when necessary. All test results are posted on the ADEM website, www.adem.state.al.us and advisories are publicized through press releases and posted on signs at each of the 24 sampling locations. The results also appear in the Friday editions of the *Mobile Press Register* during the summer month. As of August 15, 2003, 2,017 samples had been collected, since the inception of the Beach Program, resulting in 32 advisories being issued by the ADPH. Approximately 800 samples were collected during fiscal year 2003 resulting in 25 advisories by ADPH.

Sixth, during May 2001, the ADEM published the Contingency Plan for Monitoring and Response of Marine Biotoxins, *Pfiesteria* and Other Harmful Algal Blooms. This effort, funded by a grant from EPA Region IV (cooperative agreement #CP984885-00-0), established protocol for routinely sampling Alabama's coastal area for phytoplankton and responding to HABs. Monitoring under this program allows for more timely detection of changes in phytoplanktonic populations in Alabama's Gulf waters which may lead to possible prediction of the presence, movement, and growth of HABs. One hundred thirty-four (134) samples were analyzed during the period January 2002 through March 2003. This ongoing effort is accomplished through cooperation between the ADEM, the ADPH, and the ADCNR-MRD and Dauphin Island Sea Lab.

Seventh, fourteen of the State's current twenty one mercury related fish consumption advisories are in Mobile and Baldwin Counties. As a supplemental project to the State's Fish Tissue Monitoring Program, the Mobile Branch Office is in the process of analyzing fish tissue samples from five sites in Mobile Bay and one site in Little Lagoon. These fish were collected by the Marine Resources Division (MRD) of the Alabama Department of Conservation and Natural Resources as part of an age and growth study. MRD gathered lengths, weights, and otoliths (bones used for aging) and delivered the fresh carcasses to the Mobile Office to be processed for tissue analysis. Species being analyzed include: speckled trout, white trout, flounder, redfish, spanish mackerel, striped mullet, and ground mullet. Unlike the Department's main Fish Tissue Monitoring Program, these samples will only be analyzed for mercury. Coastal watershed studies are the final component of the monitoring programs in place during the reporting period. The Mobile Branch developed a document entitled "Methodology for Coastal Watershed Assessments" in April 2001. This document presents a more comprehensive approach to the Coastal Watershed Assessment Program by providing a basic framework to ensure consistency among the different studies conducted while still remaining flexible enough to apply to all watersheds and their priority issues. The Branch completed a one-year survey of the Bay Minette Creek, Fly Creek, and Three Mile Creek subwatersheds in Mobile and Baldwin Counties during December of 2003. The survey focused on impervious surface cover for the three watersheds with an aim towards determining water quality correlation with impervious surface cover across three regimes – heavily impacted, moderately impacted, and slightly

impacted. The report is currently being compiled and should be printed later this year. A two year study of the Bay Minette Creek subwatershed commenced in January of 2003 and is ongoing.

6.3 Coastal Assessment

6.3.1 Eutrophication

Hypoxic and anoxic conditions are common in Alabama's coastal waters and are generally most prevalent during the summer months. Naturally occurring conditions combine to result in frequently stressed water quality conditions marked by stratification with low dissolved oxygen. These conditions include: relatively shallow water depths found in all of Alabama's open bays and sounds; low average wind and tidal energies; variable fresh water inflow; and constricted tidal passes. This persistent pattern of hypoxia manifests itself in "Jubilees", an infrequently occurring summer condition in Mobile Bay that results when winds blowing from the mainland drive surface waters from shore, causing deeper, poorly oxygenated water to move into the shallows. Fish, shrimp and crabs get caught in the poorly oxygenated water and generally rise to the surface in stress. The Jubilee phenomenon was first recorded in 1821 indicating that its underlying causes are naturally occurring. At this time it has not been determined if anthropogenic sources exacerbate those underlying causes.

6.3.2 Habitat Modification

Alabama's coastal counties are experiencing tremendous population growth. Statistics indicate that the population of Baldwin County increased from 115,266 in 1994 to 132,828 in 1998 and 140,415 in 2000. Between 1990 and 2000, the Baldwin County population increased by 42.9%. The population of Mobile County increased from 393,826 in 1994 to 399,429 in 1998 to 399,843 in 2000. Between 1990 and 2000, the Mobile County population increased by 5.6%. Much of that growth is occurring within Alabama's defined coastal area, particularly in Baldwin County where there has been explosive growth in the beach communities of Orange Beach and Gulf Shores and on the Eastern Shore of Mobile Bay. The area of west Mobile, inside and outside of the current city boundary, is undergoing rapid commercial and residential development. Sedimentation from erosion at the numerous construction sites and the increased post development storm water runoff have placed a heavy burden on the receiving streams in the area increasing the incidence of flooding and stream bank erosion. All of Alabama's estuarine waters are being affected by this population growth.

Applications to the Department for coastal permits and certifications are growing, particularly in terms of complexity. Many of these applications propose projects that would have significant adverse impacts to coastal resources if approved as proposed. Projects having direct and significant adverse wetland impacts are routinely reviewed by Department personnel pursuant to the provisions of ADEM Administrative Code R.335-8 (Coastal Program) and Section 404 of the Clean Water Act. Generally, permits are issued for projects having wetland impacts only if all of the following conditions are satisfied.: the activity is related to an existing or approved water dependent use, or use of regional benefit or related to an approved beach nourishment, shoreline stabilization or marsh creation, restoration or enhancement project,

elimination of dead-end canals or boat slips exhibiting poor water quality or other similar beneficial use, no other feasible alternatives exist; impacts to wetlands on the project site have been minimized by project design, and mitigation is incorporated into the project proposal.

There have been no coastal area wide surveys completed of wetland acreage for submersed aquatics, tidal emergence, or swamp forest during the reporting period. Due to the State's restrictive approval process, including mitigation requirements, it is believed that wetland losses that do occur are minimal for those wetlands regulated by the program and that other losses that may occur are due to natural erosion, unpermitted activities, and minimal losses due to Nationwide permitting by the U.S. Army Corps of Engineers.

ADEM's Coastal/Facility Unit is working with other governmental entities to support wetland and submersed aquatic vegetation status and trend identification. At this time, both Mobile and Baldwin Counties have been flown and color infrared digital ortho-quarter quads have been produced. This imagery will be used to map wetlands and uplands in Mobile and Baldwin Counties.

Alabama's Coastal Program is compiling data on stabilized versus unstabilized shoreline miles. In general, the explosive coastal population growth has resulted in near continuous shoreline development, with certain areas developing more rapidly than others. The Gulf shoreline is unstabilized along its length in Alabama, except at the passes from interior estuarine waters to the Gulf of Mexico at Perdido Pass, Little Lagoon Pass, and on the eastern tip of Dauphin Island at the entrance to Mobile Bay.

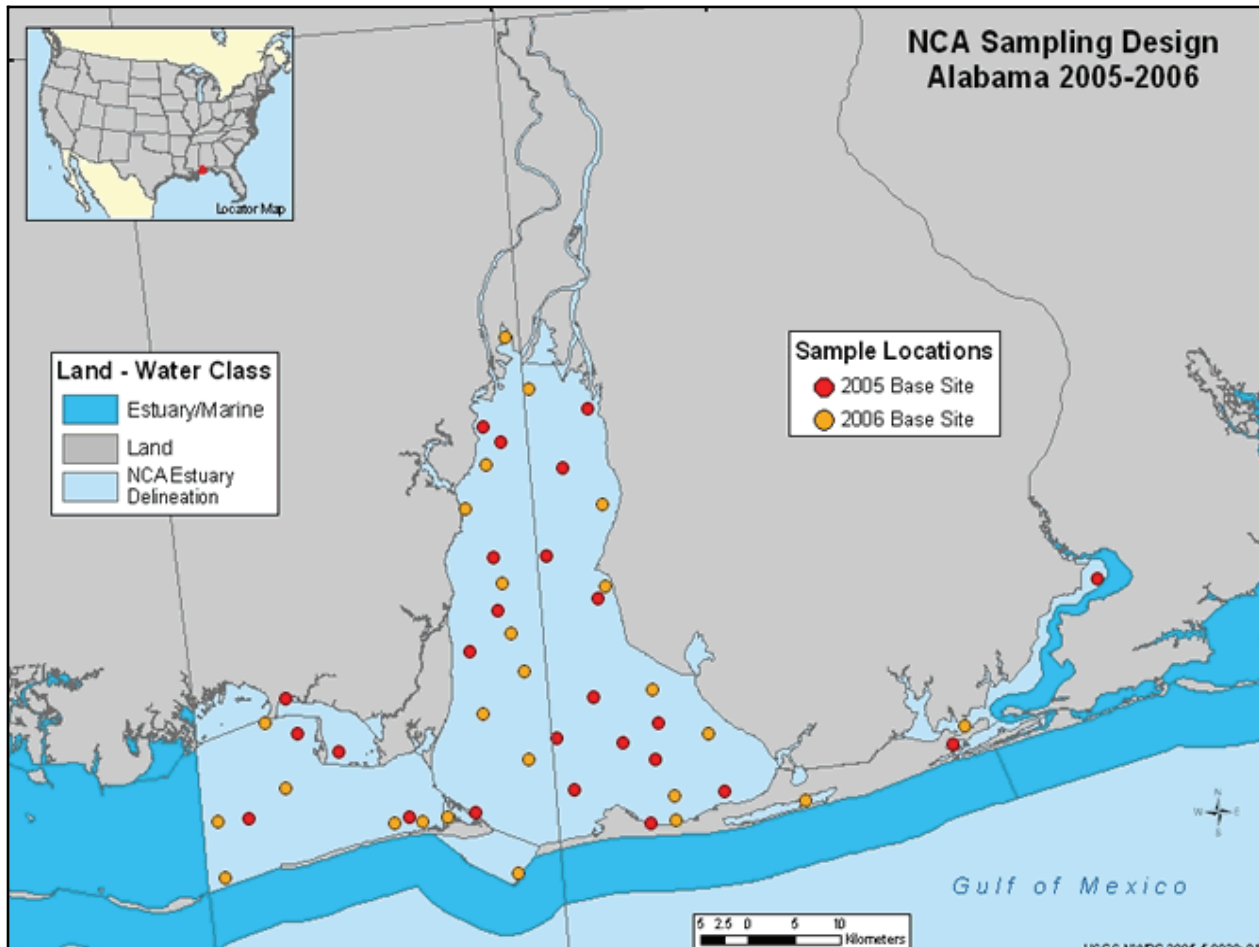
6.3.3 Changes in Living Resources

The Alabama Department of Conservation and Natural Resources-Marine Resources Division (ADCNR-MRD) manages Alabama's marine resources. According to ADCNR-MRD personnel, populations are cyclic and vary by species. Generally, population levels are all within expected levels and there are no significant declines observed, expected, or predicted. ADCNR oversees the replanting of oyster reefs and believes that there has been an increase in reef size over time. Brown Shrimp landings were below average in 2003; this is a synergistic effect of record rain falls during peak spawning which reduced available habitat and economic hardship impacting the size of the fleet. Blue crab landings were below average in 2003 (annual averages are 3.1 million pounds).

6.3.4 Toxic Contamination

The ADEM has conducted studies to determine metals enrichment in estuarine sediments and has sampled sediments in proximity to shipyards, petroleum storage terminals, and industrial point source discharges. Beginning in 1993 the ADEM implemented ALAMAP-C to provide a statistically defensible characterization of Alabama's coastal waters. Its parametrical coverage includes metals and selected organic compounds in estuarine sediments. During 2000, ADEM began sampling Alabama's estuarine sediments for toxicity and fishes for whole-body contaminants as part of the NCA program, described above. However, no statement is being made as to the extent of areas having elevated levels of toxicants because no state or EPA criteria for toxins in sediments exist. Figure 6-3 shows NCA 2005-2006 Sampling Sites.

Figure 6-3 NCA 2005-2006 Sampling Sites



6.3.5 Pathogen Contamination

In addition to the recreational beach monitoring discussed above, Alabama's coastal shellfishing waters are monitored for pathogens and are subject to closings, advisories, or warnings. During the reporting period, all of Alabama's oyster harvest areas were closed at one time or another through closing orders issued by the State Health Officer of the Alabama Department of Public Health.. Those orders were issued when excess fresh water entered Mobile Bay from the Mobile River. Information on Shellfish Harvesting Area Closures/Reopenings, Fish Advisories are included in the chapter on Public Health.

6.3.6 Other State Coastal Activities

1. National Estuary Program

The ADEM is an active participant in the Mobile National Estuary Program (Mobile NEP). Staff are involved on its various boards, committees, subcommittees, and workgroups.

2. Near Coastal Waters / Clean Water Partnerships

The ADEM continues to actively participate in Near Coastal Water projects and in the Coastal Alabama Clean Water Partnership.

3. Gulf of Mexico Program

The ADEM has continued its active participation in the Gulf of Mexico Program (GOMP) by participation on its various boards, committees, subcommittees, and workgroups, including the Policy Committee, Management Committee, and Focus Teams.

4. Other Related Activities

The Oil Pollution Act of 1990 has resulted in ADEM staff participation in many oil spill-planning efforts. Staff participates as co-chair and participants on committees of the United States Coast Guard's (USCG) Mississippi/Alabama Area Plan. Through its participation on the Region IV Rapid Response Team (RRT) and Response Technology Committee, ADEM has worked on dispersant use and in-situ burning plans for the RRT. Staff has gained experience from participation in both drills and real spill situations, including use of the Unified Command organizational structure.

For more information about Alabama's Coastal Assessment, contact in Mr. Joie Horn ADEM's Mobile Office at (251) 450-3418 or mjhorn@adem.state.al.us

Chapter 7 Nonpoint Source Management

7.1 Overview

Since 1989, the Alabama Nonpoint Source (NPS) Management Program has continued to respond to changes in CWA Section 319 grant guidelines, additional data and information, emerging technologies, and other water quality protection issues. Section 319 grants continue to provide funding to develop and sustain public/private partnerships, coordinate human and fiscal capital, and implement many and varied regulatory and voluntary NPS management measures. A program continues to promote long-term state and local stakeholder capacity to voluntarily implement management measures regardless of the availability of federal resources. Citizen involvement and development and implementation of TMDL/watershed-based protection plans continue to contribute to the implementation of NPS management program goals and objectives.

Table 7-1 Section 319(h) Nonpoint Source Grant Allocations

Fiscal Year	Federal	Non-Fed	Total
2005	3,891,251	2,623,000	6,514,251
2004	4,519,800	3,013,369	7,533,169
2003	4,547,000	3,031,333	7,578,333
2002	4,547,000	3,281,124	7,828,124
2001	4,522,400	1,293,200	5,815,600
2000	3,884,900	1,297,833	5,182,733
1999	3,910,500	2,608,182	6,518,682
1998	2,050,200	1,758,353	3,808,553
1997	1,952,617	1,895,154	3,847,771
1996	2,061,555	1,638,899	3,700,454
1995	2,260,758	2,138,310	4,399,068
1994	1,459,982	1,252,284	2,712,266
1993	1,114,940	1,033,960	2,148,900
1992	842,000	779,539	1,621,539
1991	614,814	281,443	896,257
1990	746,454	497,636	1,244,090
Total	\$42,926,171	\$28,423,620	\$71,349,791

The 1989 Alabama NPS Management Program was updated in 1999 and approved by EPA Region 4 in September 2000 (effective October 2000). The document can be used as a management tool to unify and integrate nonpoint source (NPS) interests, expertise, plans, and funding, i.e., it provides a framework for stakeholders to, “work off the same page.” It promotes a flexible, targeted, iterative, and broad-based approach to effectively and efficiently restore NPS impaired waters and prevent degradation of threatened or unimpaired waters. The document

also incorporates coastal management program efforts related to the Coastal Zone Act Reauthorization Amendment (CZARA), and the Weeks Bay National Estuarine Program (NEP) Management Plan. It is dynamic and may be updated as data and information is acquired, or as NPS problems are identified, priorities change, or needs emerge. It also serves as a NPS program reference document for this Integrated Report. It can be viewed or downloaded at: www.adem.al.us.

Annual federal CWA Section 319 appropriations to Alabama are shown in Table 7-1. Prior to 1999, grants were generally used as “seed” money to “kick-start” voluntary implementation of

nonpoint source (NPS) management practices. Since 1999, grant funding has generally targeted the development and implementation of the NPS components of TMDL and watershed-based management plans.

7.2 Progress and Challenges

Much progress has been made to protect water quality in Alabama, and water quality continues to improve. However, addressing NPS pollution is a special concern because; it is often difficult to ascertain sources and causes, education and outreach is deficient, funding is insufficient to address problems holistically, and management measures are generally voluntary. Unlike point source pollution, which may be relatively easily managed using a discharge permit/regulatory process, NPS pollution is primarily addressed through citizen education and outreach and voluntary implementation of environmentally protective and cost-effective management practices.

Many of Alabama's NPS pollutant load reduction practices and programs focus on "pollution prevention" or "source reduction." Nonpoint source pollution is primarily a "people problem." Management approaches support local stakeholder capacity to effect changes through voluntary implementation of practices. When NPS problems do occur, it is generally because of a lack of knowledge. Citizen education and outreach is - and will remain - a primary NPS pollution management tool.

Much effort and resources continue to be expended to develop and implement watershed-based plans. However, local stakeholder "buy-in" of plans that address Section 319 grant guideline "a-i" watershed plan elements continues to be an impediment to state efforts to promptly obligate grant funding. Reporting of NPS pollutant load reductions (specifically nitrogen, phosphorus, and sediment) has been impeded by deficiencies in water quality monitoring data and stakeholder computer model expertise. The ADEM Nonpoint Source Unit continues to address these issues by offering watershed plan development and computer modeling training and assistance to stakeholders. A NPS watershed plan development and "hands-on" pollutant load reduction modeling meeting was conducted in August 2005 in order to train about 40 watershed stakeholders. As load reduction data is generated, it is being input into EPAs Grant Reporting and Tracking Database (GRTS) system.

No single entity possesses adequate or complete authorities, staffing, expertise, or funding to address all aspects of NPS pollution. Therefore, NPS management requires much coordination between the public and private sector. The Alabama NPS Management Program has a formidable but achievable task of integrating many and varied interests and programmatic issues such as the NPDES permit program, groundwater protection, TMDLs, BMP implementation, and water quality monitoring and assessment. Cooperation and collaboration with will continue to be a program priority. As practical, stakeholders will continue to be intimately involved in all stages of the NPS decision-making process. Local stakeholders are also encouraged to assume ownership of local NPS problems and voluntarily provide for local solutions.

The Alabama Clean Water Partnership (ACWP) program has assumed a leading role in the state to coordinate, plan, and implement environmental protection and restoration efforts through non-regulatory means. The ACWP is composed of a diverse and inclusive coalition of public and private interest groups and individuals who work in collaboration to improve, protect, and preserve water resources and aquatic ecosystems. Additional information concerning the ACWP can be found at: www.cleanwaterpartnership.org.

The ADEM Outreach Branch assists NPS stakeholders with funding and resource materials. These efforts continue to identify, motivate, and sustain partnerships; provide education and outreach; and promote watershed plan development and implementation. Statewide NPS partnership initiatives include, but are not limited to, 1) Take Action for Clean Water; Nonpoint Source Education for Municipal Officials (NEMO) (Tel. 334-394-4350); and Broad-scale Communication and Forecasting for Environmental Quality (ref. WSFA-TV Montgomery and WKRG-TV Mobile websites, with a Birmingham TV station to be selected in 2006). Additional information concerning the Alabama NPS Management Program, Section 319 grant funding, or development and implementation of watershed plans, can be found in ADEM NPS Management Program Annual Reports, or obtained at: www.adem.al.us.

The Alabama Water Watch (AWW) is a statewide, voluntary, education and outreach program funded in part by Section 319, and coordinated by the Auburn University Department of Fisheries and Allied Aquacultures. It is a nationally recognized citizen-based organization and is frequently called upon by states and internationally for information regarding volunteer monitoring. The AWW Program and Alabama Water Watch Association conduct regularly scheduled meetings with ADEM to discuss environmental issues and citizen concerns. Additional information concerning the AWW program can be found at: www.alabamawaterwatch.org

Many statewide NPS management program efforts parallel coastal CWA Section 6217 implementation requirements and practices. The Alabama Coastal Nonpoint Pollution Control Program was submitted to NOAA and EPA in July 1995. NOAA and EPA issued conditional approval on June 30th, 1998. Additional program refinement and implementation will continue over a 15-year period, based on three 5-year planning periods. This program's focus is to improve coastal water quality within the management area of Mobile and Baldwin counties. This NPS pollution management program is being implemented using resources from many federal, state, and local programs, including Section 319 of the Clean Water Act, and the Alabama Coastal Area Management Program approved by NOAA under the Coastal Zone Management Act. Additional information concerning the coastal nonpoint pollution control is available at: www.adem.al.us.

The ADEM enjoys a good working relationship with many federal and state agencies including the USDA-NRCS (federal agricultural technical assistance and cost-share programs), and the State Soil and Water Conservation Committee and Districts (management practice implementation and watershed health assessments). In addition, Section 319 continues to work with other agencies to address wetlands (ADCNR), resource extraction (OSM; ADIR), on-site septage systems (ADPH), silviculture (AFC); and education and outreach (ACES) programs.

Table 7-2 Primarily NPS Impaired Waters That Are Fully Restored*

#	Waterbody Name	River Basin	County	Causes	Sources
1.	Short Creek	Black Warrior	Jefferson	Metals	Subsurface mining- abandoned
2.	Caney Creek	Mobile	Baldwin	Pathogens (Fecal Coliform)	Pasture grazing - Riparian
3.	Piney Creek	Tennessee	Limestone	OE/DO; Pesticides; Siltation	Nonirrigated crop prod.; Pasture grazing
4.	Dry Creek	Tennessee	Jackson	pH, Metals, Siltation	Subsurface mining- abandoned; Mine tailings - abandoned
5.	Hogue Creek	Tennessee	Jackson	pH, OE/DO, Nutrients	Subsurface mining- abandoned
6.	Rocky Branch	Tennessee	Jackson	pH, Siltation	Subsurface mining- abandoned
7.	Coon/Flat Rock Creek	Tennessee	Jackson	pH, Metals, Siltation	Subsurface mining- abandoned
8.	Town Creek	Tennessee	Lawrence	OE/DO	Nonirrigated crop prod.; Pasture grazing
9.	Black Warrior River/ (Bankhead Lake)	Black Warrior	Jefferson		Dam construction
10.	Town Creek	Tennessee	Lawrence	OE/DO	Nonirrigated crop prod.; Pasture grazing
11.	Broglen River	Black Warrior	Cullman	OE/DO	Urban runoff; Pasture grazing
12.	Eightmile Creek	Black Warrior	Cullman	Pathogens	Urban runoff; Pasture grazing
13.	Locust Fork	Black Warrior	Jefferson	OE/DO	Urban runoff, Pasture Grazing
14.	UT to Weiss Lake	Coosa	Cherokee	Ammonia	Urban runoff/storm sewers
15.	UT to Weiss Lake	Coosa	Cherokee	Nutrients	Agriculture
16.	UT to Weiss Lake	Coosa	Cherokee	OE/DO	Agriculture
17.	UT to Weiss Lake	Coosa	Cherokee	Pathogens	Agriculture
18.	Little Wills Creek	Coosa	DeKalb	Nutrients	Agriculture
19.	Intracoastal Waterway	Mobile	Baldwin	OE/DO	Urban runoff/storm sewers
20.	Mobile Bay	Mobile	Mobile	OE/DO	Urban runoff/storm sewers, Natural sources
21.	Big Creek	Tennessee	Limestone	OE/DO	Urban runoff/storm sewers, Natural sources
22.	Cane Creek	Tennessee	Marshall	Nutrients	Pasture grazing
23.	Mill Pond Creek	Tennessee	Marshall	Pathogens	Agriculture
24.	Mud Creek	Tennessee	Jackson	OE/DO	Agriculture

Implementation of the NPS components of total maximum daily loads (TMDL) continues to be a priority management program consideration. Section 319 grant funding has been/is integral to holistic TMDL/watershed-based management plan development and implementation. Table 7-2 and Table 7-3, identifies primarily NPS impaired streams have been removed from the 2000 or 2002 Section 303(d) lists. In Table 7-2, a waterbody is considered “fully restored” if all uses for the water are being met. In Table 7-3, a waterbody is considered “partially restored” if: (a) a water is impaired by more than one use, but is restored for one or more (but not all) of those uses, and (b) a water has a use that is impaired by more than one pollutant, but meets the criteria for one or more (but not all) of those pollutants. Additional TMDL information is available at www.adem.al.us.

7.3 Nonpoint Source Water Quality Assessments

The Alabama Nonpoint Source Management Program incorporates a 5-year rotational river basin water quality assessment strategy (Table 7-6). The rotational river basin assessment rationale is presented in Table 7-5. The approach depicted in Table 7-4 appears to be the most practical, timely, cost effective, and holistic manner to monitor water quality on a statewide basis. Figure 7-1 illustrates river basin geographic boundaries. Water quality study survey reports are available on the ADEM website at: www.adem.al.us.

The State Soil and Water Conservation Districts use Section 319 grant funding to assess the environmental “health” of each of Alabama’s 67 counties. Resource agencies, watershed

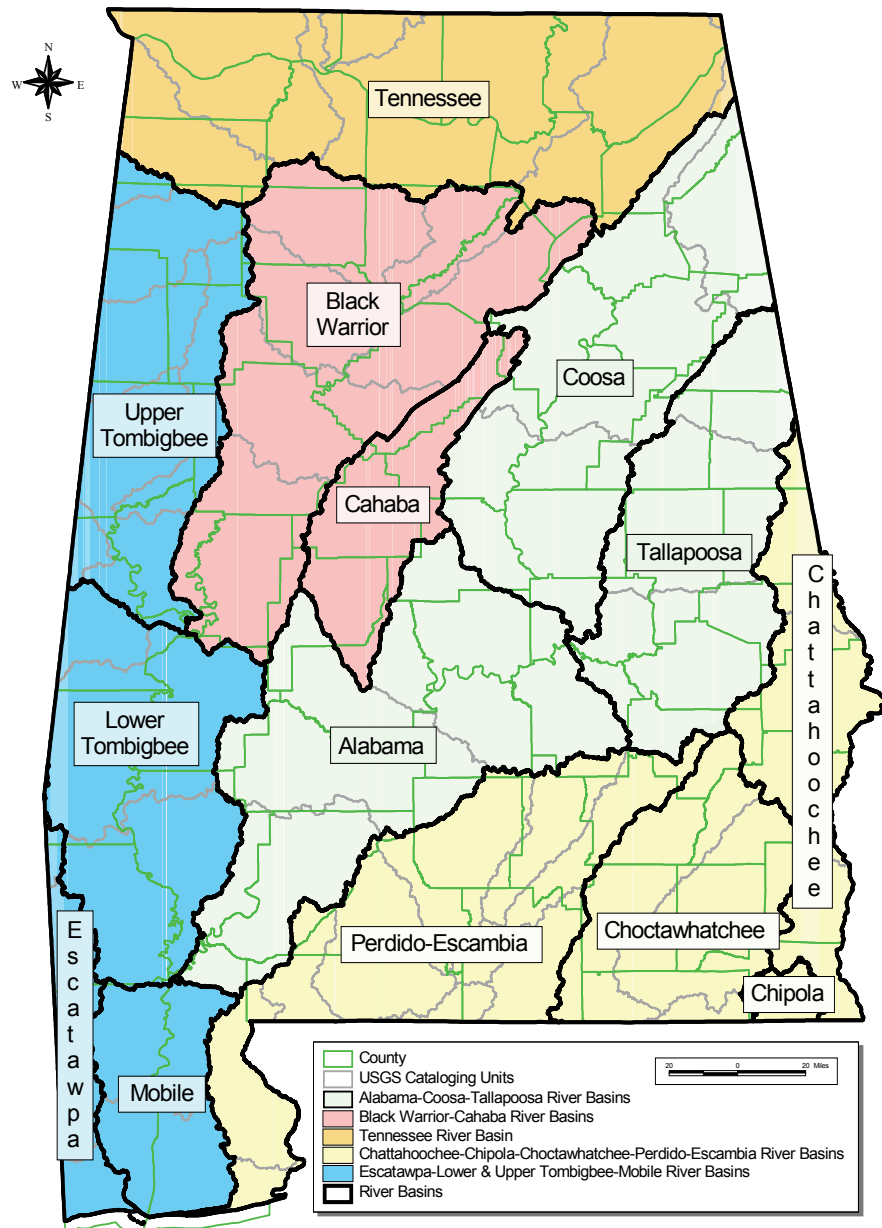
Table 7-3 Primarily NPS Impaired Waters That Are Partially Restored*

#	Waterbody Name	River Basin	County	Causes	Sources
1.	Camp Branch	Black Warrior	Jefferson	Metals	Surface mining-abandoned
2.	Shades Creek	Cahaba	Jefferson	OE/DO	Collection system failure, Hwy/road/bridge construc., Land development, Urban runoff/Storm sewers, Removal of riparian veg., Bank/shoreline modification
3.	Conecuh River	Perdido-Escambia	Covington	OE/DO	Nonirrigated crop prod., Flow reg/mod, Pasture grazing
4.	Conecuh River	Perdido-Escambia	Covington	Pathogens	Nonirrigated crop prod., Flow reg/mod, Pasture grazing
5.	Wolf Creek	Tallapoosa	Randolph	Ammonia, OE/DO	Int. animal feeding operations
6.	Second Creek	Tennessee	Lauderdale	OE/DO	Pasture Grazing
7.	Warren Smith Creek	Tennessee	Jackson	pH	Surface mining-abandoned
8.	Camp Branch	Black Warrior	Jefferson	Metals	Surface mining-abandoned
9.	Bayview Lake	Black Warrior	Jefferson	Organic Enrichment, Ammonia, and Pesticides	Municipal, Urban runoff/Storm sewers, Industrial, Spills, Surface mining-abandoned
10.	Shades Creek	Cahaba	Jefferson	Organic Enrichment	Collection system failure, Hwy/road/bridge construc., Land development, Urban runoff/Storm sewers, Removal of riparian veg., Bank/shoreline modification
11.	Conecuh River	Perdido-Escambia	Covington	Organic Enrichment and Pathogens	Nonirrigated crop prod., Flow reg/mod, Pasture grazing
12.	Dry Creek	Tennessee	Jackson	Siltation	Surface mining-abandoned
13.	Rocky Branch	Tennessee	Jackson	Siltation	Surface mining-abandoned
14.	Coon/Flat Rock Creek	Tennessee	Jackson	Siltation	Surface mining-abandoned, Mine Tailings-abandoned
15.	Alabama River (Claiborne Lake)	Alabama	Wilcox	Nutrients	Dam construction, Flow reg/mod
16.	Alabama River (Claiborne Lake)	Alabama	Wilcox	Nutrients	Dam construction, Flow reg/mod
17.	Alabama River (Claiborne Lake)	Alabama	Wilcox	Nutrients	Industrial, Nonirrigated Crop prod., Pasture Grazing
18.	Brindley Creek	Black Warrior	Cullman	OE/DO	Urban runoff/Storm sewers
19.	Brindley Creek (lower segment)	Black Warrior	Cullman	Pathogens	Urban runoff/Storm sewers
20.	Lake Mitchell	Coosa	Coosa	OE/DO	Urban runoff/Storm sewers, Flow reg/mod
21.	Brier Fork	Tennessee	Madison	Unknown Toxicity	Nonirrigated crop prod., Land development
22.	Elk River	Tennessee	Limestone	OE/DO	Pasture grazing, Nonirrigated crop prod.

Table 7-4 NPS Rotational River Basin Approach Strategy

1.	Identify NPS impaired, unimpaired, and threatened waters
2.	Provide water quality data and information to address applicable Section 319 grant guideline “a-i” watershed-based plan elements
3.	Identify and establish water quality reference condition sites (e.g., chemical, physical, biological, habitat, etc) in various ecosystems statewide
4.	Sustain support for nutrient criteria, lakes/reservoirs, wetland, stream restoration, TMDL, best management practice implementation, or other water quality data-gathering needs
5.	Support water quality data gathering, analyses, and storage/retrieval partnerships
6.	Provide support for watershed-based plans to be developed and implemented as resources allow, using a local stakeholder-input partnership approach
7.	Incorporate data and other information from a geographically defined area in order to better focus limited watershed protection and restoration funding
8.	Evaluate monitoring needs and processes in order to effectively and efficiently achieve state water quality standards

Figure 7-1 Alabama River Basin Geographic Boundaries



Study Year		Nonpoint Source Screening Assessment River Basin(s)
1st	2nd	
1997	2002	Black Warrior-Cahaba
1998	2003	Tennessee
1999	2004	Chattahoochee-Chipola-Choctawhatchee-Perdido-Escambia
2000	2005	Alabama-Coosa-Tallapoosa
2001	2006	Escatawpa-Lower & Upper Tombigbee-Mobile

Mike Rief-ADEM Water Quality Branch
Projection-Geographic
Datum-NAD83

Table 7-5 Nonpoint Source River Basin Assessment Rationale

Year	Basin	Adjacent States	Rationale
2002	Cahaba	Not Applicable	Pilot Basin (begin 1995)
	Warrior	Not Applicable	Birmingham Metropolitan Area Spans Both Basins
2003	Tennessee	GA (2000)	Basin Not Hydrologically Connected to other Alabama Basins
		TN (no date)	
		MS (no date)	
2004	Chattahoochee	GA (1999)	GA Schedule
		FL (no date)	Basin Shared with FL in the Same Year
	Chipola	FL (no date)	Basin Shared with FL in the Same Year
	Choctawhatchee	FL (no date)	Basin Shared with FL in the Same Year
	Perdido-Escambia	FL (no date)	Basin Shared with FL in the Same Year
2005	Alabama	Not Applicable	Downstream of Coosa and Tallapoosa
	Coosa	GA (2000)	GA Schedule
	Tallapoosa	GA (2000)	GA Schedule
2006	Escatawpa	MS (no date)	Shared with MS in the Same Year
	Lower Tombigbee	MS (no date)	Shared with MS in the Same Year
	Mobile	Not Applicable	Downstream of the Tombigbee Basin
	Upper Tombigbee	MS (no date)	Shared with MS in the Same Year

Table 7-6 Alabama 5-year Rotational NPS River Basin Assessment Status

River Basin	Status	
Cahaba; Black Warrior	Year 1	Complete
Tennessee	Year 2	Complete
Chattahoochee; Chipola; Choctawhatchee	Year 3	Complete
Escambia; Perdido; Coosa; Tallapoosa; Alabama	Year 4	Complete
Mobile; Escatawpa; Lower Tombigbee; Upper Tombigbee	Year 5	Complete
Cahaba; Black Warrior	Year 6	Complete
Tennessee	Year 7	Complete
Chattahoochee; Chipola; Choctawhatchee	Year 8	Complete
Escambia; Perdido; Coosa; Tallapoosa; Alabama	Year 9	In Progress
Mobile; Escatawpa; Lower Tombigbee; Upper Tombigbee	Year 10.	2006

interest groups, and other stakeholders use these assessments to fill in information gaps in order to identify impairments and threats, prioritize or rank watersheds, develop action plans, or implement management practices. An important aspect of these assessments is obtaining input from locally-led citizen advisory groups. The next 5-year scheduled statewide assessment is expected to begin in late 2006. Additional assessment information is available at: www.adem.al.us

7.4 Watershed Protection Approach

Watersheds comprise logical geographical/physical boundaries useful for identifying and mitigating sources and causes of pollution and developing and implementing holistic

management plans. In addition, watersheds also offer a practical approach for coordinating people, resources, programs, and disseminating information more efficiently. Coordination of TMDLs and watershed protection efforts continues to be a NPS management program priority. In order to protect water quality, stakeholders (i.e., agencies, organizations, and citizens involved with or affected by resource management decisions) should agree on a common set of goals and objectives, processes, and success measurement criteria, and then implement components of a TMDL/watershed-based plan on a priority basis within prescribed timelines. Providing opportunities for partnership coordination and input allows for efficient targeting of local priorities in the context of overall statewide priorities. This approach ensures that limited NPS management resources are utilized effectively and wisely. Additional information regarding watershed plan development in Alabama can be found at: www.adem.al.us.

The 5-year river basin assessment approach and development and implementation of TMDL/watershed plans neither replace nor supersede local watershed protection initiatives. Watershed protection efforts will require long-term commitments of partnership time, efforts, resources, and coordination. Even after effective NPS management measures have been installed, measurable improvements in water quality may not be ascertained for several years, post best management practice implementation.

7.5 Nonpoint Source Program Recommendations

A continued focus on development and implementation of TMDL/watershed-based plans is recommended. The ADEM, in cooperation with the Alabama Clean Water Partnership (ACWP), encourages stakeholders to develop and implement scientifically-based, technically sound, environmentally protective, and economically achievable plans.

River basin facilitators are needed to efficiently and effectively coordinate a myriad of large scope and scale river basin projects and programs, and smaller-scale watershed-based activities. Enhancing stakeholder interest and input into watershed decision-making processes is also a critical need. It is recommended that dedicated and consistent sources of state and local funding be realized to support ACWP facilitators in each major river basin (or sub-basins).

Adequate funding is needed to holistically assess and coordinate water quality monitoring and management. Using a combination of public/private efforts provides a cost-effective and logical water quality data collection and management approach. In order to provide a for clear sense of direction and to prevent duplication of efforts, it is recommended that federal, state, local and other water quality interests continue to cooperatively and comprehensively develop, document, and coordinate statewide and local watershed assessment issues and concerns, studies and research, planning, measures of success, constraints, and other needs. Increases in ADEM staff and funding are also recommended to provide for effective regulatory and voluntary NPS oversight and water quality protection approaches.

It is recommended that, in addition to ADEMs assessment efforts, dedicated sources of funding target local community-based and citizen-volunteer water quality monitoring efforts, as practical.

Providing NPS education and outreach, technical assistance, technology transfer and funding is

essential to garnering citizen input and cooperation. It is recommended that all NPS resource providers coordinate stakeholder efforts such as: providing citizens with an understanding of the value of protecting water quality, identifying issues and concerns and the processes and resources available or needed to address them, increasing awareness about local roles and responsibilities, and motivating local stakeholders to voluntarily implement practical management measures that will assure long-term water quality protection success.

Environmental, economic, cultural, social, and other issues such as human and environmental health, threatened and endangered species, habitat protection, urban growth/development, recreation, and other NPS management issues should be well-integrated. Implementation of innovative and alternative approaches should be encouraged where feasible and practical. Efforts may include, but are not limited to: pollutant trading, issuing NPDES permits using a river basin or watershed approach, local-issue enforcement from municipalities and counties, home-rule authorities, tax value and land use incentives, and other creative approaches. The views of regulators, agencies, elected and appointed officials, environmental groups, commodity groups, industries and municipalities, special interests, local citizens and others must be considered when developing the details of how these approaches will be designed and implemented. It is recommended that each approach target clearly defined goals and objectives using the combined and coordinated resources of federal, state, local and private programs.

For more information about Nonpoint Source Management, contact Mr. Norman Blakey in ADEM's Montgomery Office at (334) 394-4354 or nb@adem.state.al.us.

Chapter 8 Public Health

8.1 Fish Tissue Monitoring Program

The Fish Tissue Monitoring Program (FTMP) is a cooperative effort between ADEM, the Alabama Department of Public Health (ADPH), the Alabama Department of Conservation and Natural Resources (ADCNR) and the Tennessee Valley Authority (TVA) to monitor fish tissue throughout the State for bioaccumulative contaminants that can pose a risk to human health. The ADEM FTMP was initiated in 1991 as a cooperative agreement with the ADPH, the ADCNR and the TVA to monitor fish tissue throughout the state for bioaccumulative contaminants that can pose a risk to human health. Twenty-eight (28) major reservoirs, 26 stream locations and 19 ADCNR-managed public fishing lakes are sampled on a five-year rotational basis. Additional water bodies are also monitored based on identified need. Each year's sampling locations are determined based upon information available to the ADEM and input from the cooperative agencies. Water bodies that have been identified as having elevated concentrations of bioaccumulative fish tissue contaminants, or greater potential for contamination, are more closely monitored.

Most contaminants are stored/concentrated in the fatty tissue. Therefore, sampling is conducted in the fall of the year when fatty tissue has been accumulated for over-wintering. The results of the tissue analysis are provided to the ADPH. The role of the ADPH in the program is to evaluate the data based on the potential effects to human health and issue consumption advisories if appropriate.

At each location, a composite sample of six individuals (same species) from both the predator and the omnivore/bottom feeding groups is collected (usually six bass and six catfish). Skinless-fillet composite samples are screened for a select list of organo-chlorine pesticides, metals and PCBs. Screening results will normally dictate the need for additional sampling trips and analyses. The results of these analyses are provided to the ADPH for their consideration. If data warrants, the ADPH will issue consumption advisories as appropriate. The physical condition of important sport and/or commercial fish species collected for tissue monitoring is also determined using a "condition indicator" (relative weights) to evaluate trends in the health of a fish community.

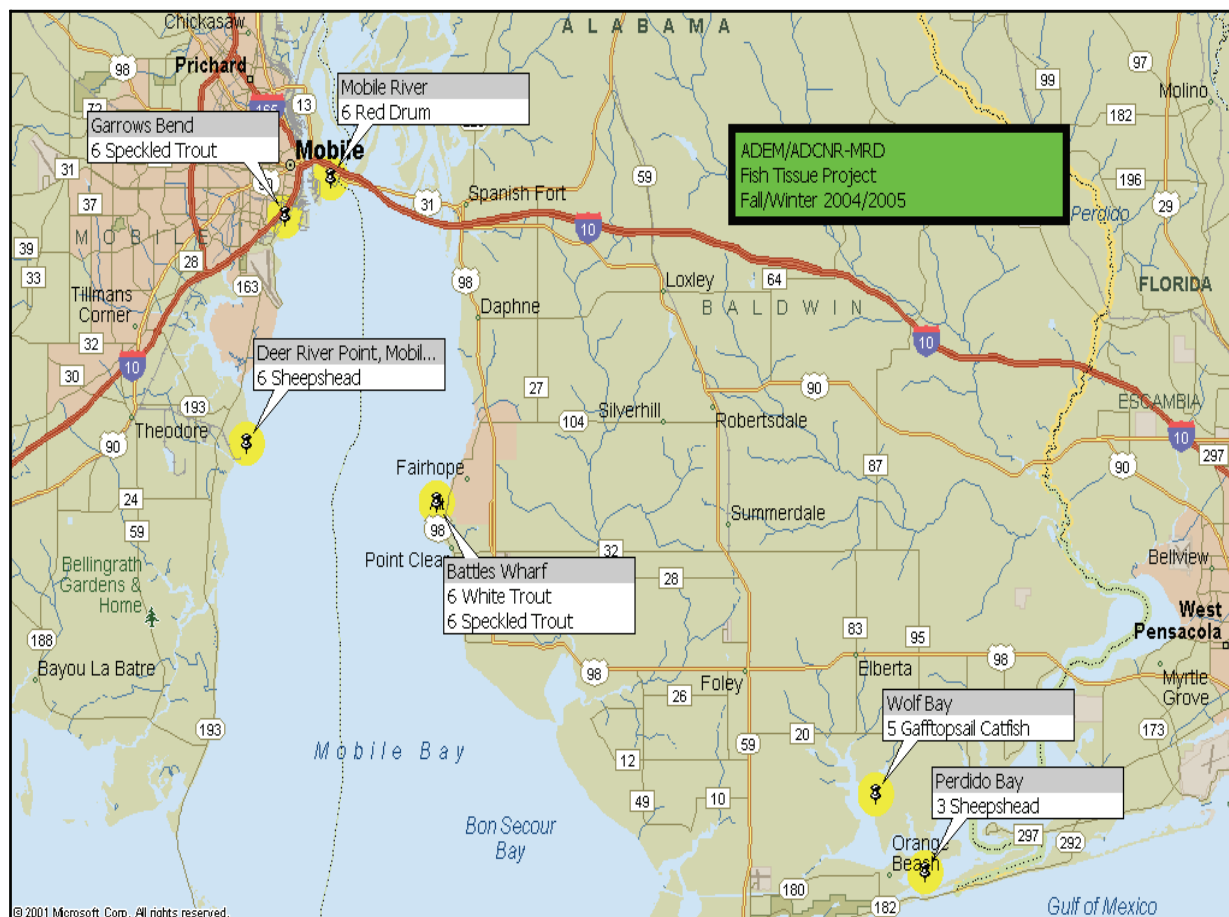
8.1.1 Fiscal Year 2005 Mobile Branch Fish Tissue Mercury Monitoring

Fifteen of Alabama's current twenty three mercury related fish consumption advisories are in coastal Mobile and Baldwin Counties. For the past three years, as a supplemental project to the State's Fish Tissue Monitoring Program, the Mobile Branch Office has worked in cooperation with the Alabama Department of Conservation and Natural Resources, Marine Resources Division (MRD) to collect, process and analyze fish tissue samples from a total of twelve sites

in Alabama's coastal waters. The first phase of the project provided for the ADEM to procure a mercury analyzer and perform setup and calibration to document the reliability of the instrument and methodology. The second phase of the project began in the fall of 2003 and continued through the fall and winter of 2004/2005. This work was done in conjunction with an MRD age and growth study. MRD collected the fish utilizing gill nets and gathered lengths, weights, and otoliths (bones used for aging). The fresh carcasses were then delivered to the ADEM Mobile Office to be processed for tissue analysis by the Mobile Branch Laboratory. Five sites were sampled in the fall and winter of 2003/2004 and six sites were sampled in the fall and winter of 2004/2005. All work was conducted in accordance with the ADEM's Standard Operating Procedures and Quality Control Assurance Manual, Volume III for Fish Sampling and Tissue Preparation for Bioaccumulative Contaminants.

All fish were collected utilizing gill nets. Target species were defined as any species of commercial, recreational, or subsistence fishing value. Species collected for this project included: speckled trout, white trout, southern flounder, red drum, spanish mackerel, striped mullet, ground mullet, sheepshead, and gafftopsail catfish. Target sizes were representative of the predominant age class collected and normally consumed by the public. Samples consisted of composite left side skinless fillets for each species collected at a given site. These samples were analyzed for mercury using EPA method 245.6. Figure 8-1 displays Fish Tissue Project Sampling Stations.

Figure 8-1 Fish Tissue Project Sample locations



Sampling results for fall/winter of 2003/2004:

A total of 59 fish were collected from five sites in coastal Alabama. A total of 11 composite samples representing seven species were analyzed. Of the 11 composite samples analyzed, none revealed mercury levels in excess of the FDA action level of 1.0 ppm. Mercury concentrations ranged from <0.05 ppm to 0.47 ppm. The greatest concentrations; 0.45 and 0.47 ppm were found in samples of Spanish mackerel and red drum respectively. For two samples of striped mullet, mercury concentrations were below detectable limits. A complete write up of these analyses was reported in the spring of 2004.

Sampling results for fall/winter of 2004/2005:

A total of 38 fish were collected from six sites in coastal Alabama. A total of seven composite samples representing five species were processed and analyzed for total mercury. Of the seven composite samples analyzed, all were well below the recommended FDA action level for total mercury of 1.0 ppm. Mercury concentrations ranged from 0.08 ppm to 0.39 ppm. The greatest concentration; 0.39 ppm was found in a composite sample of five gafftopsail catfish from Wolf Bay. Species sampled for this set included: speckled trout, gafftopsail catfish, sheepshead, white trout and red drum.

For more information about the Fish Tissue Monitoring Program, contact Mr. Jeff Davies in ADEM's Mobile Office at (251) 450-3406 or jdd@adem.state.al.us

8.2 Fish Consumption Advisories

Table 8-1 shows 2005 Fish Consumption Advisories for Alabama.

Table 8-1 Alabama Fish Consumption Advisories March 2005

Water Body	County	Species	Portion	Pollutant	Type Advisory
Bear Creek Reservoir	Franklin	Largemouth Bass	Dam forebay area	Mercury	Limited Consumption ²
Big Escambia Creek	Escambia	Largemouth Bass	Louisville & Nashville RR Bridge Crossing	Mercury	No Consumption ¹
Blackwater Creek	Baldwin	Largemouth Bass	Area between mouth of river and the pipeline crossing SE of Robertsdale	Mercury	No Consumption ¹
Blackwater Creek	Escambia	Largemouth Bass	Between Co. Rd. 4 bridge and AL/FL state line	Mercury	No Consumption ¹
Bon Secour River	Baldwin	Largemouth Bass	Vicinity of County Road 10 Bridge	Mercury	No Consumption ¹
Chickasaw Creek	Mobile	Largemouth bass	Entire creek	Mercury	No Consumption ¹
Choccolocco Creek	Calhoun Talladega	All Species	Entire length of Creek from South of Oxford, downstream to where Choccolocco Creek flows into Logan Martin Lake	PCBs	No Consumption ¹
Cold Creek Swamp	Mobile	All Species	From confluence of Cold Creek with the Mobile River west through the Swamp	Mercury	No Consumption ¹
Conecuh River	Escambia	Largemouth Bass	At Pollard Landing approx. 8.6 mi. downstream of paper mill	Mercury	No Consumption ¹

(Continued on the next page)

¹ No consumption advisory – Everyone should avoid eating the designated species of fish in the defined areas.

² Limited consumption advisory – Women of childbearing age and children less than 15 years old should avoid eating the designated species of fish from the defined areas. Other people should limit consumption of the particular species to two meals per month.

Table 8-1 Alabama Fish Consumption Advisories March 2005 (Continued)

Water Body	County	Species	Portion	Pollutant	Type Advisory
Coosa River	Calhoun St. Clair Talladega	Catfish over 1 pound	Between Neely Henry Dam & Riverside, AL	PCBs	Limited Consumption ²
Coosa River	St. Clair Talladega	Striped bass, catfish over 1 pound, Crappie	Between Riverside and Vincent, including the Logan Martin Reservoir	PCBs	No Consumption ¹
Coosa River	St. Clair Shelby	Spotted or striped bass, Catfish over 1 pound,	Between Logan Martin Dam & the railroad tracks crossing the Coosa	PCBs	No Consumption ¹
Coosa River	Talladega	Crappie	River near Vincent, AL		No Consumption ¹
Coosa River	Chilton, Coosa Shelby, St. Clair Talladega	Striped bass, Crappie, Blue Catfish, Spotted bass	Between Logan Martin Dam & Lay Dam	PCBs	No Consumption ¹
Coosa River	St. Clair	Spotted bass	In upper Lay Reservoir approximately two miles downstream of Logan Martin Dam and one half mile downstream from the Kelly Creek - Coosa River confluence in the vicinity of Ratcliff/Elliott Island	PCBs	Limited Consumption ²
Escatawpa River	Mobile	Largemouth Bass Spotted Bass	Entire River	Mercury	No Consumption ¹
Fish River	Baldwin	Largemouth bass	Entire river	Mercury	No Consumption ¹
Fowl River	Mobile	Largemouth bass	Entire river	Mercury	No Consumption ¹
Gulf Coast	Baldwin Mobile	King Mackerel over 39 inches	Entire coast	Mercury	No Consumption ¹
Gulf Coast	Baldwin Mobile	King Mackerel under 39 inches	Entire coast	Mercury	Limited
Huntsville Spring	Madison	Small mouth buffalo, Bigmouth	From Redstone Arsenal to the Tennessee River	DDT	No Consumption ¹
Little Escambia Creek	Escambia	Spotted Bass	At U.S. Hwy 31/29 Bridge	Mercury	No Consumption
Mobile River	Mobile	Largemouth bass	At and South of the Confluence of Cold Creek	Mercury	No Consumption ¹
Opossum Creek	Jefferson	Largemouth bass	From the Pumping Station to the confluence with Valley Creek	Mercury	No Consumption ¹
Perdido River	Baldwin	Largemouth bass	Near its confluence with the Styx River in the vicinity of U.S. Hwy 90 bridge crossing	Mercury	No Consumption ¹
Polecat Creek	Baldwin	Largemouth Bass	Entire Creek	Mercury	No Consumption ¹
Styx River	Baldwin	Largemouth Bass	Entire River	Mercury	No Consumption ¹
Styx River	Baldwin	Channel Catfish	Entire River	Mercury	Limited
Tensaw River	Baldwin	Largemouth Bass	Entire river	Mercury	Limited
Three Mile Creek	Mobile	Atlantic croaker	Downstream of railroad trestle down to one mile upstream of confluence with Mobile River	Chlordane	No Consumption ¹
Three Mile Creek	Mobile	Striped bass,	Downstream of railroad trestle down to one mile	Chlordane	Limited Consumption ²
Three Mile Creek	Mobile	Speckled trout	upstream of confluence with Mobile River		
Valley Creek	Jefferson	Largemouth bass	Around the confluence with Opossum Creek	Mercury	No Consumption ¹
Yellow River	Covington	Largemouth Bass	At Co. Rd. 4 bridge crossing approx. 1.5 mi. upstream of AL/FL line	Mercury	No Consumption ¹

1 No consumption advisory – Everyone should avoid eating the designated species of fish in the defined areas.

2 Limited consumption advisory – Women of childbearing age and children less than 15 years old should avoid eating the designated species of fish from the defined areas. Other people should limit consumption of the particular species to two meals per month.

8.3 Shellfish Harvesting Areas

Shellfish harvesting area closures are issued when the Mobile River stage rises above 8 feet at the Barry Steam Plant. For reopening the closed areas, the river stage must be below 8 feet, ambient fecal coliform counts must be below a geometric mean of 14 MPN (most probable number) in 100 milliliters of sample water, and E. coli count in oyster meat must be below 230 MPN. Figure 8-2 depicts Alabama's Oyster/Shellfish Harvesting Areas in Coastal Waters. For exceptions to these areas such as around outfalls, marinas, or other specific waters refer to the ADEM Administrative Code Water Quality Program Volume II Chapter 335-6-11. Table 8-2 contains the notices pertaining to shellfish harvesting area closures and subsequent reopenings.

For more information about shellfish harvesting areas refer to the ADPH Seafood Branch Triennial Report and contact Dr. Lewis Byrd with the ALDH at (251) 432-7618 or LewisByrd@adph.state.al.us.

8.4 Public Water Supply/Drinking Water

Approximately 850,000,000 gallons of water are taken from ground and surface sources each day, provided with treatment, and made available to approximately four million citizens in Alabama. Six hundred and nine (609) community systems, sixty-five (65) transient non-community systems and thirty (30) non-transient non-community systems are permitted by the ADEM.

Approximately sixty-five (65) percent of the water used is obtained from surface sources such as lakes, rivers, and streams and provided with full treatment to include coagulation, sedimentation, filtration, and disinfection. One hundred (100) percent of these systems meet turbidity requirements, ninety-eight (98) percent meet trihalomethane standards, ninety-nine (99) percent meet haloacetic acid standards and one hundred (100) percent meet inorganic and radiological drinking water standards. These water treatment facilities are required to employ Grade IV Certified Operators to ensure that proper doses of chemicals are applied and hourly tests are performed to demonstrate a satisfactory water quality.

Thirty-five (35) percent of the water is obtained from ground water sources such as wells and springs. An adequate source of ground water is generally available in this State; however, the ground water is extremely limited in the Piedmont area. Ground water sources are required to provide disinfection and monitor the draw down (water level change) in wells ensuring that a satisfactory available quantity of water remains. More than ninety-nine (99) percent of the Community Systems and eighty-six (86) percent of the Non-community Systems met the bacteriological quality standard of the Department. More than ninety-three (93) percent of the community systems and approximately seventy-two (72) percent of the non-community systems were in full compliance with the bacteriological monitoring requirements. Ninety-nine (99) percent meet trihalomethane standards and one hundred (100) percent of the groundwater public water systems were able to meet the inorganic and radiological maximum contaminant levels. These figures demonstrate that the majority of the water provided to the citizens in

Figure 8-2 Alabama's Oyster/Shellfish Harvesting Areas in Coastal Waters

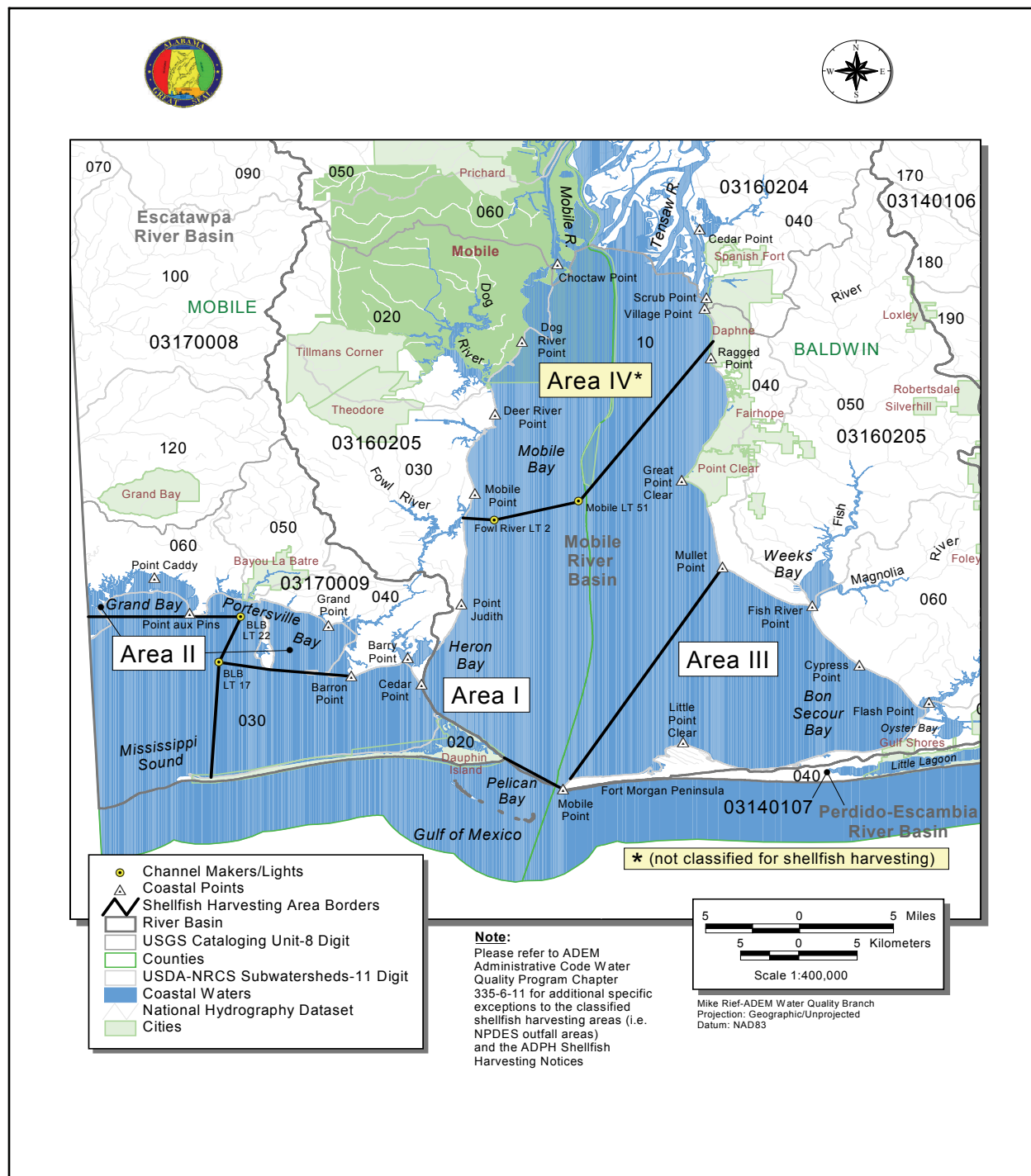


Table 8-2 Shellfish Harvesting Area Closures/Reopening

Notice Date	Effective Date	Time Effective	Area I		Area II		Area III		Area IV	
			#Days Open	# Days Closed	#Days Open	# Days Closed	#Days Open	# Days Closed	#Days Open	# Days Closed
12/31/05										
10/26/05	10/27/05	0600	Conditionally Open		66		Conditionally Open	66	Conditionally Closed	0
10/20/05	10/21/05	0600	Conditionally Open			6	Conditionally Open	6	Conditionally Closed	0
10/18/05	10/18/05	1600	Conditionally Closed	3	Conditionally Closed		Conditionally Closed		Conditionally Closed	0
09/21/05	09/22/05	0600	Conditionally Open	26	Conditionally Open	26	Conditionally Open	26	Conditionally Closed	0
***	08/29/05		Conditionally Closed	24	Conditionally Closed		Conditionally Closed		Conditionally Closed	0
07/28/05	07/29/05	0600	Conditionally Open	31	Conditionally Open	31	Conditionally Open	31	Conditionally Closed	0
07/10/05	07/10/05	1600	Conditionally Closed	19	Conditionally Closed		Conditionally Closed		Conditionally Closed	0
04/24/05	04/25/05	0600	Conditionally Open	76	Conditionally Open	76	Conditionally Open	76	Conditionally Closed	0
04/01/05	04/01/05	1600	Conditionally Closed	24	Conditionally Closed		Conditionally Closed		Conditionally Closed	0
01/01/05			Conditionally Open	90	Conditionally Open	90	Conditionally Open	90	Conditionally Closed	0
Totals			295	70	289	76	295	70	0	365
				19.18%		20.82%		19.18%		100.00%

Conditionally means there are some exceptions to the open status, some parts of the area may still remain closed. See original notice for more detailed information.

***No Notice Found

Alabama is excellent. Contaminants, chemicals, and byproducts that water systems monitor for are shown in Tables 8-3 through 8-8.

Table 8-3 Surface Source Public Water Systems with Compliance Violations

Name of Facility	Municipality Served	Name of Water body	Contaminants with Percent Violations
Opelika Water Works Board	Opelika	Halawakee Creek	Trihalomethanes 12.5%
York Water System	York	Tallapoosa River	Trihalomethanes Haloacetic ACids 50%

Table 8-4 Public Water Supply Elemental Contaminants

Elemental Contaminants	MCL in mg/L
Antimony	0.006
Arsenic	0.05
Asbestos	7 million fibers*/L
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium	0.1
Cyanide	0.2
Fluoride	4
Lead	0.015
Mercury	0.002
Nickel	0.1
Nitrate (as N)	10
Nitrite (as N)	1
Total Nitrate/Nitrite (as N)	10
Selenium	0.05
Sulfate	500
Thallium	0.002

Table 8-5 Public Water Supply Radiological Contaminants

Radiological Contaminants	Concentrations
Gross alpha particle	15pCi/L
Combined radium226 and radium228	5 pCi/L
Tritium	20,000 pCi/L
Strontium90	8 pCi/L
Beta particle and photon radioactivity	4 millirem/Yr

All water systems continue to monitor for lead and copper. One system exceeded the lead action level out of the 300 community and non-transient, non-community systems that were sampled in 2004 and 2005. This system is being required to formulate a corrosion control plan, and continue sampling every six months.

* Longer than 10 micrometers

All community and non-transient non-community water system sources continued to be monitored for volatile organic chemicals (VOCs) and synthetic organic chemicals (SOCs). One system incurred a ethylene dibromide maximum contaminant level violation. More than ninety-eight (98) percent of the community systems and non-transient non-community systems required to monitor in 2004 and 2005 were in full compliance with the VOC and SOC monitoring requirements. Of the contaminants found, tetrachloroethylene (TCE) is the most common regulated VOC and Di(2-ethylhexyl)phthalate is the most common regulated SOC. Table 8-3 shows surface source public water systems with compliance violations. Surface Source Public Water Systems with Compliance Violations

For more information about to Public Water Supply/Drinking Water, contact Mr. Tom Deloach in ADEM's Montgomery Office at (334) 271-7791 or tsd@adem.state.al.us.

8.5 Source Water Assessment Program

As required by amendments to the Safe Drinking Water Act of 1996, Alabama developed regulations regarding the implementation of a Source Water Assessment Program (SWAP) for all public drinking water sources in the state. These regulations required all existing water supply

Table 8-6 Public Water Supply Synthetic Organic Chemicals

Synthetic Organic Chemicals (non-volatile)	MCL in mg/L
Alachlor	0.002
Atrazine	0.003
Carbofuran	0.04
Chlordane	0.002
Dibromochloropropane	0.0002
2,4-D	0.07
Endrin	0.002
Ethylene Dibromide	0.00005
Heptachlor	0.0004
Heptachlor Epoxide	0.0002
Lindane	0.0002
Methoxychlor	0.04
Polychlorinated Biphenyls	0.0005
Pentachlorophenol	0.001
Toxaphene	0.003
2,4,5-TP	0.05
Benzo(a)pyrene	0.0002
Dalapon	0.2
Di (2-ethylhexyl) adipate	0.4
Di (2-ethylhexyl) phthalate	0.006
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Glyphosate	0.7
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Oxamyl (Vydate)	0.2
Picloram	0.5
Simazine	0.004
2,3,7,8-TCDD (Dioxin)	3x10 ⁻⁸

Table 8-7 Public Water Supply Disinfection Byproducts

Disinfection Byproduct	MCL in mg/L
Bromate	0.01
Chlorite	1
Haloacetic Acids	0.06
Trihalomethanes	0.08

Table 8-8 Public Water Supply Volatile Synthetic Organic Chemicals

Volatile Synthetic Organic Chemicals (VOC)	MCL in mg/L
Benzene	0.005
Carbon Tetrachloride	0.005
1,2-Dichloroethane	0.005
Trichloroethylene	0.005
para-Dichlorobenzene	0.075
1,1-Dichloroethylene	0.007
1,1,1-Trichloroethane	0.2
Vinyl chloride	0.002
cis-1,2-Dichloroethylene	0.07
1,2-Dichloropropane	0.005
Ethylbenzene	0.7
Monochlorobenzene	0.1
o-Dichlorobenzene	0.6
Styrene	0.1
Tetrachloroethylene	0.005
Toluene	1
Trans-1,2-Dichloroethylene	0.1
Xylene (Total)	10
Dichloromethane	0.005
1,2,4-Trichlorobenzene	0.07
1,1,2-Trichloroethane	0.005

systems that have either a surface water source or a ground water source to complete a SWAP for each of their drinking water sources no later than February 6, 2003.

Each water source SWAP must include: (1) a source water assessment area (SWAA) delineation; (2) a contaminant inventory within the SWAA; (3) a susceptibility analysis of each contaminant source in the inventory; (4) and notification of the public using specific public awareness methods. Additionally, for surface water sources, there is a requirement that the water system develop contingency plans for potential contaminant sources rated highly susceptible to entering the water intake when the contaminant source may rapidly cause a treatment difficulty. Once a

Table 8-9 Number of SWAP Water Systems that needed Assessments

Surface Water Systems	88
Groundwater Community Systems	310
Groundwater Non-Transient Non-Community Systems	29
Groundwater Transient Non-Community Systems	75

SWAP is approved it must be updated by the water system before permits to furnish water are reissued. When the SWAP was initiated the total number of water systems in Alabama with one or more water sources requiring assessment were as follows in Table 8-9.

Since the initiation of the SWAP program a few water systems have opted to purchase water from another water system and abandon their water source, precluding the need to complete a

Table 8-10 Number of SWAP Water Systems Abandoned or Completed Requirements

Surface Water Systems	87 of 87 (100%)
Groundwater Community Systems	310 of 310 (100%)
Groundwater Non-Transient Non-Community Systems	29 of 29 (100%)
Groundwater Transient Non-Community Systems	75 of 75 (100%)

SWAP for their system. The total number of water systems in Alabama that have either abandoned their water source or completed all the SWAP requirements for each of their water sources are as follows in Table 8-10.

The Department has taken enforcement action against the two drinking water systems that did not complete the SWAP requirements. A consent order with penalties was issued for both of these water systems. The consent order for the surface water system required the water system to abandon its source and purchase water from another public water system. The consent order for the groundwater community system required that water system to complete its SWAP in the spring of 2004. Both of these systems have since come into compliance and all active sources have a SWAP in place.

For more information about the Source Water Assessment Program, contact Mr. Jack Bryant in ADEM's Montgomery Office at (334) 271-7776 or wjb@adem.state.al.us.

8.6 Wellhead Protection Program

A Ground Water Branch staff member is assigned to the ADEM Public Water Supply Branch to support Source Water Assessment (SWA) and Drinking Water State Revolving Fund (DWSRF)

grants and contracts, to manage the Wellhead Protection Program, and to conduct technical reviews of ground water source delineations and contaminant inventories. The Wellhead Protection Program supports the Source Water Assessment Program (SWAP) by providing a mechanism for communities and water systems to develop and implement drinking water protection strategies. The Ground Water Branch provides assistance and guidance to systems in developing a Wellhead Protection Plan, promotes the Ground Water Guardian program, coordinates drinking water protection sign distribution, coordinates with the Alabama Rural Water Association (ARWA) in recognizing water systems that have completed a Wellhead Protection Plan, attends meetings, conferences and workshops, and coordinates inspections and compliance issues in wellhead protection areas with ADEM Branches and other State agencies. ADEM and the ARWA are working together to integrate the WHPP Tool Kit into implementation of the WHP Program. Four utilities have developed a protection program utilizing the Tool Kit. In addition, the ADEM and ARWA are working together to install Drinking Water Protection signs in those communities with completed Wellhead Protection Plans. The sign installations were publicized for several of the communities in both the local media as well as the ARWA journal.

ADEM is working to insure that delineated source water area maps and potential contaminant site location information are available for use within the Department. Source Water Area maps have been digitized for use in developing a GIS layer. The ADEM Information Systems Branch is providing the digitizing and GIS support. The database is currently available to the agency as a draft. The data is under review for inconsistencies and mistakes and should be completed by March, 2006.

The ADEM Groundwater Branch UIC, UST and 106 Programs and the ADEM Industrial and Municipal Branches all consider existing Source Water Assessment areas as part of their permitting process. ADEM personnel conducted inspections of 638 underground storage tank (UST) sites, 786 UST Corrective Action sites and 10 UIC sites within source water areas during the reporting period.

The Groundwater Guardian Program was established within the State to provide recognition to communities, municipalities and counties that implement groundwater protection initiatives. The Department was awarded the Ground Water Guardian Affiliate designation for the 10th year by the Ground Water Foundation. Also, ten water systems or County committees in Alabama were awarded the Ground Water Guardian designation: Madison, Crenshaw, Dale, Sumter, Talladega, St. Clair and Etowah Counties, Madison Water Works and Sewer Board, City of Eufaula, and Tuscumbia Water Works. In addition, two communities in the State have applied to the Ground Water Guardian Program for designation in 2006.

Twenty seven (27) Groundwater or Water Festivals were hosted. Approximately 40,000 students participated in a festival during the reporting period. The ADEM Groundwater Branch with the assistance of the ADEM Office of Education and Outreach manages the State program and coordinates (on average) three festival committees per year. The ARWA Groundwater and Source Water Technicians provide volunteer hours to several festivals per year and provide 4th grade teacher training on groundwater in preparation for the festivals. Funding to support the program was provided by the Alabama Department of Agriculture and Industries. The ADAI provides \$500 start up funds for new festival programs.

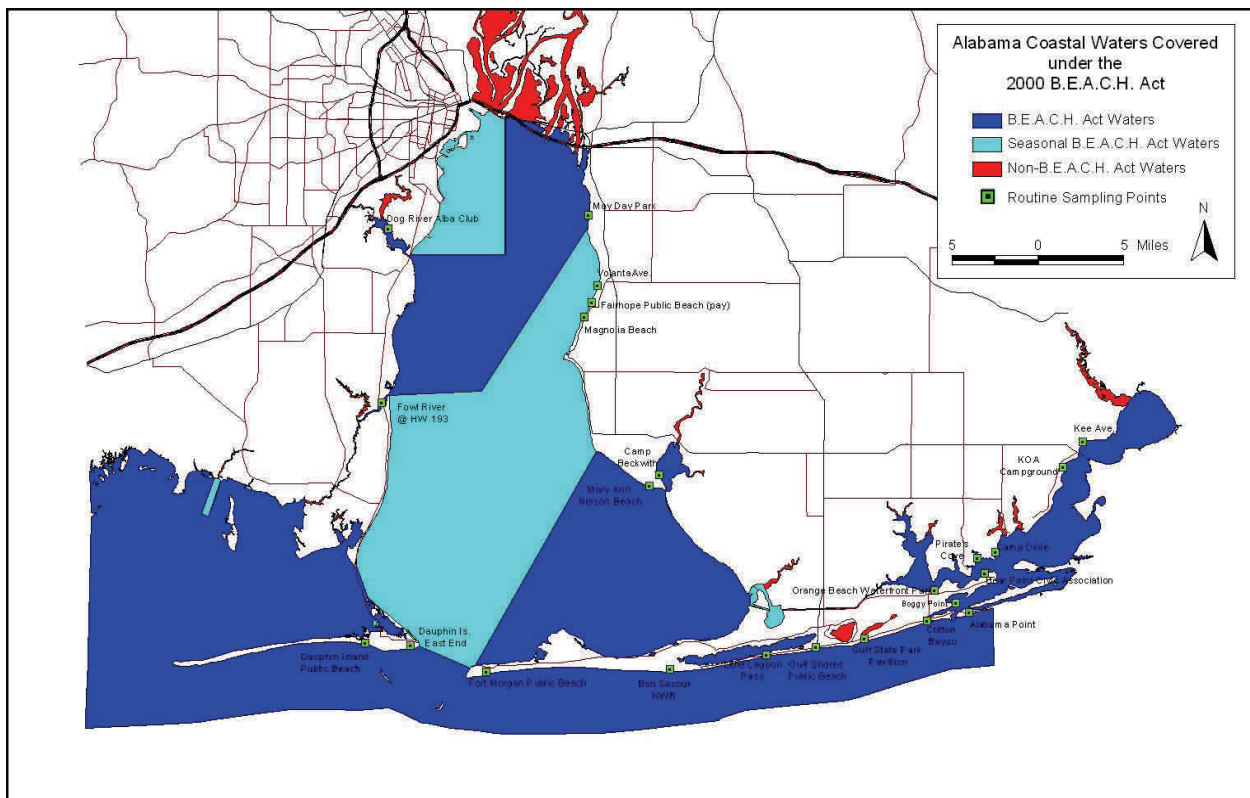
The Annual Alabama Groundwater Conference was held in June 2005 at the Gordon Persons Building in Montgomery. The conference provides a forum for discussion of the latest technology and protection programs for groundwater. The conference has two consecutive sessions: a technical session and a protection session. One hundred and twenty (120) people were registered for the conference. The audience for the conference is comprised of utility personnel, consultants, watershed managers, geologist, university professors and students, and ADEM personnel. The ADEM Groundwater Branch works closely with the ADEM OEO to host the conference. Communities that are designated Groundwater Guardians and counties that host Groundwater Festivals are recognized at the conference.

For more information about the Wellhead Protection Program, contact Ms. Enid Probst in ADEM's Montgomery Office at (334) 271-7953 or eprobst@adem.state.al.us

8.7 Coastal Beach Monitoring

Alabama has approximately 50 miles of Gulf beaches and almost 70 miles of bay beaches, both of which are major tourist attractions and represent a significant component of the lifestyle of Alabama residents. In June 1999, ADEM, in cooperation with the ADPH, initiated a program to routinely monitor bacteria levels at five swimming beaches on the Gulf Coast and in August 2000, six additional beaches were added. Congressional passage of the Beaches Environmental Assessment and Coastal Health (BEACH) Act expanded the monitoring and assessment activities at public beaches and in the fall of 2002, ADEM and the Baldwin County Health Department conducted on-site surveys to evaluate additional public beach sites to add to the

Figure 8-3 Coastal Beach Monitoring



program. Figure 8-3 shows Alabama's coastal waters covered under the 200 B.E.A.C.H. Act.

During the past summer, a total of 24 public beach areas were monitored. A majority of these sites were sampled twice weekly from Memorial Day through Labor Day and for the remainder of the year sampling is conducted monthly. All sample collection and analyses are performed by qualified ADEM or ADPH staff, with analytical results made available to the public within approximately 24 hours.

The public beach locations that are sampled have signage with a color-coded bacteriological advisory status to inform the public of the potential health risk associated with swimming or other water contact activities at that site. A **GREEN** advisory means the most recent water quality test revealed bacterial levels are below recommended thresholds while a **YELLOW** advisory indicates the most recent water quality test revealed bacterial levels exceed recommended thresholds and an increased risk of illness may be associated with swimming. Once a yellow advisory status has been issued, the site is re-tested. A **RED** advisory indicates continued elevated bacterial levels at the site and the ADPH issues a public health advisory. The site is re-tested until bacterial levels return to an acceptable level.

The Department documented approximately 30 events during FY03 that required the issuance of a red advisory. These events occurred at ten of the beach sites that are monitored, with no red advisories issued at the other 14 sites. Elevated bacterial levels can be caused by heavy rainfall events that allow stormwater runoff to carry bacterial matter into the coastal waters. ADEM and the ADPH use on-site signs, the ADEM web-page, press releases, and local newspapers to notify the public of the latest monitoring results.

For information pertaining to Coastal Beach Monitoring, contact Ms. Susan Farr in ADEM's Mobile Office at (251) 450-3427 or sfarr@adem.state.al.us

Chapter 9 Concerns and Recommendations

In recognition of limited resources, efforts to protect water resources must be based on credible science and coordinated management of available resources. Continued cooperation and collaboration of all partners, education, and promotion and implementation of voluntary and mandatory compliance with best management practices (BMPs) remains a priority.

A proactive approach has been implemented with agricultural stakeholders through Confined Animal Feeding Operation (CAFO) Registration by Rule to address the problem of animal waste runoff. Erosion and sedimentation continues to be a long-term concern. This problem is difficult to address in a comprehensive manner since many land-disturbance activities can and do produce water quality degradation when proper management practices are not employed. The Department has placed emphasis on erosion and sedimentation by decentralizing certain aspects of the State water pollution control program to the regional field offices and through the use of Qualified Credentialed Professionals to provide on-site management of erosion control practices. This has resulted in increased inspection and enforcement efficiencies. As a result, inspections of construction sites, mining operations and nonpoint sources of water pollution have significantly increased, with a commensurate increase in the number of compliance actions in this arena. The federally mandated NPDES Phase II Stormwater Program for construction and urban areas is being successfully implemented to address this issue.

A declining trend in national and state funding of water quality programs, including funding of water quality monitoring activities, and ever increasing federal mandates will continue to provide challenges. EPA and Congress have recognized the importance of water quality monitoring to track and document the effectiveness of management actions and have included additional funding in the FY 2005 and FY 2006 federal budgets. However, given the considerable task of adequately monitoring the State's surface waters and the fact that EPA's budget continues to decline overall, efficiencies must be found to make the most of available resources. The Department is initiating several efforts to increase program efficiency through the effective use of technology to gather, store, and report data and information.

Protection of water resources must be based on credible science. Implementation of management measures must be based on sufficiently detailed watershed protection plans with measurable goals. In Alabama, the Clean Water Partnership program promotes efficient and effective implementation of technically sound, environmentally protective, and economically achievable management measures using a grass-roots approach. The partnership is composed of a diverse and inclusive coalition of public and private interest groups and individuals who are working in collaboration to improve, protect, and preserve water resources and aquatic ecosystems in Alabama. Public and private funding is needed to institutionalize this successful endeavor and to ensure permanent facilitators in each basin or sub-basin to coordinate projects and programs and to enhance citizen interest and input into decision-making processes.

Watersheds provide logical geophysical boundaries for identifying and mitigating sources and causes of pollution. Watershed management is a better way to coordinate people, resources, programs, and information more efficiently. The state has instituted rotational river basin/watershed water quality monitoring approaches to identify nonpoint source impaired, threatened, and unimpaired waters. These approaches provide data and information that is essential to the development of holistic watershed protection plans. However, in order to plan, develop and coordinate actual implementation of these plans, additional staff, time, expertise, and other resources are needed.

Water quality assessment and resource protection efforts should emphasize shared decision-making processes, integrate diverse and inclusive partnerships, and provide a clear understanding of the many and varied problems impacting a waterbody. In Alabama, voluntary and enforceable mechanisms are in-place, are complementary, and are effective in assuring long-term protection of water quality. However, as competing demands for limited resources endure, additional information becomes available, priorities change, or complex issues emerge, watershed protection plans must be designed to be iterative, particularly as related to TMDL plan implementation. Stakeholders must be involved in the early stages of plan development, encouraged to assume ownership, and voluntarily accept responsibility for providing solutions. Certain elements and structure of the plans can be adapted to the entire watershed, or to specific sources or causes of impairment. However, it is recommended that all plans in Alabama be based on a similar format, especially if the impairments to be addressed are both point and nonpoint source related and/or the plan will serve as a TMDL implementation plan.

The Department's ability to efficiently gather, store, analyze, and report on water quality data and information is critical to making sound management decisions. While the Department has initiated several projects to address this issue, such as electronic reporting of Discharge Monitoring Reports by wastewater treatment facilities, the Surface Water Quality Database, and the Assessment Database, data management remains a concern.

Alabama needs additional resources to enable its monitoring program to meet a growing list of the programmatic commitments. Development of EPA-mandated nutrient criteria for State waters and evaluation of TMDL implementation activities will require significant additional monitoring resources, including both personnel and laboratory facilities. Adequate data and information are required to make sound, scientifically-based decisions related to development of new water quality criteria, designated uses, and use support status for Alabama's water resources. Additional funding for State monitoring programs is being proposed at the federal level. However, the additional funds may require additional State matching funds. Careful and thorough planning is needed to insure that any additional resources for monitoring State waters are used efficiently and as effectively as possible.

References

Alabama Department of Environmental Management (ADEM). 1998b. Field Operations Division standard operating procedures and quality control assurance manual, Vol. VI: Fish Community Assessment and Application of IBI for Flowing Wadeable Streams. Geological Survey of Alabama (O'Neil, P. and T. Sheppard), Tuscaloosa, Alabama.

Bossong, C.R., 1989; Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 2, U.S. Geological Survey, Water-Resources Investigation Report 88-4177

Brown, M.T. and M.B. Vivas. 2004. Landscape development intensity index. Environmental Monitoring and Assessment 18:1-21.

DeJarnette, Sidney S., Jo E. Crownover; 1987; Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 6; U.S. Geological Survey, Water-Resources Investigation Report 87-4113

Fore, L.S. 2004. Development and testing of biomonitoring tools for macroinvertebrates in Florida streams. Prepared for the Florida Department of Environmental Protection. Tallahassee, Florida.

Gillett, Blakeney, 2001; South Alabama Ground-water Sampling Program: Final Report to the Alabama Department of Environmental Management, Geological Survey of Alabama Open File Report.

Kidd, Robert E.; 1989, Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 5, U.S. Geological Survey, Water-Resources Investigation Report 88-4083

Mooty, Will S.; 1987; Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 7; U.S. Geological Survey, Water-Resources Investigation Report 87-4109

Scott, John C., Riley H. Cobb, Rick D. Castleberry; 1987; Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 8, U.S. Geological Survey, Water-Resources Investigation Report 86-4360

Kopaska-Merkel, David C., Dean, Lewis S., Moore, James D., 2005, Circular 199D, Hydrogeology and Vulnerability to Contamination of Major Aquifers in Alabama; Area 4; Geological Survey of Alabama

Adams, G. I., Butts, Charles, Stevenson, L. W., and Cook, C. W., 1926, Geology of Alabama: Alabama Geological Survey Special Report 14, 312 p.

Causey, L. V., 1963, Geology and ground water resources of St. Clair County, Alabama: Alabama Geological Survey Bulletin 73, 84 p.

_____, 1965, Availability of ground water in Talladega County, Alabama: Alabama Geological Survey Bulletin 81, 63 p.

Drahovzal, J. A., and Neathery, T. L., 1971, The middle and upper Ordovician stratigraphy of the Alabama Appalachians, in Drahovzal, J. A., and Neathery, T. L., The middle and upper Ordovician stratigraphy of the Alabama Appalachians: Alabama Geological Society Guidebook for the Ninth Annual Fieldtrip, p. 1-62.

Drahovzal, J. A., and Neathery, T. L., 1985, Lithostratigraphy of Upper Ordovician strata in Alabama: Alabama Geological Survey Circular 124, 55 p.

Guthrie, G. M., Baker, R. M., and Osborne, W. E., 1998, Hydrogeologic delineation of Wellhead Protection Areas for the City of Leeds Water Authority, Jefferson, Shelby, and St. Clair Counties, Alabama: Alabama Geological Survey Circular 191, 53 p.

Hayes, E. C., 1978, 7-day low flows and flow duration of Alabama streams through 1973: Alabama Geological Survey Bulletin 113, 163 p.

Hunter, J. A., and Moser, P. H., 1990, Ground water availability in Jefferson County, Alabama: Alabama Geological Survey Special Map 224, 68 p.

Irvin, G. D., and Osborne, W. E., 2000, Geology of the Woodstock 7.5-minute quadrangle, Bibb and Tuscaloosa Counties, Alabama: Alabama Geological Survey Quadrangle Series 19, 9 p.

Johnston, W. B., Jr., 1933, Ground water in the Paleozoic rocks of northern Alabama: Alabama Geological Survey Special Report 16, 414 p.

Kidd, J. T., 1979, Areal geology of Jefferson County, Alabama: Alabama Geological Survey Atlas 15, 89 p.

Kopaska-Merkel, D. C., Dean, L. S., and Moore, J. D., 2001, Hydrogeology and vulnerability of major aquifers to contamination in Alabama: Area 5: Alabama Geological Survey Circular 199C.

Mars, J. C., and Thomas, W. A., 1999, Sequential filling of a late Paleozoic foreland basin: *Journal of Sedimentary Research*, v. 69, p. 1191-1208.

Moffett, T. B., and Moser, P. H., 1978, Ground water resources of the Birmingham and Cahaba Valleys, Jefferson County, Alabama: Alabama Geological Survey Circular 103, 78 p.

Moore, J. D., 1998, Aquifers in Alabama: Alabama Geological Survey Special Map 231 (revised), 1 sheet.

Moore, J. D., and Hunter, J. A., 1991, Watercourse aquifer in Alabama: Alabama Geological Survey Circular 159, 26 p.

Mooty, W. S., and Richardson, J. R., 1998, Water use in Alabama, 1995: U.S. Geological Survey Water-Resources Investigations Report 98-4154, 92 p.

Moser, P. H., 1988, Ground water availability in Talladega County, Alabama: Alabama Geological Survey Special Map 207, 70 p.

Moser, P. H., and DeJarnette S. S., 1992, Ground water availability in Calhoun County, Alabama: Alabama Geological Survey Special Map 228, 115 p.

Neathery, T. L., and Drahovzal, J. A., 1985, Lithostratigraphy of Upper Ordovician strata in Alabama: Alabama Geological Survey Circular 124, 55 p.

Osborne, W. E., 1993a, Geology of the Riverside quadrangle, St. Clair and Talladega Counties, Alabama: Alabama Geological Survey Quadrangle Series 10.

_____, 1993b, Geology of the Eastaboga quadrangle, Calhoun and Talladega Counties, Alabama: Alabama Geological Survey Quadrangle Series 11.

_____, 1995, Geology of the Leeds 7.5-minute quadrangle, Jefferson, Shelby and St. Clair Counties, Alabama: Alabama Geological Survey Quadrangle Series 13.

_____, 1996, Geology of the Helena 7.5-minute quadrangle, Jefferson and Shelby Counties, Alabama: Alabama Geological Survey Quadrangle Series 14.

Osborne, W. E., Thomas, W. A., and Astini, R. A., 2000, The Conasauga Formation and equivalent units in the Appalachian thrust belt in Alabama: Alabama Geological Society Guidebook 37, 100 p.

Pashin, J. C., ed., 1993, New perspectives on the Mississippian system of Alabama: Alabama Geological Society Guidebook 30, 151 p.

Planert, Michael, and Pritchett, J. L., Jr., 1989, Geohydrology and susceptibility of aquifers to surface contamination in Alabama, Area 4: U.S. Geological Survey, Water-Resources Investigations Report 88-4133, 31 p.

Raymond, D. E., Osborne, W. E., Copeland, C. W., and Neathery, T. L., 1988, Alabama stratigraphy: Alabama Geological Survey Circular 140, 97 p.

Rindsberg, A. K., and Osborne, W. E., 2001, Geology of the Bessemer 7.5-minute quadrangle, Jefferson County, Alabama: Alabama Geological Survey Quadrangle Series 20, 25 p.

Sapp, C. D., and Emplaincourt, Jacques, 1975, Physiographic regions of Alabama: Alabama Geological Survey Special Map 168, 1 sheet.

Scott, J. C., Harris, W. F., and Cobb, R. H., 1987, Geohydrology and susceptibility of Coldwater Spring and Jacksonville fault areas to surface contamination in Calhoun County, Alabama: U.S. Geological Survey Water-Resources Investigations Report 87-4031, 29 p.

Shamburger, V. M., and Harkins, J. R., 1980, Water availability, Shelby County,

Alabama: Alabama Geological Survey Special Map 140, 32 p.

Spigner, B. C., 1975, Hydrogeology of Mississippian aquifers on the southeast flank of the Birmingham anticline, Jefferson County, Alabama: University of Alabama, unpublished MS thesis, 76 p.

Stricklin, V. E., 1989, Geohydrology and susceptibility of major aquifers to surface contamination in Alabama; Area 3: U.S. Geological Survey Water-Resources Investigations Report 88-4120, 17 p.

Szabo, M. W., Osborne, W. E., Copeland, C. W. Jr., and Neathery, T. L., 1988, Geologic map of Alabama: Alabama Geological Survey Special Map 220, scale 1:250,000.

Thomas, W. A., 1972, Mississippian stratigraphy of Alabama: Alabama Geological Survey Monograph 12, 121 p.

_____, 1985, Chapter IV--Northern Alabama Sections, in Woodward, N. B., ed., Valley and Ridge thrust belt: Balanced structural sections, Pennsylvania to Alabama: University of Tennessee Studies in Geology 12, p. 54-61.

Ward, W. E., II, and Osborne, W. E., 2000, Geology of the Coaling 7.5-minute quadrangle, Tuscaloosa and Bibb Counties, Alabama, Alabama Geological Survey Quadrangle Series 18, 9 p.

Warman, J. C., and Causey, L. V., 1962, Geology and ground water resources of Calhoun County, Alabama: Alabama Geological Survey County Report 7, 77 p.

Warren, W. M., 1976, Sinkhole occurrence in western Shelby County, Alabama: Alabama Geological Survey Circular 101, 45 p.

Appendix A

ASSESS



*Alabama's Water Quality Assessment
and Listing Methodology*

**Final
December 2005**

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List of Acronyms

A&I	Agriculture and Industry water supply use classification
ADB	Assessment Database
ADEM	Alabama Department of Environmental Management
ADPH	Alabama Department of Public Health
AEMC	Alabama Environmental Management Commission
AWIC	Alabama Water Improvement Commission
CaCO ₃	Calcium Carbonate
CBOD ₅	Five-Day Carbonaceous Biochemical Oxygen Demand
Cl ⁻¹	Chlorides
CWA	Clean Water Act
DO	Dissolved Oxygen
DRP	Dissolved Reactive Phosphorus
EPA	Environmental Protection Agency
EPT	Ephemeroptera/Plecoptera/Trichoptera
F&W	Fish and Wildlife
GIS	Geographical Information System
GPS	Global Positioning System
IBI	Index of Biotic Integrity
LWF	Limited Warmwater Fishery
MDL	Method Detection Limit
NH ₃ -N	Ammonia Nitrogen
NHD	National Hydrography Dataset
NO ₃ + NO ₂ -N	Nitrate + Nitrite Nitrogen
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Units
OAW	Outstanding Alabama Waters
ONRW	Outstanding National Resource Water
PWS	Public Water Supply
QAPP	Quality Assurance Project Plan
S	Swimming and Other Whole Body Water-Contact Sports
SH	Shellfish Harvesting
SOP/QCA	Standard Operating Procedures/Quality Control Assurance
SW	Surface Water
TDS	Total Dissolved Solids
TKN	Total Kjeldahl Nitrogen
TMDL	Total Maximum Daily Load
Total-P	Total Phosphorus
TSS	Total Suspended Solids
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey

WMB-EPT	Wadeable Multi-habitat Bioassessment - EPT Families
WMB-I	Intensive Wadeable Multi-habitat Bioassessment

1.0 Introduction

Alabama has long been recognized for its abundant water resources. With over 77,000 miles of perennial and intermittent streams and rivers, 481,757 acres of publicly-owned lakes and reservoirs, 610 square miles of estuaries, and 50 miles of coastal shoreline, the state is faced with a tremendous challenge to monitor and accurately report on the condition of its surface waters (ADEM, 2004).

Sections 305(b) and 303(d) of the federal Clean Water Act direct states to monitor and report the condition of their water resources. Recent guidance published by the Environmental Protection Agency (EPA) provides a basic framework that states may use to fulfill this reporting requirement. *Guidance for 2006 Assessment, Listing and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 314 of the Clean Water Act* provides recommendations on the delineation of assessment units, reporting the status and progress towards comprehensive assessment of state waters, attainment of state water quality standards and the basis for making attainment decisions, schedules for additional monitoring, listing waters which do not fully support their designated uses (i.e. impaired waters), and schedules to address impaired waters (EPA, 2005).

Alabama's assessment and listing methodology establishes a process, consistent with EPA's guidance, to assess the status of surface waters in Alabama relative to the designated uses assigned to each waterbody. The methodology will also describe the procedure to assign the size or extent of assessed waterbodies. This methodology is not intended to limit the data or information that the State considers as it prepares an integrated water quality assessment report. Rather, it is intended to establish a rational and consistent process for reporting the status of Alabama's surface waters relative to their designated uses.

2.0 Alabama's Water Quality Standards

State water quality standards are the yardstick by which the condition of the nation's waters is measured. They are intended to protect, restore and maintain the condition of the nation's waters. In Alabama, water quality standards were first adopted in 1967 by the Alabama Water Improvement Commission (AWIC). In 1982 the Alabama Department of Environmental Management (ADEM) was formed by merging AWIC with elements of the Alabama Department of Public Health (ADPH). Since first being adopted in 1967, Alabama's water quality standards have been amended on numerous occasions (ADEM, 2005).

The Alabama Environmental Management Commission (AEMC) has the authority to adopt revisions to the ADEM Administrative Code. The Designated Uses (Chapter 335-6-11 of the Administrative Code) and the Water Quality Criteria (Chapter 335-6-10 of the Administrative Code) are reviewed once every three years pursuant to EPA regulations at 40 CFR Part 131.20. This review process is known as the triennial review and affords the public the opportunity to make comments and suggestions regarding Alabama's water quality standards. Any changes that ADEM may propose as a result of the review process are subject to further public comment before consideration by the AEMC.

Water quality standards consist of three components: designated uses, numeric and narrative criteria, and an antidegradation policy. These three components have been compared to the three legs of a stool which work together to provide water quality protection for the nation's surface waters.

Designated uses describe the best uses reasonably expected of waters. These uses should include such activities as recreation in and on the water, public water supply, agricultural and industrial water supply, and habitat for fish and wildlife. While all waters may not support all of these uses, the goal of the Clean Water Act is to provide protection of water quality consistent with "fishable/swimable" uses, where attainable. In Alabama, waters can be assigned one or more of seven designated uses pursuant to ADEM Administrative Code 335-6-11. These uses include:

1. Outstanding Alabama Water (OAW)
2. Public Water Supply (PWS)
3. Shellfish Harvesting (SH)
4. Swimming and Other Whole Body Water-Contact Sports (S)
5. Fish and Wildlife (F&W)
6. Limited Warmwater Fishery (LWF)
7. Agricultural and Industrial Water Supply (A&I)

Designated uses 1 through 5 in the list above are considered by EPA to be consistent with the "fishable/swimable" goal.

The State also has one special designation – Outstanding National Resource Water (ONRW). These high quality waters are protected from new or expanded point sources of pollutants and may be assigned to any one of the first five designated uses in the list above.

Numeric and narrative criteria provide the means to measure the degree to which the quality of waters is consistent with their designated use or uses. The criteria are intended to provide protection of the water quality commensurate with the water's use, to include protection of human health. Narrative criteria generally describe minimum conditions necessary for all uses and may include certain restrictions for specific uses. Numeric criteria include pollutant concentrations or physical characteristics necessary to protect a specific designated use. Alabama's narrative and numeric criteria are defined in ADEM Administrative Code 335-6-10.

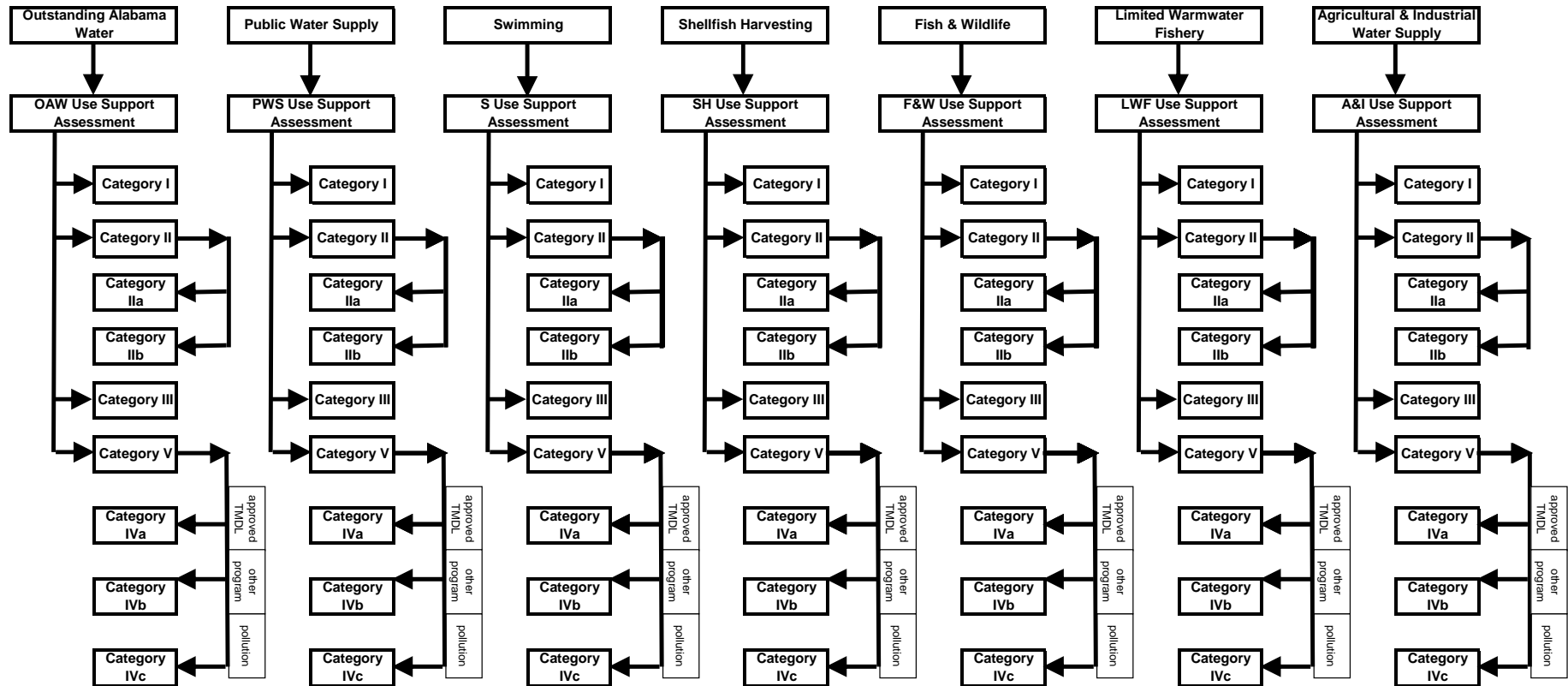
The state's antidegradation policy provides for protection of high quality waters that constitute an outstanding national resource (Tier 3), waters whose quality exceeds the levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water (Tier 2), and existing instream water uses and the level of water quality necessary to protect the existing uses (Tier 1). In Tier 3 waters, ADEM Administrative Code 335-6-10-.10 prohibits new or expanded point source discharges. In Tier 2 waters, ADEM Administrative Code 335-6-10-.04 provides for new or expanded discharge of pollutants only after intergovernmental coordination, public participation, and a demonstration that the new or expanded discharge is necessary for important economic or social development. Alabama's water quality standards regulations (ADEM Administrative Code 335-6-10 and 335-6-11) are included in the **Appendix** of this document.

3.0 Waterbody Categorization

The water quality assessment process begins with the collection, compilation, and evaluation of water quality data and information for the purpose of determining if a waterbody is supporting all of its designated uses. It is imperative that the data and information used in the process be of adequate quality and provides an accurate indication of the water quality conditions in the waterbody since decisions arising from the assessment process may have long-term consequences. Issues of data sufficiency and data quality must be addressed to ensure that use support decisions are based on accurate data and information. However, the minimum data requirements discussed in this methodology are not intended to exclude data and information from the assessment process but are a guide for use in designing monitoring activities to assess the State's surface waters and to ensure that decisions are made using the best available data. The goal is to accurately describe the status of surface waters where possible and to identify waters where more information is needed to make use support decisions.

The use support assessment process considers all readily available data and information with a goal of placing waterbodies in one of five separate categories. This process is specific to the highest designated use assigned to the waterbody and is described by the flow chart depicted in **Figure 1**.

Figure 1
Alabama's Waterbody Assessment Process



Waterbody data and information are evaluated using the use support assessment methodology and the waterbody is assigned to one of the following categories.

Category 1

Waters that are attaining all applicable water quality standards.

Category 2

Waters for which readily available data, which meets the State's requirements as described in Section 4.9, supports a determination that some water quality standards are met and there is insufficient data to determine if remaining water quality standards are met. Attainment status of the remaining standards is unknown because data is insufficient. Waters for which the minimum data requirements (as described later) have not been met will be placed in Category 2.

1. *Category 2A*

For these waters available data does not satisfy minimum data requirements but there is a high potential for use impairment based on the limited data. These waters will be given a higher priority for additional data collection.

2. *Category 2B*

For these waters available data does not satisfy minimum data requirements but there is a low potential for use impairment based on the limited data. These waters will be included in future basin monitoring rotations as resources allow.

Category 3

Waters for which there is no data or information to determine if any applicable water quality standard is attained or impaired. These waters will be considered unassessed.

Category 4

Waters in which one or more applicable water quality standards are not met but establishment of a TMDL is not required.

1. *Category 4A*

Waters for which all TMDLs needed to result in attainment of all applicable WQSs have been approved or established by EPA.

2. *Category 4B*

Waters for which other required control measures are expected to attain applicable water quality standards in a reasonable period of time. Adequate documentation is required to indicate that the proposed control mechanisms will address all major pollutant sources and should result in the issuance of more stringent effluent limitations required by either Federal, State, or local authority or the implementation of "other pollution control requirements (e.g., best management practices) required by local, state, or federal authority" that are stringent enough to implement applicable water quality standards. Waters will be evaluated on a case by case basis to determine if the proposed control measures or activities

under another program can be expected to address the cause of use impairment within a reasonable time period. A reasonable time period may vary depending on the degree of technical difficulty or extent of the modifications to existing measures needed to achieve water quality standards. EPA's 2006 assessment and listing guidance offers additional clarification of what might be expected of waters placed in Category 4b.

3. *Category 4C*

Waters in which the impairment is not caused by a pollutant. This would include waters which are impaired due to natural causes or pollution. A pollutant is defined in Section 502(6) of the Clean Water Act (CWA) as "spoil, solid waste, incinerator residue, sewerage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water." Pollution is defined as "the man-made or man-induced alteration of the chemical, physical, or radiological integrity of a waterbody." Invasive plants and animal species are considered pollution.

Category 5

Waters in which a pollutant has caused or is suspected of causing impairment. If the impairment is caused by an identified pollutant the water should be placed in Category 5. All "readily available data and information" will be used to determine when a water should be placed in Category 5. Waters in this category comprise the State's list of impaired waters or §303(d) list.

When the information used to assess the waterbody consist primarily of observed conditions, (limited water quality data, water quality data older than six years, or estimated impacts from observed or suspected activities), the assessment is generally referred to as an evaluated assessment (Category 2). Evaluated assessments usually require the use of some degree of professional judgment by the person making the assessment and these assessments are not considered sufficient to place waters in or to remove waters from the impaired category (Category 5) or the fully supporting category (Category 1).

Monitored assessments (Categories 1 and 5) are based on readily available chemical, physical, and/or biological data collected during the previous six years, using commonly accepted and well-documented methods. Readily available data are data that have been collected or assembled by the Department or other groups or agencies and are available to the public. Data older than six years old may be used on a case-by-case basis when assessing waters that are not currently included in Category 1 or Category 5. (For example, older data could be used if conditions, such as land use, have not changed.) Much of the remainder of this document will pertain to the use of monitoring data to make use support determinations.

4.0 The Water Quality Assessment Process

The water quality assessment process is different for each of Alabama's seven designated uses because each use is protected by specific numeric and narrative water quality criteria. As such, the methodology for assigning a given waterbody to one of the five categories may have different data requirements and thresholds for determining the waterbody's use support status. In addition, interpretation of narrative criteria may differ by classified use and waterbody type. Data and information that may be considered when assessing state waters could include water chemistry data such as chemical specific concentration data, land use or land cover data, physical data such as water temperature and conductivity, habitat evaluations, biological data such as macroinvertebrate and fish community assessments, and bacteriological data such as fecal coliform or enterococci counts.

In order to ensure consistent and accurate assessment of a waterbody's support status and proper categorization of the waterbody, minimum data requirements must be defined that address data quality and data quantity. Data requirements will not only be dictated by the classified use of the waterbody but also by the waterbody type to account for the different monitoring strategies that may be used for different waterbody types. The minimum data requirements are expected to guide future water quality monitoring activities and provide the basis for making use support decisions. However, in those cases where a data set may not include all of the elements specified by the minimum data requirements, a decision to include the water in Category 5 can still be made provided the available data indicates a clear impairment and the cause of the impairment is evident. These decisions will be made on a case by case basis and the decision will be documented in the ADB.

In the assessment methodology, the terms "Level IV WMB-I", "Level III WMB-EPT", "Fish IBI", "habitat assessment", "conventional parameter samples", "pesticide/herbicide samples", "inorganic samples", "chlorophyll *a* samples", and "fish tissue analysis" are used. For the purposes of this assessment methodology, these terms will have the following meanings.

Level IV WMB-I:

- An intensive multihabitat assessment of the macroinvertebrate community in a wadeable stream involving the collection of macroinvertebrates for identification and enumeration in a laboratory

Level III WMB-EPT:

- A screening-level multihabitat assessment of the macroinvertebrate community in a stream focusing on the collection, field processing and enumeration of the pollution-sensitive Ephemeroptera, Plecoptera, and Trichoptera taxa

Fish IBI:

- A multihabitat fish community assessment method developed by the Geological Survey of Alabama (O'Neil and Shepard, 1998) for streams in the Black Warrior and Cahaba River basins

Habitat assessment:

- An assessment of available aquatic habitat in a stream which considers habitat characteristics important to supporting a diverse and health aquatic community

Conventional parameter samples will include analyses for the following constituents:

- Collector Name
- Date (Month, Day, Year)
- Time (24 hr)
- Air Temperature, °C
- Water Temperature, °C
- Total Stream Depth at Sampling Point, feet
- Sample Collection Depth, feet
- Dissolved Oxygen (DO), mg/l
- Conductivity, $\mu\text{mhos/cm}$ @ 25C
- Salinity, ppt (coastal waters only)
- pH, s.u.
- Turbidity, NTU (with Nephelometer, not multiprobe)
- Weather Conditions
- Stream Flow (where appropriate)
- Five-day Carbonaceous Biochemical Oxygen Demand (CBOD5), mg/l
- Alkalinity, mg/l
- Total Suspended Solids (TSS), mg/l
- Total Dissolved Solids (TDS), mg/l
- Dissolved Reactive Phosphorus (DRP), mg/l (field filtered, separate bottle)
- Ammonia Nitrogen ($\text{NH}_3\text{-N}$), mg/l
- Nitrate + Nitrite Nitrogen ($\text{NO}_3 + \text{NO}_2\text{-N}$), mg/l
- Total Kjeldahl Nitrogen (TKN), mg/l
- Total Phosphorus (Total-P), mg/l
- Hardness, mg/l as CaCO_3 (measured when metals samples are collected)

Pesticide/Herbicide samples will include analyses for the following constituents:

- Organochlorine Pesticides by method SW8081A
- Organophosphorus Pesticides by method SW8141
- Chlorinated Herbicides by method SW8151
- Atrazine by Immunoassay

Inorganic (metals) samples will include analyses for the following constituents:

- “Dissolved” Antimony (Sb), ug/l
- “Dissolved” Arsenic⁺³ (As^{+3}), ug/l
- “Dissolved” Cadmium (Cd), ug/l
- “Dissolved” Chromium⁺³ (Cr^{+3}), ug/l
- “Dissolved” Copper (Cu), ug/l
- “Dissolved” Lead (Pb), ug/l
-
- “Dissolved” Nickel (Ni), ug/l

-
- “Dissolved” Silver (Ag), ug/l
- “Dissolved” Thallium (Tl), ug/l
- “Dissolved” Zinc (Zn), ug/l
- “Total” Mercury (Hg), ug/l
- “Total” Selenium (Se), ug/l

Bacteriological Samples

- Fecal coliform, colonies/100 ml in non-coastal waters and Shellfish Harvesting waters
- Enterococci, colonies/100 ml in coastal waters

Chlorophyll *a* samples will include the collection of photic zone composite water samples to be processed in accordance with ADEM SOP # 2063 Chlorophyll *a* Collection and Processing.

Fish tissue analysis will include collection and analyses of fish for the following constituents:

- | | | |
|-------------|-----------------|----------------------|
| • Arsenic | • 2,4-DDD | • Heptachlor |
| • Cadmium | • 2,4-DDE | • Heptachlor Epoxide |
| • Mercury | • 2,4-DDT | • Hexachlorobenzene |
| • Selenium | • Chlorpyrifos | • Mirex |
| • Lead | • Dieldrin | • Toxaphene |
| • Chlordane | • Endosulfan I | • PCBs |
| • 4,4-DDD | • Endosulfan II | • Dioxin |
| • 4,4-DDE | • Endrin | • Percent lipids |
| • 4,4-DDT | • Lindane | |

Fish sampling and tissue preparation procedures are described in the ADEM *Standard Operating Procedures And Quality Control Assurance Manual Volume III – Fish Sampling And Tissue Preparation For Bioaccumulative Contaminants* (SOP).

4.1 Outstanding Alabama Waters (OAW)

The best usage of waters assigned this classification are those activities consistent with the natural characteristics of the waters. Waterbodies assigned the OAW use are high quality waters that constitute an outstanding Alabama resource, such as waters of state parks and wildlife refuges and waters of exceptional recreational or ecological significance. Beneficial uses encompassed within this classification include: aquatic life support and wildlife propagation, fish and shellfish harvesting and consumption, water contact recreation, agricultural irrigation, livestock watering and industrial cooling and process water supply.

4.1.1 Minimum Data Requirement for OAW Waters

For waters with the OAW classification the available data must have been collected consistent with the following standard operating procedures (SOP) manuals:

SOP#	Title
2040	Stream Flow Abbreviated Measurement Method
2041	SW Temperature Field Measurements
2042	SW pH Field Measurements
2043	SW Specific Conductivity Field Measurements
2044	SW Turbidity Field Measurements
2045	SW Dissolved Oxygen Field Measurements
2046	Photic Zone Measurements and Visibility Determinations
2048	Continuous SW Quality Monitoring Using Datasondes
2061	General SW Quality Sample Collection
2062	Dissolved Reactive Phosphorus (DRP) Collection & Field Processing
2063	Chlorophyll <i>a</i> Collection & Field Processing
2064	Fecal Coliform Sample Collection
2065	Sediment Sampling
9021	Quality Control Samples and Field Measurements
9025	Field Equipment Cleaning Procedures
9040	Station, Sample ID & Chain of Custody Procedures
6300	Physical Characterization
6301	Habitat Assessment

- ADEM SOP/QCA Manual Volume 2 – Aquatic Macroinvertebrate Assessment (2005)
- ADEM SOP/QCA Manual Volume 5 – Algal Growth Potential Testing (2004)

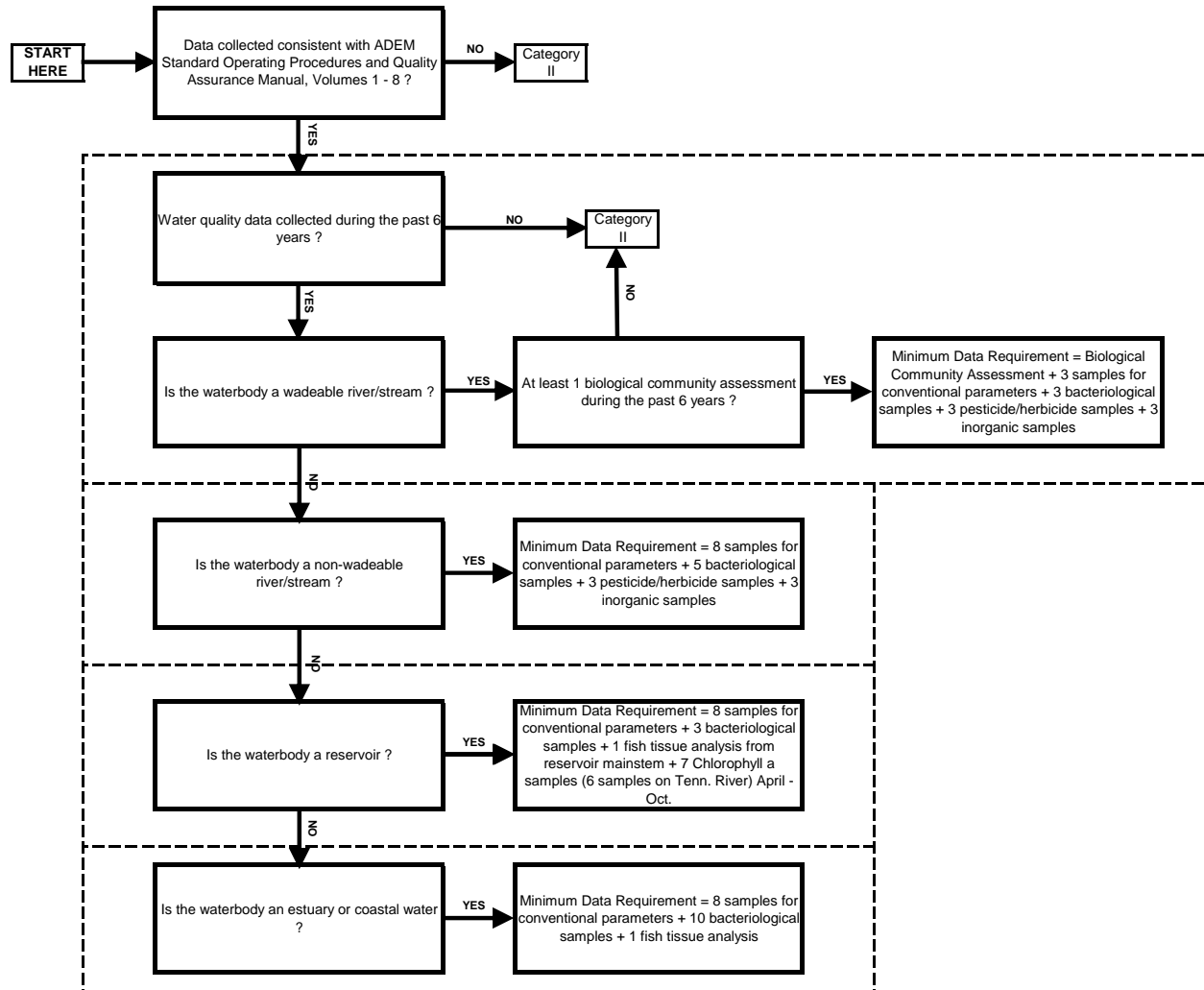
In addition, the data must have been collected within the last six years. The six year timeframe would capture all data collected by ADEM during one complete rotation of the five year monitoring schedule currently used by the Department. Failure to satisfy both of these conditions places the waterbody in Category 2. If these two conditions are met, the determination of the minimum data requirement is dependent upon the waterbody type. Waterbody types include wadeable rivers and streams, non-wadeable rivers and streams, reservoirs and reservoir embayments, and estuary and coastal waters. In addition, the minimum data requirement may change if pollutant sources upstream of the monitoring location are likely. Failure to meet the minimum data requirement for any waterbody type will place the waterbody in Category 2. The following list and **Figure 2** describe the minimum data requirements for assessing waters classified as OAW.

- Wadeable River or Stream
 - 1 Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) or 1 Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT) or 1 Level III WMB-EPT plus 1 fish community assessment (IBI). In addition, a habitat assessment must be completed with each biological assessment. Currently,

metrics for the fish IBI have been calibrated only in the Black Warrior and Cahaba River basins.

- 3 conventional parameter samples (including samples for nutrient analysis)
 - 3 bacteriological samples
 - 3 pesticide / herbicide samples
 - 3 inorganic samples
- Non-wadeable River or Stream
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 5 bacteriological samples (1 geometric mean)
 - 3 pesticide / herbicide samples
 - 3 inorganic samples
- Reservoirs and Embayments
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 3 bacteriological samples
 - 1 fish tissue analysis from the reservoir mainstem
 - 7 chlorophyll a samples collected between April and October (For the Tennessee River Basin: 6 chlorophyll a samples collected between April and September)
- Estuary or Coastal Waters
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric means)
 - 1 fish tissue analysis

Figure 2
Minimum Data Requirements for the OAW Designated Use



Biological community assessment means:

- 1 Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) or
- 1 Level III Wadeable Multi-habitat Bioassessment – EPT Families (WMB-EPT) or
- Level III WMB-EPT plus 1 fish community assessment (IBI)

4.1.2 Use Support Assessment for OAW Waters

Once the minimum data requirements have been met an assessment of the data can be completed resulting in the categorization of the waterbody as either fully supporting the OAW use (Category 1) or not fully supporting the OAW use (Category 5). The assessment process considers the available data and may include any fish consumption advisories, shellfish harvesting closure notices, chemical specific data, bacteriological data, biological community assessments, habitat assessments, periphyton assessments, and toxicity evaluations.

The OAW-classified waterbody is placed in Category 1 if all of the following are true:

- There is no fish/shellfish consumption advisory issued by the Alabama Department of Public Health (ADPH) for the waterbody.
- The Level IV WMB-I assessment result is “good” or “excellent”, or the Level III WMB-EPT assessment is “good” or “excellent” or the Level III WMB-EPT assessment is “good” or “excellent” and the fish community IBI is “fair”, “good”, or “excellent” (Wadeable streams only).
- The growing season mean chlorophyll *a* criterion has not been exceeded where such a criterion has been established. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion.
- There is not an exceedance of any toxic pollutant criterion during the previous six years.
- There are no exceedances of conventional parameters, except due to natural conditions.
- Bacteriological sample results from a single sample in excess of 200 colonies fecal coliform per 100 ml will require a follow-up collection of 5 samples collected during a 30 day period to calculate the geometric mean fecal coliform density in reservoirs and wadeable streams. If the geometric mean fecal coliform density is less than or equal to 200 colonies/100 ml the waterbody will be considered fully meeting the bacteria criteria for this designated use. In coastal waters designated as OAW the geometric mean of enterococci sample must be less than 35 colonies/100 ml and not more than 10% of the individual samples (as determined by the binomial distribution function and Table 2) can exceed 104 colonies/100 ml.

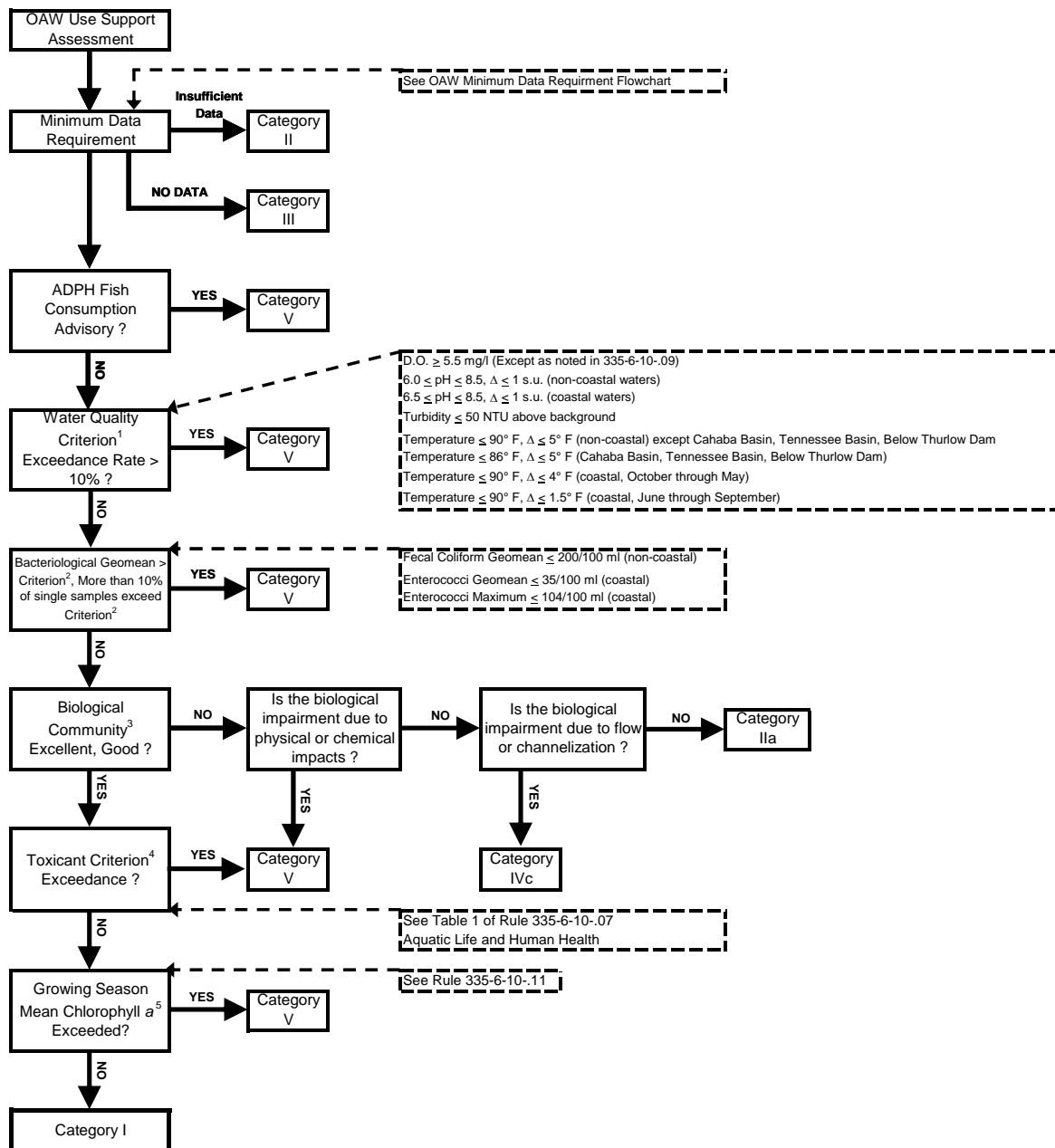
The OAW-classified waterbody is placed in Category 5 if any of the following are true:

- There is a fish consumption advisory issued by the ADPH.
- The Level IV WMB-I assessment result is less than “good”, or the Level III WMB-EPT assessment is less than “good” or the Level III WMB-EPT assessment is less than “good” and the fish community IBI is less than “fair”. In addition, a potential anthropogenic cause for the degraded condition must be identified (Wadeable streams only).

- There is an exceedance of a conventional parameter for other than natural causes.
- There is an exceedance of any toxic pollutant criterion during the previous six years.
- The geometric mean fecal coliform density exceeds 200 colonies/100 ml in follow-up samples collected in response to an exceedance of 200 colonies/100 ml in a single sample. In coastal waters the geometric mean enterococci density exceeds 35 colonies/100 ml.
- The growing season mean chlorophyll *a* criterion has been exceeded where such a criterion has been established. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion.

Figure 3 illustrates the assessment process for OAW waters.

Figure 3
Outstanding Alabama Water (OAW) Assessment Methodology



1 Water Quality Criterion refers to pH, Dissolved Oxygen, turbidity, and temperature resulting from heat sources

2 Bacteriological Criterion refers to both the single sample maximum and geometric mean, see discussion in Section 4.1.2

3 Biological community refers to macroinvertebrates and/or fish in wadeable rivers/streams only (See Minimum Data Requirements)

4 Toxicant Criterion refers to toxics listed in 335-6-10-.07

5 Applies only to reservoirs with established Chlorophyll a criteria and not during extreme hydrologic events

Special Note - Natural waters may, on occasion, have characteristics outside of the limits established by these criteria. These criteria relate to condition of waters as affected by the discharge of sewage, industrial wastes, or other wastes, not to conditions resulting from natural forces. See 335-6-10-.05(4)

4.2 Public Water Supply (PWS)

The best usage of waters assigned this classification is as a source of water supply for drinking or food-processing purposes after approved treatment. Waterbodies assigned the PWS use are considered safe for drinking or food-processing purposes if subjected to treatment approved by the Department equal to coagulation, sedimentation, filtration and disinfection, with additional treatment if necessary to remove naturally present impurities. Beneficial uses encompassed within this classification include: aquatic life support and wildlife propagation, fish and shellfish harvesting and consumption, drinking and food-processing water supply, water contact recreation, agricultural irrigation, livestock watering and industrial cooling and process water supply.

4.2.1 Minimum Data Requirement for PWS Waters

For waters with the PWS classification the available data must have been collected consistent with the following standard operating procedures (SOP) manuals:

SOP#	Title
2040	Stream Flow Abbreviated Measurement Method
2041	SW Temperature Field Measurements
2042	SW pH Field Measurements
2043	SW Specific Conductivity Field Measurements
2044	SW Turbidity Field Measurements
2045	SW Dissolved Oxygen Field Measurements
2046	Photic Zone Measurements and Visibility Determinations
2048	Continuous SW Quality Monitoring Using Datasondes
2061	General SW Quality Sample Collection
2062	Dissolved Reactive Phosphorus (DRP) Collection & Field Processing
2063	Chlorophyll <i>a</i> Collection & Field Processing
2064	Fecal Coliform Sample Collection
2065	Sediment Sampling
9021	Quality Control Samples and Field Measurements
9025	Field Equipment Cleaning Procedures
9040	Station, Sample ID & Chain of Custody Procedures
6300	Physical Characterization
6301	Habitat Assessment

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- ADEM SOP/QCA Manual Volume 2 – Aquatic Macroinvertebrate Assessment (2005)
- ADEM SOP/QCA Manual Volume 5 – Algal Growth Potential Testing (2004)

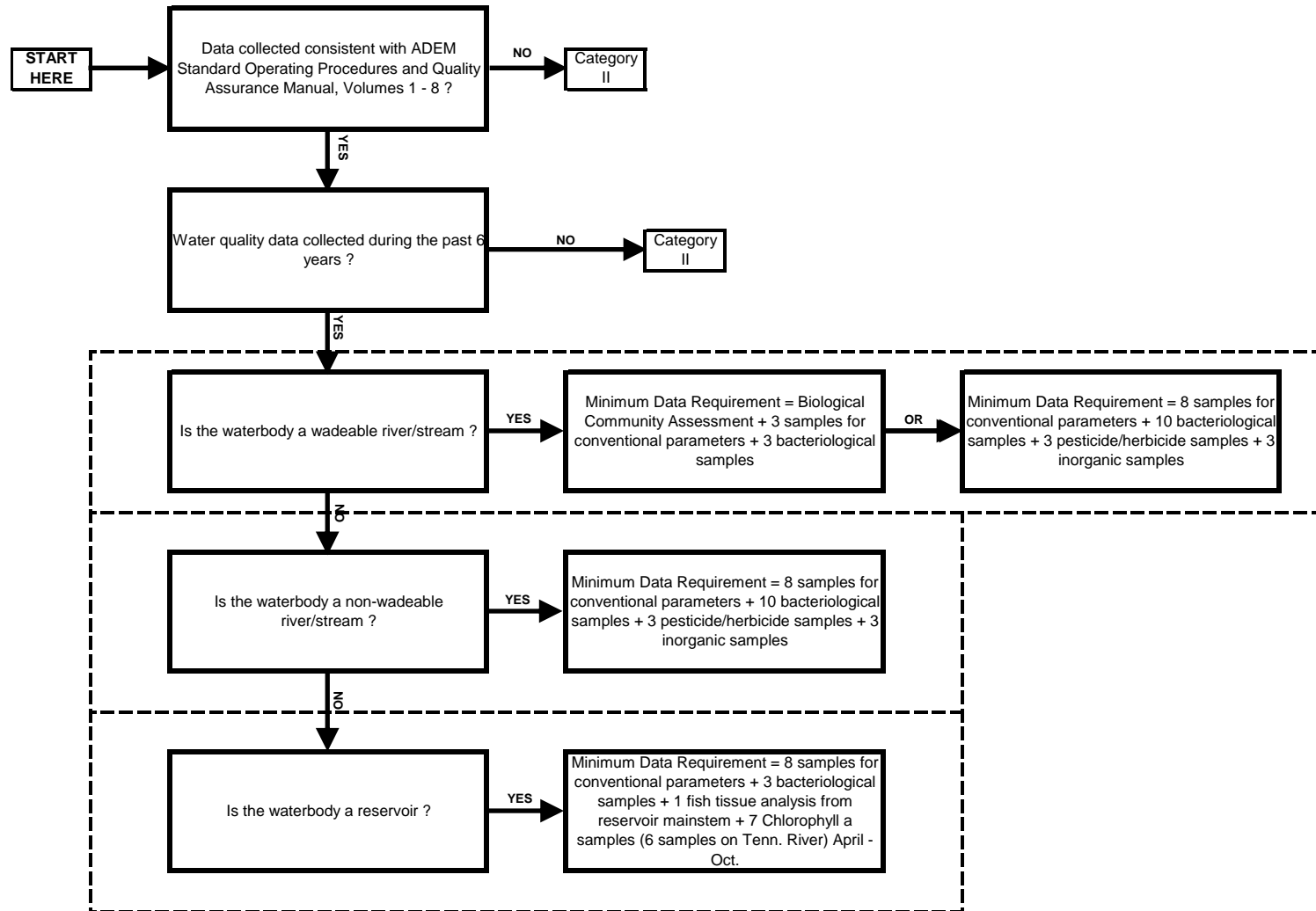
In addition, the data must have been collected within the last six years. The six year timeframe would capture all data collected by ADEM during one complete rotation of the five year monitoring schedule currently used by the Department.

Failure to satisfy both of these conditions places the waterbody in Category 2. If these two conditions are met, the determination of the minimum data requirement is dependent upon the waterbody type. Waterbody types include wadeable rivers and streams, non-wadeable rivers and streams, reservoirs and reservoir embayments, and estuary and coastal waters. Failure to meet the minimum data requirement will place the waterbody in Category 2. The following list and **Figure 4** describe the minimum data requirement for assessing waters classified as PWS.

- Wadeable River or Stream
 - 1 Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) or 2 Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT) or 1 Level III WMB-EPT plus 1 fish community assessment (IBI). In addition, a habitat assessment must be completed with each biological assessment. Currently, metrics for the fish IBI have been calibrated only in the Black Warrior and Cahaba River basins.
 - 3 conventional parameter samples (including samples for nutrient analysis)
 - 3 bacteriological samples
- OR**
- 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)
 - 3 pesticide / herbicide samples
 - 3 inorganic samples
- Non-wadeable River or Stream
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)
 - 3 pesticide / herbicide samples
 - 3 inorganic samples
- Reservoirs and Embayments
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 3 bacteriological samples
 - 1 fish tissue analysis from the reservoir mainstem
 - 7 chlorophyll *a* samples collected between April and October (For the Tennessee River Basin: 6 chlorophyll *a* samples collected between April and September)
- Estuary or Coastal Waters

- 8 conventional parameter samples (including samples for nutrient analysis)
- 10 bacteriological samples (2 geometric mean samples)
- 1 fish tissue analysis

Figure 4
Minimum Data Requirements for the PWS Designated Use



Biological community assessment means:

- 1 Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) or
- 2 Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT) or
- 1 Level III WMB-EPT plus 1 fish community assessment (IBI)

4.2.2 Use Support Assessment for PWS Waters

Once the minimum data requirement has been met an assessment of the data can be completed resulting in the categorization of the waterbody as either fully supporting the PWS use (Category 1) or not fully supporting the PWS use (Category 5). The assessment process considers the available data and may include any fish consumption advisories, shellfish harvesting closure notices, chemical specific data, bacteriological data, biological community assessments, habitat assessments, periphyton assessments, drinking water system compliance records, and toxicity evaluations.

The PWS-classified waterbody is placed in Category 1 if all of the following are true:

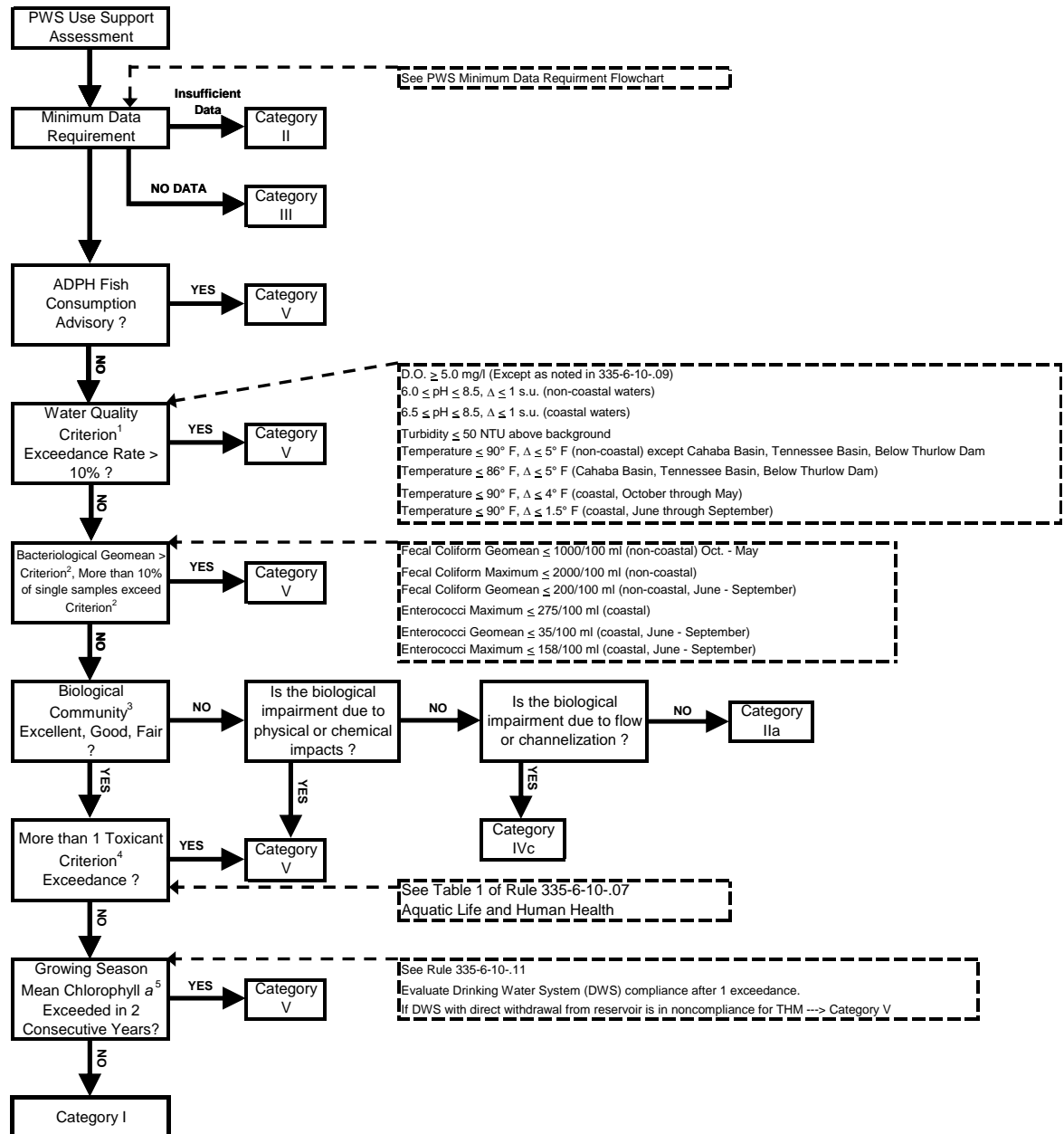
- There is no fish/shellfish consumption advisory issued by the Alabama Department of Public Health (ADPH) for the waterbody.
- The Level IV WMB-I assessment result is “fair”, “good” or “excellent”, or both Level III WMB-EPT assessments are “fair”, “good” or “excellent” or the Level III WMB-EPT assessment is “fair”, “good” or “excellent” and the fish community IBI is “fair”, “good”, or “excellent”. (Wadeable streams only)
- The growing season mean chlorophyll *a* criterion has not been exceeded in two consecutive years where such a criterion has been established unless a drinking water system withdrawing from waterbody is not in compliance with a THM requirement. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion.
- There is no more than one exceedance of a particular toxic pollutant criterion during the previous six years.
- The water quality criteria exceedance rate for conventional parameters is not more than 10% as determined using the binomial distribution function and Table 2. Conventional parameters include dissolved oxygen, pH, temperature (where influenced by a heated discharge), and turbidity.
- Bacteriological sample results from a single sample in excess of 200 colonies fecal coliform per 100 ml in non-coastal waters and in excess of 35 colonies enterococci per 100 ml in coastal waters will necessitate a follow-up collection of 5 samples during a 30 day period to calculate the geometric mean density. If the geometric mean fecal coliform density in non-coastal waters is less than or equal to 200 colonies/100 ml (June through September) or less than or equal to 1000 colonies/100ml (October through May) the waterbody will be considered fully meeting the bacteria criteria for this designated use. In coastal waters (June through September) the geometric mean enterococci density must be less than 35 colonies / 100 ml and 10% or less (as determined using the binomial distribution function and Table 2) of the single samples must be less than 158 colonies/100 ml (June through September) or less than 275 colonies/100 ml (October through May).

The PWS-classified waterbody is placed in Category 5 if any of the following are true:

- There is a fish consumption advisory issued by the ADPH.
- The Level IV WMB-I assessment result is less than “fair”, or either of the Level III WMB-EPT assessments are less than “fair” or the Level III WMB-EPT assessment is less than “fair” and the fish community IBI is less than “fair”. In addition, a potential anthropogenic cause for the degraded condition must be identified using observations made during the sampling events or from information contained in the Department’s geographic information system. (Wadeable streams only)
- The water quality criteria exceedance rate for conventional parameters is more than 10% as defined in Table 2.
- There is more than one exceedance of a particular toxic pollutant criterion during the previous six years.
- In non-coastal waters the geometric mean fecal coliform density exceeded 200 colonies/100 ml in follow-up samples collected between June and September in response to an exceedance of 200 colonies/100 ml in a single sample. During October through May the geometric mean fecal coliform density exceeded 1000 colonies/100ml. In coastal waters the enterococci geometric mean density exceeded 35 colonies/100 ml during June through September or more than 10% of the individual samples (as defined in Table 2) exceeded 158 colonies/100 ml or 275 colonies/100 ml during October through May.
- The growing season mean chlorophyll *a* criterion has been exceeded in two consecutive years or three times during the previous six years where such a criterion has been established or after one exceedance of the chlorophyll *a* criterion if a drinking water system is out of compliance with the THM requirement. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion. However, one exceedance of the chlorophyll *a* criterion may be sufficient justification for inclusion of a water in Category 5 when the exceedance is determined to be result of increasing nutrient loading from anthropogenic sources. These determinations will be made on a case by case basis and the decision will be documented in the ADB.

Figure 5 illustrates the assessment process for PWS waters.

Figure 5
Public Water Supply (PWS) Categorization Methodology



1 Water Quality Criterion refers to pH, Dissolved Oxygen, turbidity, and temperature resulting from heat sources

2 Bacteriological Criterion refers to both the single sample maximum and geometric mean, see discussion in Section 4.2.2

3 Biological community refers to macroinvertebrates and/or fish in wadeable rivers/streams only (See Minimum Data Requirements)

4 Toxicant Criterion refers to toxics listed in 335-6-10-.07

5 Applies only to reservoirs with established Chlorophyll a criteria and not during extreme hydrologic events

Special Note - Natural waters may, on occasion, have characteristics outside of the limits established by these criteria. These criteria relate to condition of waters as affected by the discharge of sewage, industrial wastes, or other wastes, not to conditions resulting from natural forces. See 335-6-10-.05(4)

4.3 Swimming and Other Whole Body Water-Contact Sports (S)

The best usage of waters assigned this classification is for swimming and other whole body water-contact sports. Waterbodies assigned the S use, under proper sanitary supervision by the controlling health authorities, will meet accepted standards of water quality for outdoor swimming places and will be considered satisfactory for swimming and other whole body water-contact sports. Beneficial uses encompassed within this classification include: aquatic life support and wildlife propagation, fish and shellfish harvesting and consumption, water contact recreation, agricultural irrigation, livestock watering and industrial cooling and process water supply.

4.3.1 Minimum Data Requirement for S Waters

For waters with the S classification the available data must have been collected consistent with the following standard operating procedures (SOP) manuals:

SOP#	Title
2040	Stream Flow Abbreviated Measurement Method
2041	SW Temperature Field Measurements
2042	SW pH Field Measurements
2043	SW Specific Conductivity Field Measurements
2044	SW Turbidity Field Measurements
2045	SW Dissolved Oxygen Field Measurements
2046	Photic Zone Measurements and Visibility Determinations
2048	Continuous SW Quality Monitoring Using Datasondes
2061	General SW Quality Sample Collection
2062	Dissolved Reactive Phosphorus (DRP) Collection & Field Processing
2063	Chlorophyll_a Collection & Field Processing
2064	Fecal Coliform Sample Collection
2065	Sediment Sampling
9021	Quality Control Samples and Field Measurements
9025	Field Equipment Cleaning Procedures
9040	Station, Sample ID & Chain of Custody Procedures
6300	Physical Characterization
6301	Habitat Assessment

- ADEM SOP/QCA Manual Volume 2 – Aquatic Macroinvertebrate Assessment (2005)
- ADEM SOP/QCA Manual Volume 5 – Algal Growth Potential Testing (2004)

In addition, the data must have been collected within the last six years. The six year timeframe would capture all data collected by ADEM during one complete rotation of the five year monitoring schedule currently used by the Department. Failure to satisfy both of these conditions places the waterbody in Category 2. If these two conditions are met, the determination of the minimum data requirement is dependent upon the waterbody type. Waterbody types include wadeable rivers

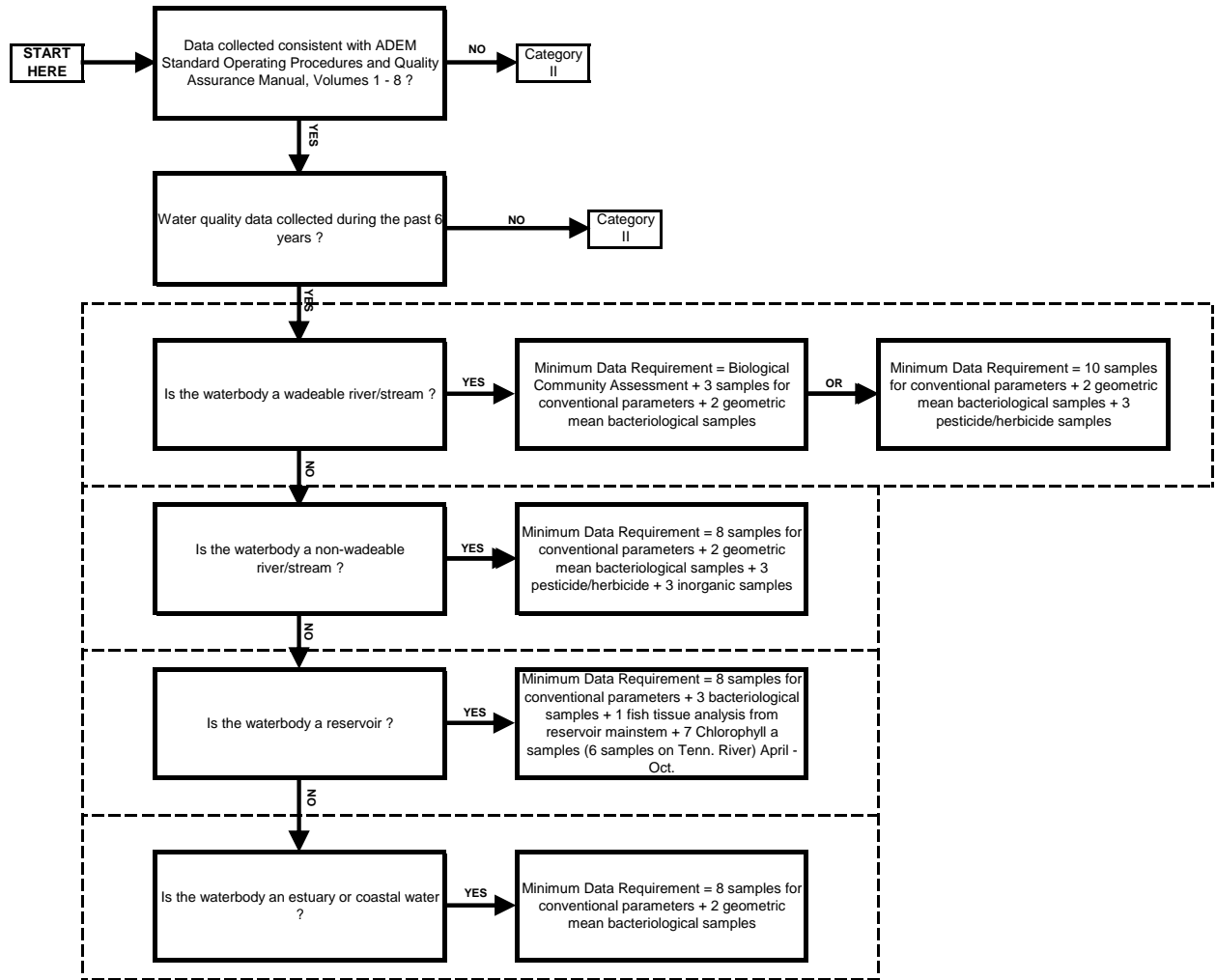
and streams, non-wadeable rivers and streams, reservoirs and reservoir embayments, and estuary and coastal waters. Failure to meet the minimum data requirement will place the waterbody in Category 2. The following list and **Figure 6** describe the minimum data requirement for assessing waters classified as S.

- Wadeable River or Stream
 - 1 Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) or 2 Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT) or 1 Level III WMB-EPT plus 1 fish community assessment (IBI). In addition, a habitat assessment must be completed with each biological assessment. Currently, metrics for the fish IBI have been calibrated only in the Black Warrior and Cahaba River basins.
 - 3 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)

OR

- 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)
 - 3 pesticide / herbicide samples
- Non-wadeable River or Stream
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)
 - 3 pesticide / herbicide samples
 - 3 inorganic samples
- Reservoirs and Embayments
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 3 bacteriological samples
 - 1 fish tissue analysis from the reservoir mainstem
 - 7 chlorophyll *a* samples collected between April and October (For the Tennessee River Basin: 6 chlorophyll *a* samples collected between April and September)
- Estuary or Coastal Waters
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)

Figure 6
Minimum Data Requirements for the S Designated Use



Biological community assessment means:

- 1 Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) or
- 2 Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT) or
- 1 Level III WMB-EPT plus 1 fish community assessment (IBI)

4.3.2 Use Support Assessment for S Waters

Once the minimum data requirement has been met an assessment of the data can be completed resulting in the categorization of the waterbody as either fully supporting the S use (Category 1) or not fully supporting the S use (Category 5). The assessment process considers the available data and may include any fish consumption advisories, shellfish harvesting closure notices, chemical specific data, bacteriological data, biological community assessments, habitat assessments, periphyton assessments, beach closure notices and toxicity evaluations.

The S-classified waterbody is placed in Category 1 if all of the following are true:

- There is no fish/shellfish consumption advisory issued by the Alabama Department of Public Health (ADPH) for the waterbody.
- The Level IV WMB-I assessment result is “fair”, “good” or “excellent”, or at least one of the Level III WMB-EPT assessments is “fair”, “good” or “excellent” or the Level III WMB-EPT assessment is “fair”, “good” or “excellent” and the fish community IBI is “fair”, “good”, or “excellent”. (Wadeable streams only)
- There is no more than one exceedance of a particular toxic pollutant criterion during the previous six years.
- The water quality criteria exceedance rate for conventional parameters is not more than 10% as determined using the binomial distribution function and Table 2. Conventional parameters include dissolved oxygen, pH, temperature (where influenced by a heated discharge), and turbidity. Determination of the 10% exceedance rate is discussed in Section 4.8.
- Bacteriological sample results from a single sample in excess of 200 colonies fecal coliform per 100 ml will require a follow-up collection of 5 samples collected during a 30 day period to calculate the geometric mean fecal coliform density in reservoirs. If the geometric mean fecal coliform density is less than or equal to 200 colonies/100 ml the waterbody will be considered fully meeting the bacteria criteria for this designated use. In coastal waters designated as S the geometric mean of enterococci sample must be less than 35 colonies/100 ml and not more than 10% of the individual samples (as determined by the binomial distribution function and Table 2) can exceed 104 colonies/100 ml.
- The growing season mean chlorophyll *a* criterion has not been exceeded in two consecutive years where such a criterion has been established. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion.

The S-classified waterbody is placed in Category 5 if any of the following are true:

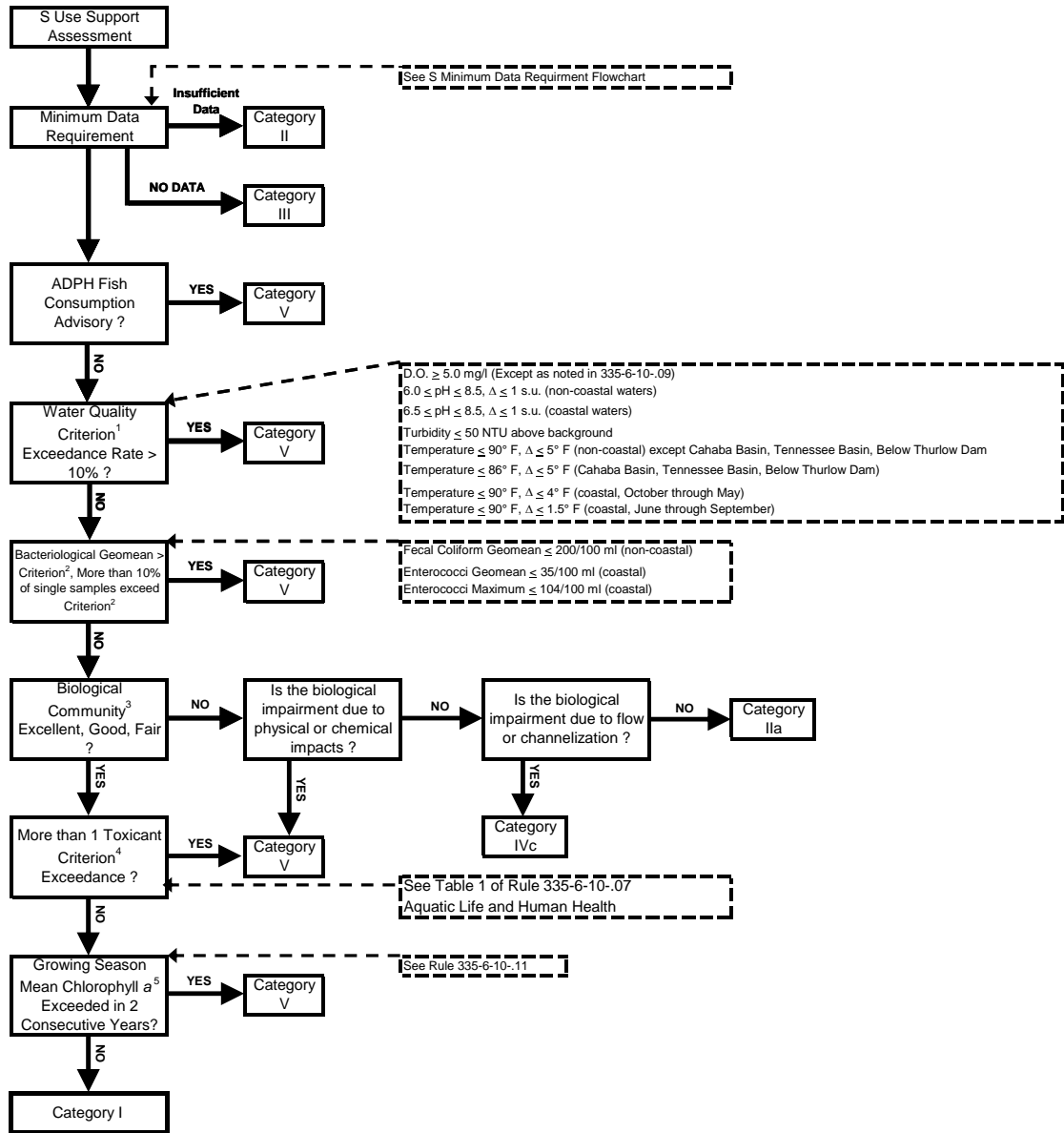
- There is a fish consumption advisory issued by the ADPH.
- The Level IV WMB-I assessment result is less than “fair”, or both of the Level III WMB-EPT assessments are less than “fair” or the Level III WMB-EPT assessment is less than “fair” and the fish community IBI is

less than “fair”. In addition, a potential anthropogenic cause for the degraded condition must be identified. (Wadeable streams only)

- The water quality criteria exceedance rate for conventional parameters is more than 10% as defined in Table 2.
- There is more than one exceedance of a particular toxic pollutant criterion during the previous six years.
- In reservoirs the geometric mean fecal coliform density exceeds 200 colonies/100 ml in follow-up samples collected in response to an exceedance of 200 colonies/100 ml in a single sample. In coastal waters designated as S the geometric mean of enterococci sample must be less than 35 colonies/100 ml and not more than 10% of the individual samples (as determined by the binomial distribution function and Table 2) can exceed 104 colonies/100 ml.
- For reservoirs with established chlorophyll *a* criteria, a criterion has been exceeded in two consecutive years or three times during the previous six years. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion. However, one exceedance of the chlorophyll *a* criterion may be sufficient justification for inclusion of a water in Category 5 when the exceedance is determined to be the result of increasing nutrient loading from anthropogenic sources. These determinations will be made on a case by case basis and the decision will be documented in the ADB.

Figure 7 illustrates the assessment process for S waters.

Figure 7
Swimming and Other Whole Body Water-Contact Sports (S) Categorization Methodology



1 Water Quality Criterion refers to pH, Dissolved Oxygen, turbidity, and temperature resulting from heat sources

2 Bacteriological Criterion refers to both the single sample maximum and geometric mean, see discussion in Section 4.3.2

3 Biological community refers to macroinvertebrates and/or fish in wadeable rivers/streams only (See Minimum Data Requirements)

4 Toxicant Criterion refers to toxics listed in 335-6-10-.07

5 Applies only to reservoirs with established Chlorophyll a criteria and not during extreme hydrologic events

Special Note - Natural waters may, on occasion, have characteristics outside of the limits established by these criteria. These criteria relate to condition of waters as affected by the discharge of sewage, industrial wastes, or other wastes, not to conditions resulting from natural forces. See 335-6-10-.05(4)

4.4 Shellfish Harvesting (SH)

The best usage of waters assigned this classification is the propagation and harvesting of shellfish (oysters) for sale or for use as a food product. Waterbodies assigned the SH use will meet the sanitary and bacteriological standards included in the *National Shellfish Sanitation Program Model Ordinance, 1999, Chapter IV*, published by the Food and Drug Administration, U.S. Department of Health and Human Services and the requirements of the Alabama Department of Public Health. The waters will also be of a quality suitable for the propagation of fish and other aquatic life, including shrimp and crabs. Beneficial uses encompassed within this classification include: aquatic life support and wildlife propagation, fish and shellfish harvesting and consumption, water contact recreation, agricultural irrigation, livestock watering and industrial cooling and process water supply.

4.4.1 Minimum Data Requirement for SH Waters

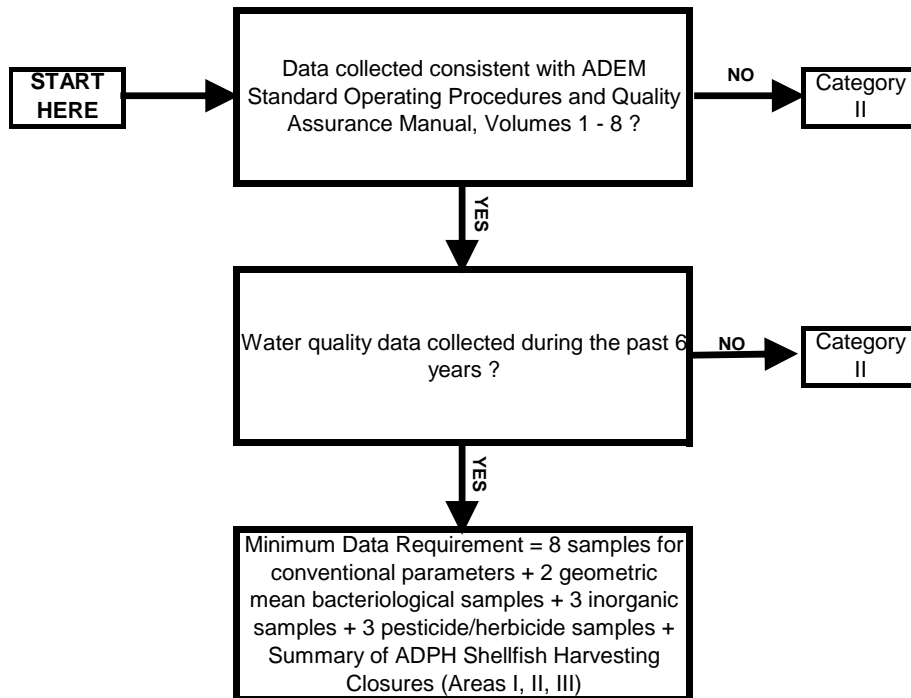
For waters with the SH classification the available data must have been collected consistent with the following standard operating procedures (SOP) manual:

SOP#	Title
2040	Stream Flow Abbreviated Measurement Method
2041	SW Temperature Field Measurements
2042	SW pH Field Measurements
2043	SW Specific Conductivity Field Measurements
2044	SW Turbidity Field Measurements
2045	SW Dissolved Oxygen Field Measurements
2046	Photic Zone Measurements and Visibility Determinations
2048	Continuous SW Quality Monitoring Using Datasondes
2061	General SW Quality Sample Collection
2062	Dissolved Reactive Phosphorus (DRP) Collection & Field Processing
2063	Chlorophyll_a Collection & Field Processing
2064	Fecal Coliform Sample Collection
2065	Sediment Sampling
9021	Quality Control Samples and Field Measurements
9025	Field Equipment Cleaning Procedures
9040	Station, Sample ID & Chain of Custody Procedures
6300	Physical Characterization
6301	Habitat Assessment

In addition, the data must have been collected within the last six years. The six year timeframe would capture all data collected by ADEM during one complete rotation of the five year monitoring schedule currently used by the Department. Failure to satisfy both of these conditions places the waterbody in Category 2. The following list and **Figure 8** describe the minimum data requirement for assessing waters classified as SH.

- 8 conventional parameter samples (including samples for nutrient analysis)
- 10 bacteriological samples (2 geometric mean samples)
- 3 inorganic samples
- 3 pesticide/herbicide samples
- Summary of ADPH shellfish harvesting closure notices for Areas I, II, and III

Figure 8
Minimum Data Requirements for the SH Designated Use



4.4.2 Use Support Assessment for SH Waters

Once the minimum data requirement has been met an assessment of the data can be completed resulting in the categorization of the waterbody as either fully supporting the SH use (Category 1) or not fully supporting the SH use (Category 5). The assessment process considers the available data and may include any fish consumption advisories, shellfish harvesting closure notices, chemical specific data, bacteriological data, and toxicity evaluations.

The SH-classified waterbody is placed in Category 1 if:

- There is no fish/shellfish consumption advisory issued by the Alabama Department of Public Health (ADPH) for the waterbody and the ADPH “conditionally approved” shellfish harvesting areas (Areas I, II, and III) are open at least 75% of the year;
- There is no more than one exceedance of a particular toxic pollutant criterion during the previous six years and;
- The water quality criteria exceedance rate for conventional parameters is not more than 10% as determined using the binomial distribution function for the sample sizes shown in Table 2. Conventional parameters include dissolved oxygen, pH, temperature (where influenced by a heated discharge), and turbidity. Determination of the 10% exceedance rate is discussed in Section 4.8.

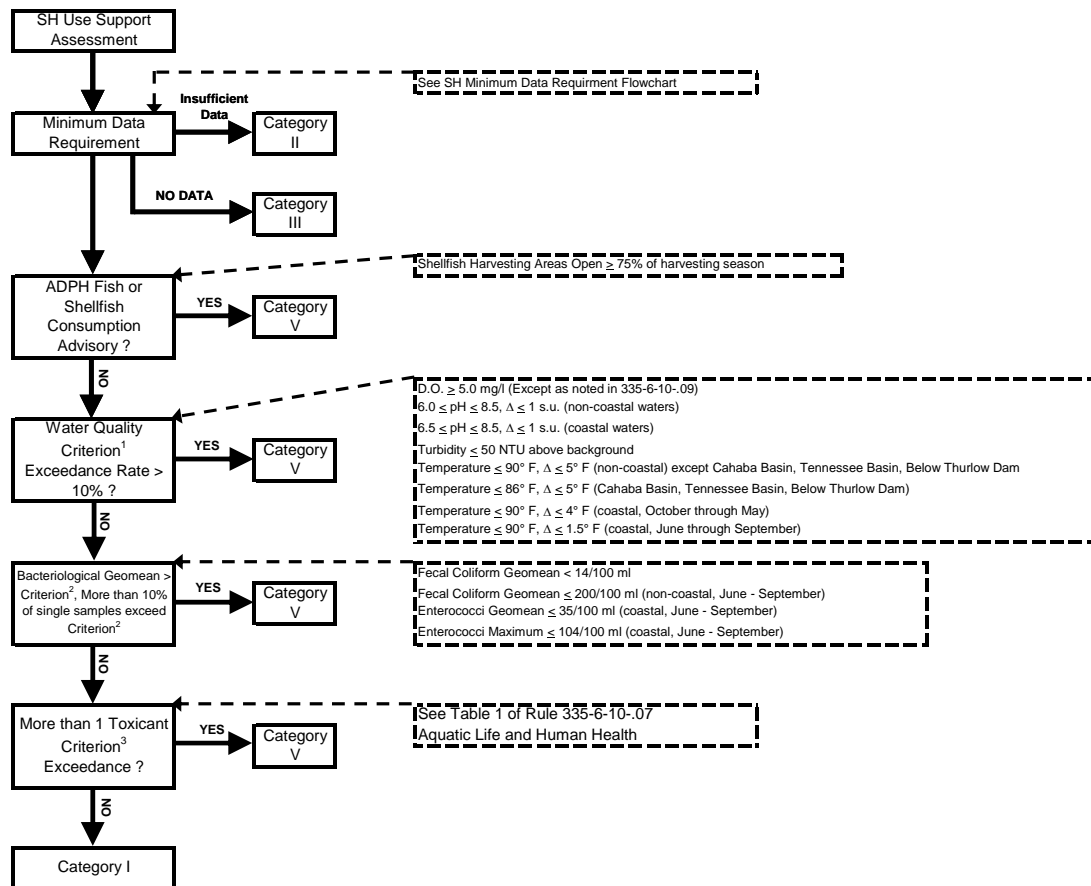
- The geometric mean of 5 fecal coliform samples collected during a 30-day period must be less than or equal to 14 colonies/100 ml and no more than 10% of the samples can exceed 43 colonies/100 ml. In addition, during June through September the geometric mean enterococci density must be less than 35 colonies/100 ml and 10% or less (as determined using the binomial distribution function and Table 2) of the single samples must be less than 104 colonies/100 ml.

The SH-classified waterbody is placed in Category 5 if:

- There is a fish consumption advisory issued by the ADPH or a designated shellfish harvesting area (Area I, II, or III) is closed by ADPH more than 25% of the days during the year or;
- The water quality criteria exceedance rate for conventional parameters is more than 10% as determined using the binomial distribution function for the sample sizes shown in Table 2 or;
- The geometric mean of 5 fecal coliform samples collected during a 30-day period is greater than 14 colonies/100 ml or more than 10% of the samples exceed 43 colonies/100 ml. In addition, during June through September the geometric mean enterococci density is greater than 35 colonies/100 ml and more than 10% (as determined using the binomial distribution function and Table 2) of the single samples are greater than 104 colonies/100 ml.
- There is more than one exceedance of a particular toxic pollutant criterion during the previous six years.

Figure 9 illustrates the assessment process for SH waters.

Figure 9
Shellfish Harvesting (SH) Categorization Methodology



1 Water Quality Criterion refers to pH, Dissolved Oxygen, turbidity, and temperature resulting from heat sources

2 Bacteriological Criterion refers to both the single sample maximum and geometric mean

3 Toxicant Criterion refers to toxics listed in 335-6-10-.07

Special Note - Natural waters may, on occasion, have characteristics outside of the limits established by these criteria. These criteria relate to condition of waters as affected by the discharge of sewage, industrial wastes, or other wastes, not to conditions resulting from natural forces. See 335-6-10-.05(4)

4.5 Fish and Wildlife (F&W)

The best usage of waters assigned this classification includes fishing, the propagation of fish, aquatic life, and wildlife, and any other usage except swimming and water-contact sports or as a source of water supply for drinking or food-processing purposes. Waterbodies assigned the F&W classification will be suitable for fish, aquatic life and wildlife propagation. The quality of salt and estuarine waters to which this classification is assigned will also be suitable for the propagation of shrimp and crabs. In addition, it is recognized that these waters may be used for incidental water contact and recreation during June through September, except in the vicinity of wastewater discharges or other conditions beyond the control of the ADPH. These waters will, under proper sanitary supervision by the controlling health authorities, meet accepted standards of water quality for outdoor swimming places and will be considered satisfactory for swimming and other whole body water-contact sports during the months of June through September.

4.5.1 Minimum Data Requirement for F&W Waters

For waters with the F&W classification the available data must have been collected consistent with the following standard operating procedures (SOP) manuals:

SOP#	Title
2040	Stream Flow Abbreviated Measurement Method
2041	SW Temperature Field Measurements
2042	SW pH Field Measurements
2043	SW Specific Conductivity Field Measurements
2044	SW Turbidity Field Measurements
2045	SW Dissolved Oxygen Field Measurements
2046	Photic Zone Measurements and Visibility Determinations
2048	Continuous SW Quality Monitoring Using Datasondes
2061	General SW Quality Sample Collection
2062	Dissolved Reactive Phosphorus (DRP) Collection & Field Processing
2063	Chlorophyll_a Collection & Field Processing
2064	Fecal Coliform Sample Collection
2065	Sediment Sampling
9021	Quality Control Samples and Field Measurements
9025	Field Equipment Cleaning Procedures
9040	Station, Sample ID & Chain of Custody Procedures
6300	Physical Characterization
6301	Habitat Assessment

- ADEM SOP/QCA Manual Volume 2 – Aquatic Macroinvertebrate Assessment (2005)
- ADEM SOP/QCA Manual Volume 5 – Algal Growth Potential Testing (2004)

In addition, the data must have been collected within the last six years. The six year timeframe would capture all data collected by ADEM during one complete

rotation of the five year monitoring schedule currently used by the Department. Failure to satisfy both of these conditions places the waterbody in Category 2. If these two conditions are met, the determination of the minimum data requirement is dependent upon the waterbody type. Waterbody types include wadeable rivers and streams, non-wadeable rivers and streams, reservoirs and reservoir embayments, and estuary and coastal waters. Failure to meet the minimum data requirement will place the waterbody in Category 2. The following list and **Figure 10** describe the minimum data requirement for assessing waters classified as F&W.

- Wadeable River or Stream
 - 1 Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) or 2 Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT) or 1 Level III WMB-EPT plus 1 fish community assessment (IBI). In addition, a habitat assessment must be completed with each biological assessment. Currently, metrics for the fish IBI have been calibrated only in the Black Warrior and Cahaba River basins.
 - 3 conventional parameter samples (including samples for nutrient analysis)
 - 3 bacteriological samples

OR

- 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)
 - 5 pesticide / herbicide samples
 - 5 inorganic samples
- Non-wadeable River or Stream
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)
 - 5 pesticide / herbicide samples
 - 5 inorganic samples

Reservoirs and Embayments

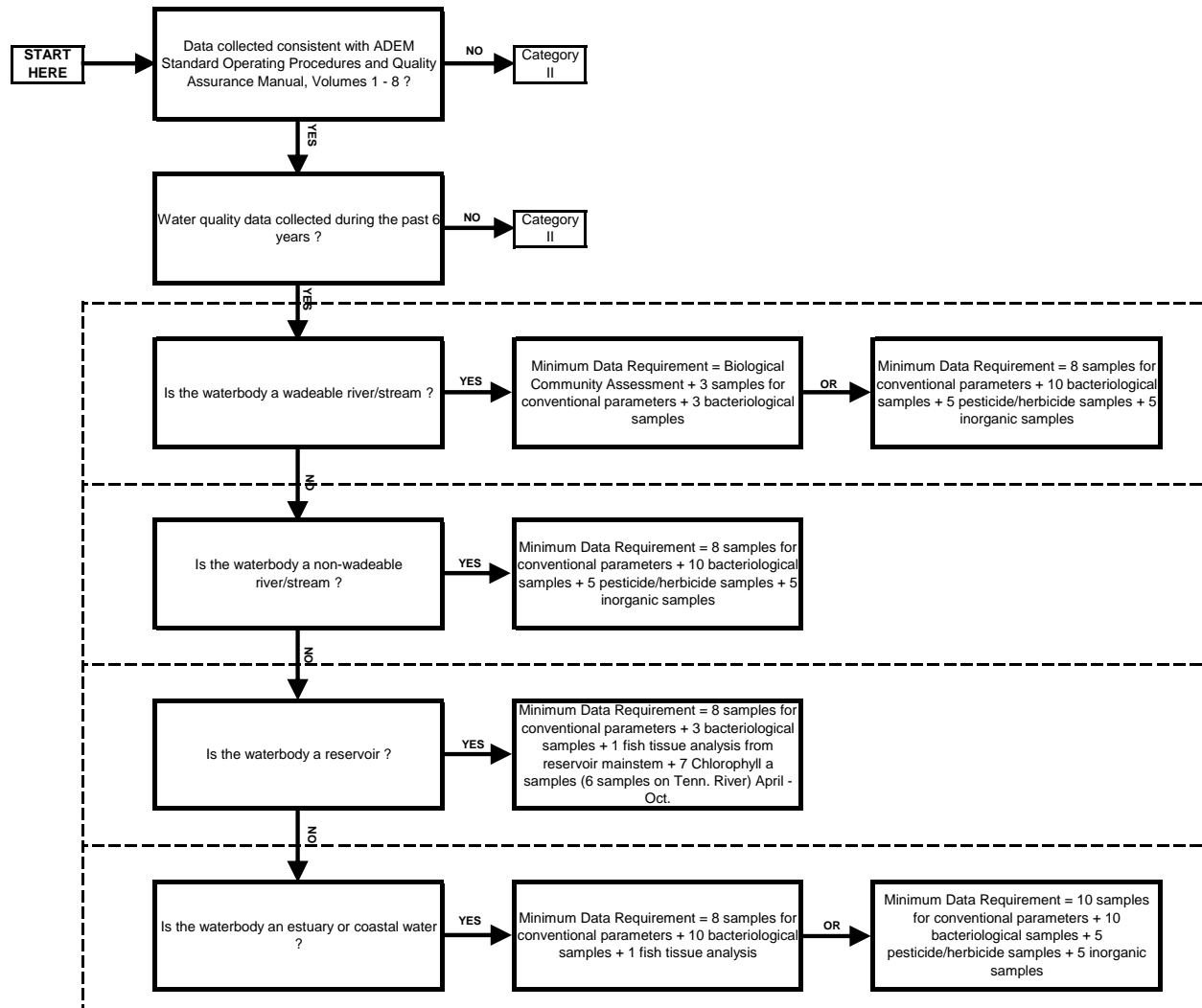
- 8 conventional parameter samples (including samples for nutrient analysis)
- 3 bacteriological samples
- 1 fish tissue analysis from the reservoir mainstem
- 7 chlorophyll *a* samples collected between April and October (For the Tennessee River Basin: 6 chlorophyll *a* samples collected between April and September)

- Estuary or Coastal Waters
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 10 bacteriological samples (2 geometric mean samples)
 - 1 fish tissue analysis

OR

- 8 conventional parameter samples (including samples for nutrient analysis)
- 10 bacteriological samples (2 geometric mean samples)
- 5 pesticide/herbicide samples
- 5 inorganic samples

Figure 10
Minimum Data Requirements for the F&W Designated Use



Biological community assessment means:
 1 Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) or
 2 Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT) or
 1 Level III WMB-EPT plus 1 fish community assessment (IBI)

4.5.2 Use Support Assessment for F&W Waters

Once the minimum data requirement has been met an assessment of the data can be completed resulting in the categorization of the waterbody as either fully supporting the F&W use (Category 1) or not fully supporting the F&W use (Category 5). The assessment process considers the available data and may include any fish consumption advisories, chemical specific data, biological community assessments, bacteriological data, beach closure notices and toxicity evaluations.

The F&W-classified waterbody is placed in Category 1 if all of the following are true:

- There is no fish consumption advisory issued by the Alabama Department of Public Health (ADPH) for the waterbody.
- There are no more than two exceedances of a particular toxic pollutant criterion during the previous six years.
- The Level IV WMB-I assessment result is “fair”, “good” or “excellent”, or either of the Level III WMB-EPT assessments are “fair”, “good” or “excellent” or the Level III WMB-EPT assessment is “fair”, “good” or “excellent” and the fish community IBI is “fair”, “good”, or “excellent”. (Wadeable streams only)
- For reservoirs with established chlorophyll *a* criteria, a criterion has not been exceeded in two consecutive years. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion.
- The water quality criteria exceedance rate for conventional parameters is not more than 10%. Conventional parameters include dissolved oxygen, pH, temperature (where influenced by a heated discharge), and turbidity. Determination of the 10% exceedance rate is discussed in Section 4.8.
- In reservoirs and wadeable streams with biological assessments, bacteriological sample results from a single sample in excess of 200 colonies fecal coliform per 100 ml in non-coastal waters and in excess of 35 colonies enterococci per 100 ml in coastal waters will necessitate a follow-up collection of 5 samples during a 30 day period to calculate the geometric mean density. If the geometric mean fecal coliform density in non-coastal waters is less than or equal to 200 colonies/100 ml (June through September) or less than or equal to 1000 colonies/100ml (October through May) and 10%, as defined in Table 2, or less of the single samples results are less than 2000 colonies/100 ml, the waterbody will be considered fully meeting the bacteria criteria for this designated use. In coastal waters (June through September) the geometric mean enterococci density must be less than 35 colonies / 100 ml and 10% or less (as determined using the binomial distribution function and Table 2) of the single samples must be less than 158 colonies/100 ml (June through September) or less than 275 colonies/100 ml (October through May). Use

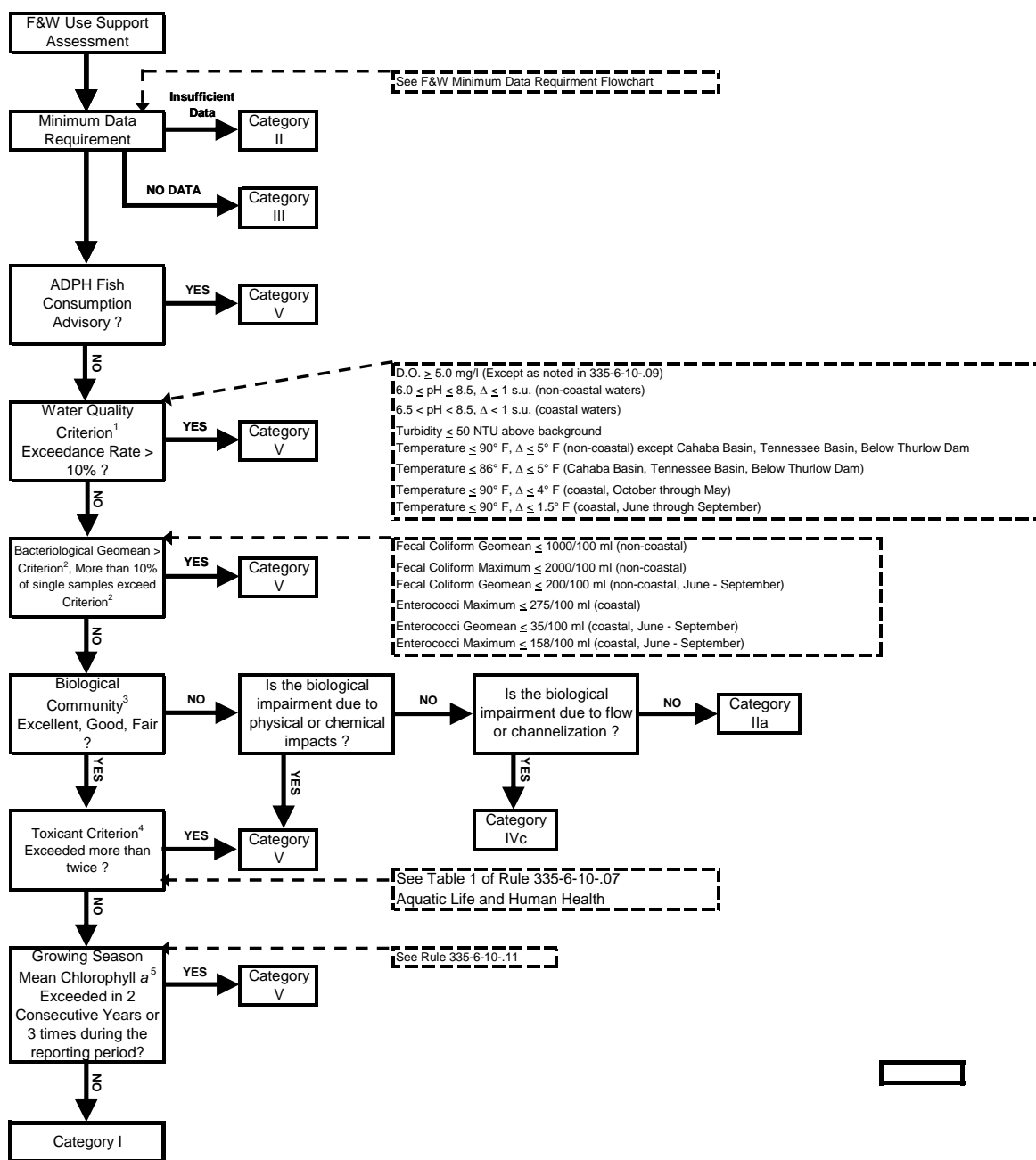
of the 10% rule will only be applied when there is at least the minimum number of samples.

The F&W-classified waterbody is placed in Category 5 if any of the following are true:

- There is a fish consumption advisory issued by the ADPH.
- The water quality criteria exceedance rate for conventional parameters is more than 10% as defined in Table 2.
- The Level IV WMB-I assessment result is less than “fair”, or both of the Level III WMB-EPT assessments are less than “fair” or the Level III WMB-EPT assessment is less than “fair” and the fish community IBI is less than “fair”. In addition, a potential anthropogenic cause for the degraded condition must be identified. (Wadeable streams only)
- The geometric mean fecal coliform density in non-coastal waters is greater than 200 colonies/100 ml (June through September) or more than 1000 colonies/100ml (October through May) and or more than 10% of the single samples results are greater than 2000 colonies/100 ml. In coastal waters (June through September) the geometric mean enterococci density is greater than 35 colonies / 100 ml and more than 10% (as determined using the binomial distribution function and Table 2) of the single samples is greater than 158 colonies/100 ml (June through September) or more than 275 colonies/100 ml (October through May). Use of the 10% rule will only be applied to data sets containing at least the minimum number of samples.
- There are more than two exceedances of a particular toxic pollutant criterion during the previous six years.
- For reservoirs with established chlorophyll *a* criteria, a criterion has been exceeded in two consecutive years or three times during the previous six years. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion. However, one exceedance of the chlorophyll *a* criterion may be sufficient justification for inclusion of a water in Category 5 when the exceedance is determined to be the result of increasing nutrient loading from anthropogenic sources. These determinations will be made on a case by case basis and the decision will be documented in the ADB.

Figure 11 illustrates the assessment process for F&W waters.

Figure 11
Fish and Wildlife (F&W) Categorization Methodology



1 Water Quality Criterion refers to pH, Dissolved Oxygen, turbidity, and temperature resulting from heat sources
 2 Bacteriological Criterion refers to both the single sample maximum and geometric mean, see discussion in Section 4.5.2
 3 Biological community refers to macroinvertebrates and/or fish in wadeable rivers/streams only (See Minimum Data Requirements)
 4 Toxicant Criterion refers to toxics listed in 335-6-10-.07
 5 Applies only to reservoirs with established Chlorophyll a criteria and not during extreme hydrologic events
Special Note - Natural waters may, on occasion, have characteristics outside of the limits established by these criteria. These criteria relate to condition of waters as affected by the discharge of sewage, industrial wastes, or other wastes, not to conditions resulting from natural forces. See 335-6-10-.05(4)

4.6 Limited Warmwater Fishery (LWF)

For the months of December through April the best usage of waters assigned this classification includes fishing, the propagation of fish, aquatic life, and wildlife, and any other usage except swimming and water-contact sports or as a source of water supply for drinking or food-processing purposes. Waterbodies assigned the LWF classification will be suitable for fish, aquatic life and wildlife propagation except during the months of May through November. During May through November the quality of waters to which this classification is assigned will be suitable for agricultural irrigation, livestock watering, industrial cooling and process water supplies, and any other usage, except fishing, bathing, recreational activities, including water-contact sports, or as a source of water supply for drinking or food-processing purposes.

4.6.1 Minimum Data Requirement for LWF Waters

For waters with the LWF classification the available data must have been collected consistent with the following standard operating procedures (SOP) manuals:

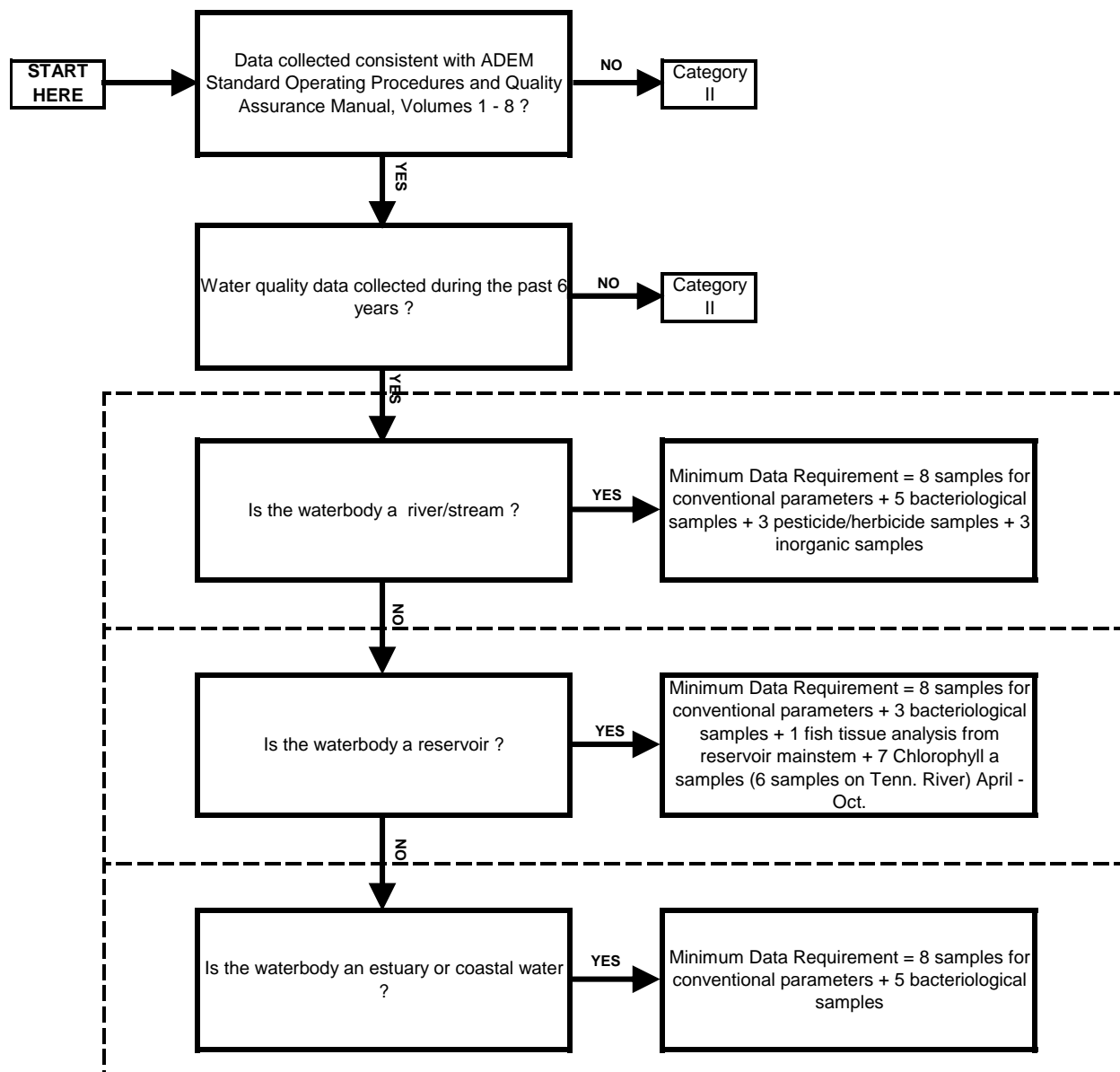
SOP#	Title
2040	Stream Flow Abbreviated Measurement Method
2041	SW Temperature Field Measurements
2042	SW pH Field Measurements
2043	SW Specific Conductivity Field Measurements
2044	SW Turbidity Field Measurements
2045	SW Dissolved Oxygen Field Measurements
2046	Photic Zone Measurements and Visibility Determinations
2048	Continuous SW Quality Monitoring Using Datasondes
2061	General SW Quality Sample Collection
2062	Dissolved Reactive Phosphorus (DRP) Collection & Field Processing
2063	Chlorophyll_a Collection & Field Processing
2064	Fecal Coliform Sample Collection
2065	Sediment Sampling
9021	Quality Control Samples and Field Measurements
9025	Field Equipment Cleaning Procedures
9040	Station, Sample ID & Chain of Custody Procedures
6300	Physical Characterization
6301	Habitat Assessment

data must have been collected within the last six years. The six year timeframe would capture all data collected by ADEM during one complete rotation of the five year monitoring schedule currently used by the Department. Failure to satisfy both of these conditions places the waterbody in Category 2. If these two conditions are met, the determination of the minimum data requirement is dependent upon the waterbody type. Waterbody types include rivers and streams, reservoirs and reservoir embayments, and estuary and coastal waters. Failure to meet the minimum data requirement will place the waterbody in Category 2. The

following list and **Figure 12** describe the minimum data requirements for assessing waters classified as LWF.

- River or Stream (Wadeable and Non-wadeable)
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 5 bacteriological samples (1 geometric mean sample)
 - 3 pesticide / herbicide samples
 - 3 inorganic samples
- Reservoirs and Embayments
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 3 bacteriological samples
 - 1 fish tissue analysis from the reservoir mainstem
 - 7 chlorophyll *a* samples collected between April and October (For the Tennessee River Basin: 6 chlorophyll *a* samples collected between April and September)
- Estuary or Coastal Waters
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 5 bacteriological samples (1 geometric mean sample)

Figure 12
Minimum Data Requirements for the LWF Designated Use



4.6.2 Use Support Assessment for LWF Waters

Once the minimum data requirement has been met an assessment of the data can be completed resulting in the categorization of the waterbody as either fully supporting the LWF use (Category 1) or not fully supporting the LWF use (Category 5). The assessment process considers the available data and may include any fish consumption advisories, chemical specific data, biological community assessments, bacteriological data, beach closure notices and toxicity evaluations.

The LWF-classified waterbody is placed in Category 1 if all of the following are true:

- There is no fish consumption advisory issued by the Alabama Department of Public Health (ADPH) for the waterbody.
- There is no more than one exceedance of a toxic pollutant acute criterion (May through November) during the previous six years. There is no more than one exceedance of a particular toxic pollutant chronic criterion (December through April) during the previous six years.
- For reservoirs with established chlorophyll *a* criteria, a criterion has not been exceeded in two consecutive years. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion.
- The water quality criteria exceedance rate for conventional parameters is not more than 10%. Conventional parameters include dissolved oxygen, pH, temperature (where influenced by a heated discharge), and turbidity. Determination of the 10% exceedance rate is discussed in Section 4.8.
- In reservoirs, bacteriological sample results from a single sample in excess of 1000 colonies fecal coliform per 100 ml will necessitate a follow-up collection of 5 samples during a 30 day period to calculate the geometric mean density. If the geometric mean fecal coliform density is less than or equal to 1000 colonies/100 ml and 10% or less of the single sample results are less than 2000 fecal coliform colonies/100 ml, the waterbody will be considered fully meeting the bacteria criteria for this designated use. In coastal waters 10% or less (as determined using the binomial distribution function and Table 2) of the single samples must be less than 275 enterococci colonies/100 ml. In non-coastal rivers and streams the geometric mean fecal coliform density is less than 1000 colonies/100 ml and 10% (as defined in Table 2) or less of the single sample results are less than or equal to 2000 fecal coliform colonies/100 ml. Use of the 10% rule will only be applied when there is at least the minimum number of samples.

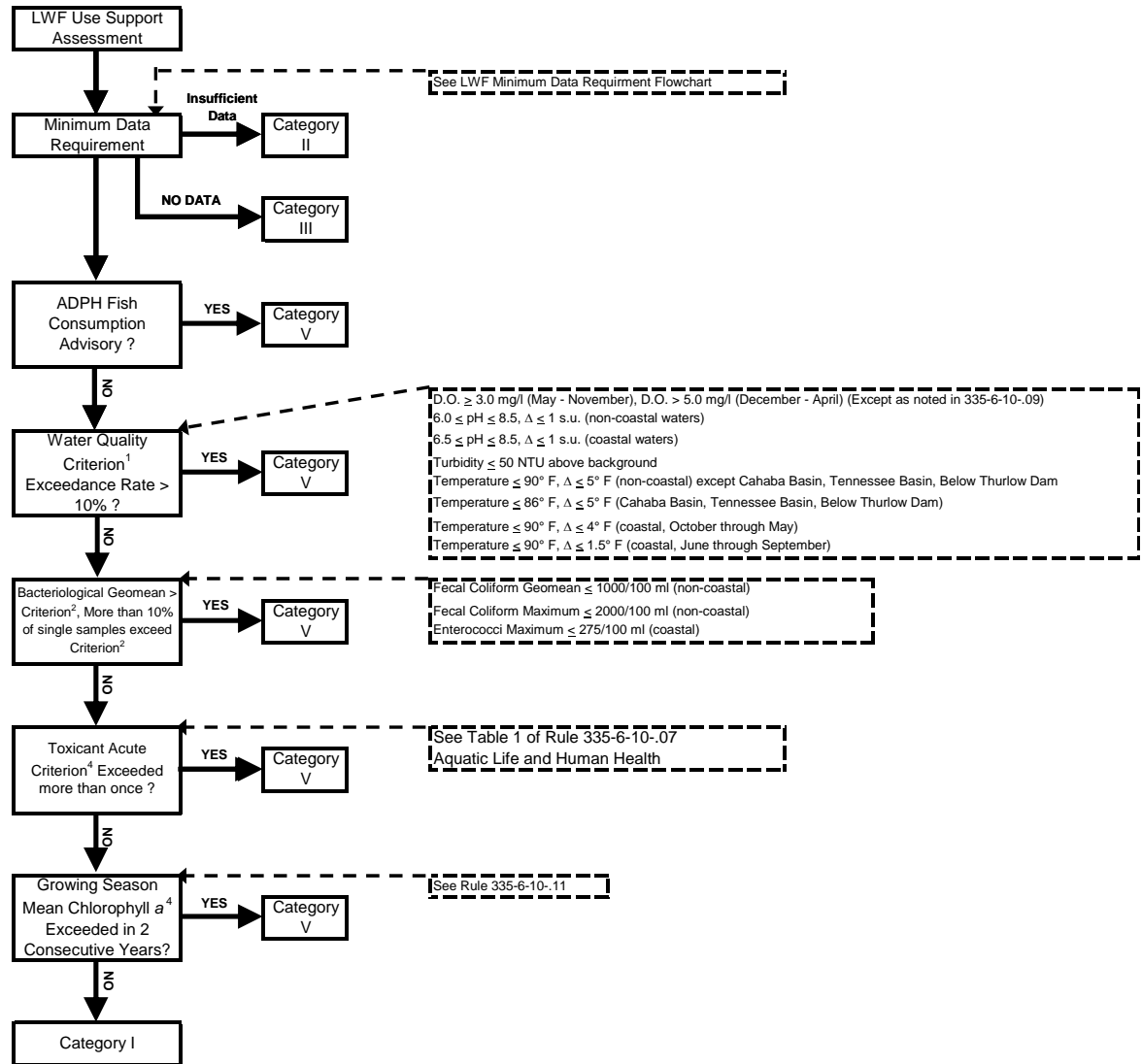
The LWF-classified waterbody is placed in Category 5 if any of the following are true:

- There is a fish consumption advisory issued by the ADPH.

- The water quality criteria exceedance rate for conventional parameters is more than 10%.
- The geometric mean fecal coliform density is greater than 1000 colonies/100 ml or more than 10% of the single sample results are greater than 2000 fecal coliform colonies/100 ml. In coastal waters more than 10% (as determined using the binomial distribution function and Table 2) of the single samples are greater than 275 enterococci colonies/100 ml. Use of the 10% rule will only be applied when there is at least the minimum number of samples.
- There are two or more exceedances of a particular toxic pollutant acute criterion (May through November) during the previous six years. There are two or more exceedances of a particular toxic pollutant chronic criterion (December through April) during the previous six years.
- For reservoirs with established chlorophyll *a* criteria, a criterion has been exceeded in two consecutive years. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion.

Figure 13 illustrates the assessment process for LWF waters.

Figure 13
Limited Warmwater Fishery (LWF) Categorization Methodology



1 Water Quality Criterion refers to pH, Dissolved Oxygen, turbidity, and temperature resulting from heat sources

2 Bacteriological Criterion refers to both the single sample maximum and geometric mean, see discussion in Section 4.6.2

3 Toxicant Criterion refers to toxics listed in 335-6-10-.07

4 Applies only to reservoirs with established Chlorophyll a criteria and not during extreme hydrologic events

Special Note - Natural waters may, on occasion, have characteristics outside of the limits established by these criteria. These criteria relate to condition of waters as affected by the discharge of sewage, industrial wastes, or other wastes, not to conditions resulting from natural forces. See 335-6-10-.05(4)

4.7 Agricultural and Industrial Water Supply (A&I)

Best usage of waters assigned this classification include agricultural irrigation, livestock watering, industrial cooling and process water supplies, and any other usage, except fishing, bathing, recreational activities, including water-contact sports, or as a source of water supply for drinking or food-processing purposes. The waters, except for the natural impurities that may be present, will be suitable for agricultural irrigation, livestock watering, industrial cooling waters, and fish survival. The waters will be usable after special treatment, as may be needed under each particular circumstance, for industrial process water supplies. This classification includes watercourses in which natural flow is intermittent and non-existent during droughts and which may, of necessity, receive treated waste from existing municipalities and industries, both now and in the future.

4.7.1 Minimum Data Requirement for A&I Waters

For waters with the A&I classification the available data must have been collected consistent with the following standard operating procedures (SOP) manuals:

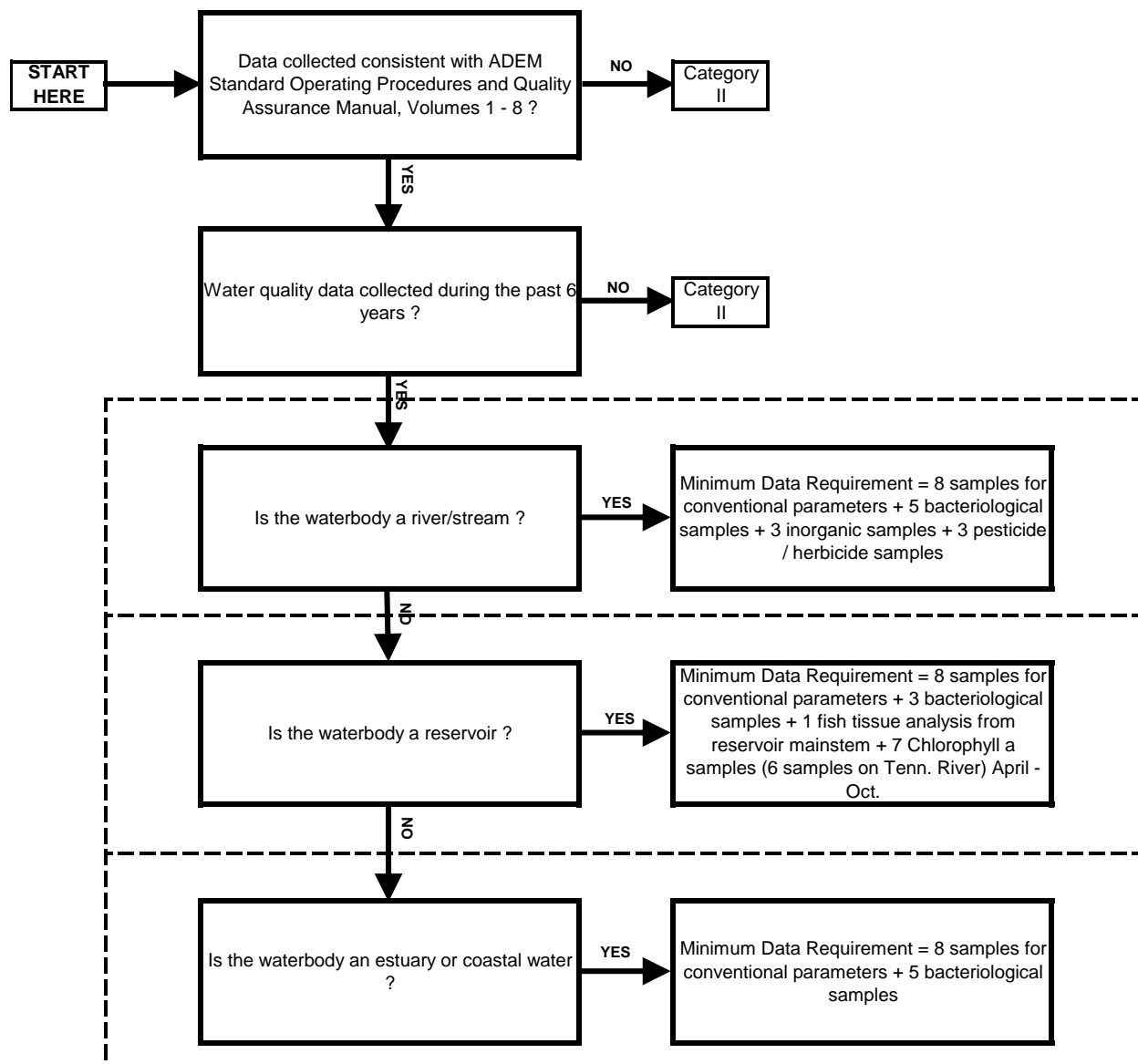
SOP#	Title
2040	Stream Flow Abbreviated Measurement Method
2041	SW Temperature Field Measurements
2042	SW pH Field Measurements
2043	SW Specific Conductivity Field Measurements
2044	SW Turbidity Field Measurements
2045	SW Dissolved Oxygen Field Measurements
2046	Photic Zone Measurements and Visibility Determinations
2048	Continuous SW Quality Monitoring Using Datasondes
2061	General SW Quality Sample Collection
2062	Dissolved Reactive Phosphorus (DRP) Collection & Field Processing
2063	Chlorophyll_a Collection & Field Processing
2064	Fecal Coliform Sample Collection
2065	Sediment Sampling
9021	Quality Control Samples and Field Measurements
9025	Field Equipment Cleaning Procedures
9040	Station, Sample ID & Chain of Custody Procedures
6300	Physical Characterization
6301	Habitat Assessment

In addition, the data must have been collected within the last six years. The six year timeframe would capture all data collected by ADEM during one complete rotation of the five year monitoring schedule currently used by the Department. Failure to satisfy both of these conditions places the waterbody in Category 2. If these two conditions are met, the determination of the minimum data requirement is dependent upon the waterbody type. Waterbody types include wadeable rivers and streams, non-wadeable rivers and streams, reservoirs and reservoir embayments, and estuary and coastal waters. Failure to meet the minimum data requirement will place the waterbody in Category 2. The following list and

Figure 14 describe the minimum data requirement for assessing waters classified as A&I.

- River or Stream
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 5 bacteriological samples (1 geometric mean sample)
 - 3 inorganic samples
 - 3 pesticide / herbicide samples
- Reservoirs and Embayments
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 3 bacteriological samples
 - 1 fish tissue analysis from the reservoir mainstem
 - 7 chlorophyll *a* samples collected between April and October (For the Tennessee River Basin: 6 chlorophyll *a* samples collected between April and September)
- Estuary or Coastal Waters
 - 8 conventional parameter samples (including samples for nutrient analysis)
 - 5 bacteriological samples (1 geometric mean sample)

Figure 14
Minimum Data Requirements for the A&I Designated Use



4.7.2 Use Support Assessment for A&I Waters

Once the minimum data requirement has been met an assessment of the data can be completed resulting in the categorization of the waterbody as either fully supporting the A&I use (Category 1) or not fully supporting the A&I use (Category 5). The assessment process considers the available data and may include any fish consumption advisories, chemical specific data, biological community assessments, bacteriological data, beach closure notices and toxicity evaluations.

The A&I-classified waterbody is placed in Category 1 if all of the following are true:

- There is no fish consumption advisory issued by the Alabama Department of Public Health (ADPH) for the waterbody.
- There are no more than two exceedances of a toxic pollutant acute criterion during the previous six years.
- For reservoirs with established chlorophyll *a* criteria, a criterion has not been exceeded in two consecutive years. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion.
- The water quality criteria exceedance rate for conventional parameters is not more than 10%. Conventional parameters include dissolved oxygen, pH, temperature (where influenced by a heated discharge), and turbidity. Determination of the 10% exceedance rate is discussed in Section 4.8.
- In reservoirs, bacteriological sample results from a single sample in excess of 2000 colonies fecal coliform per 100 ml will necessitate a follow-up collection of 5 samples during a 30 day period to calculate the geometric mean density. If the geometric mean fecal coliform density is less than or equal to 2000 colonies/100 ml and 10% or less of the single sample results are less than 4000 fecal coliform colonies/100 ml, the waterbody will be considered fully meeting the bacteria criteria for this designated use. In coastal waters 10% or less (as determined using the binomial distribution function and Table 2) of the single samples must be less than 500 enterococci colonies/100 ml. In non-coastal rivers and streams the geometric mean fecal coliform density is less than 2000 colonies/100 ml and 10% or less of the single samples have a fecal coliform density of less than or equal to 4000 colonies/100 ml. Use of the 10% rule will only be applied when there is at least the minimum number of samples.

The A&I-classified waterbody is placed in Category 5 if any of the following are true:

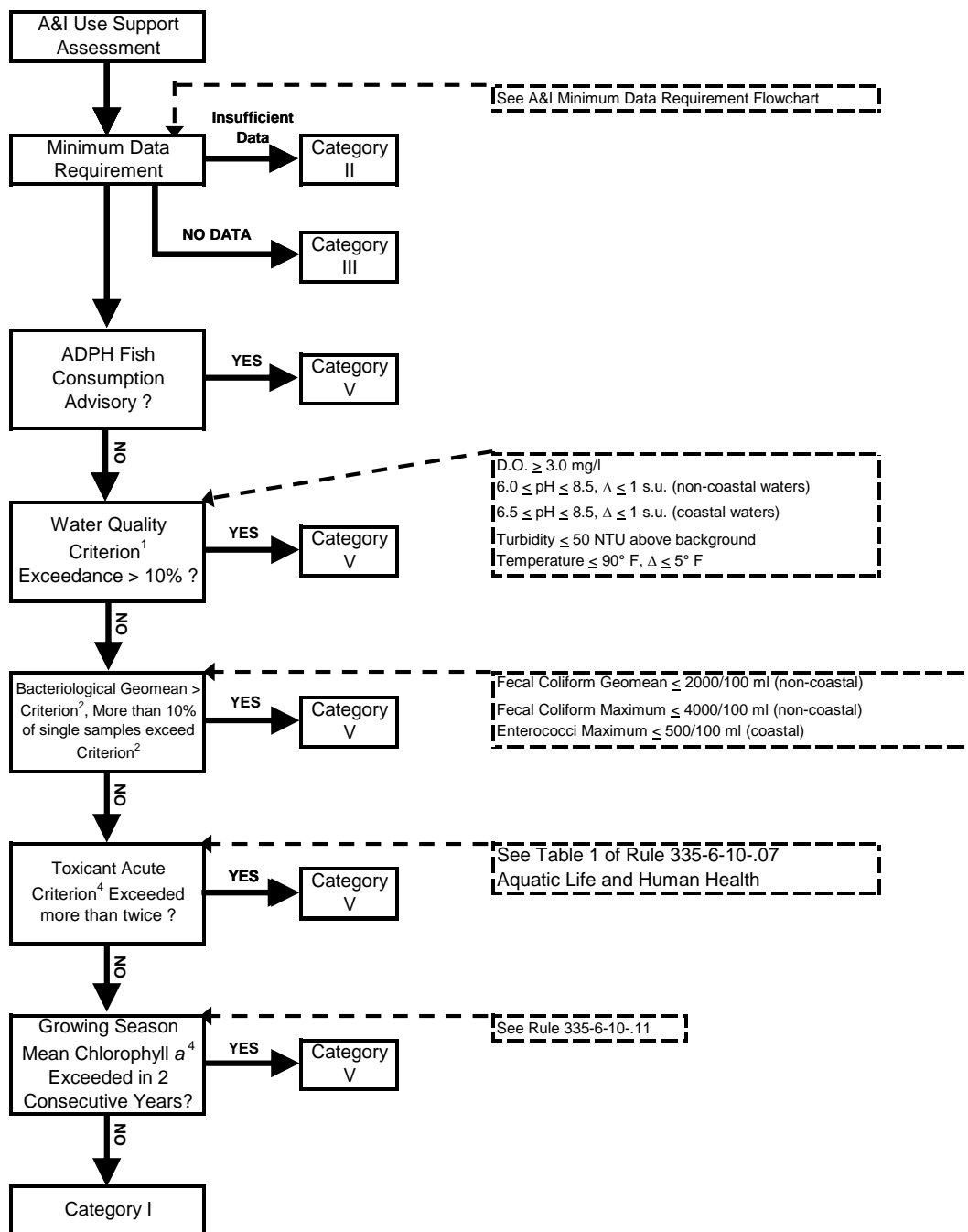
- There is a fish consumption advisory issued by the ADPH.
- The water quality criteria exceedance rate for conventional parameters is more than 10% (as defined in Table 2).
- The geometric mean fecal coliform density is greater than 2000 colonies/100 ml or more than 10% (as defined in Table 2) of the single

sample results are greater than 4000 fecal coliform colonies/100 ml. In coastal waters more than 10% (as determined using the binomial distribution function and Table 2) of the single samples are more than 500 enterococci colonies/100 ml. In non-coastal rivers and streams the geometric mean fecal coliform density is greater than 2000 colonies/100 ml and more than 10% of the single samples have a fecal coliform density of greater than 4000 colonies/100 ml. Use of the 10% rule will only be applied when there is at least the minimum number of samples.

- There are more than two exceedances of an acute criterion for a toxic pollutant during the previous six years.
- For reservoirs with established chlorophyll *a* criteria, a criterion has been exceeded in two consecutive years or three times during the the previous six years. In making this determination, chlorophyll *a* values in excess of the criterion which are due to extreme hydrologic events (i.e., droughts and floods) will not be considered as an exceedance of the criterion. However, one exceedance of the chlorophyll *a* criterion may be sufficient justification for inclusion of a water in Category 5 when the exceedance is determined to be the result of increasing nutrient loading from anthropogenic sources. These determinations will be made on a case by case basis and the decision will be documented in the ADB.

Figure 15 illustrates the assessment process for A&I waters.

Figure 15
Agricultural and Industrial Water Supply (A&I) Categorization Methodology



1 Water Quality Criterion refers to pH, Dissolved Oxygen, turbidity, and temperature resulting from heat sources

2 Bacteriological Criterion refers to both the single sample maximum and geometric mean, see discussion in Section 4.7.2

3 Toxicant Criterion refers to toxics listed in 335-6-10-.07

4 Applies only to reservoirs with established Chlorophyll a criteria and not during extreme hydrologic events

Special Note - Natural waters may, on occasion, have characteristics outside of the limits established by these criteria. These criteria relate to condition of waters as affected by the discharge of sewage, industrial wastes, or other wastes, not to conditions resulting from natural forces. See 335-6-10-.05(4)

4.8 Other Data considerations and Requirements

4.8.1 Use of the 10% Rule

Seasonal variation in water quality conditions, non-anthropogenic impacts (natural conditions), sampling frequency and number of samples collected, and the temporal and spatial sampling coverage of the waterbody must be considered when evaluating water quality data to determine whether a waterbody is fully supporting its designated uses. Most states, including Alabama, determine a waterbody's use support status based on the percent of measured values exceeding a given water quality criterion. Based on USEPA guidance, 10 percent is commonly used as the maximum percent of measurements that may exceed the criterion for waters fully supporting their designated uses. For any given set of samples the percent exceedance indicated by the number of samples which exceed a given criterion is only an estimate of the true percent exceedance for the waterbody segment. As a result, it is important that a level of confidence be assigned to the estimate of percent exceedance for a given set of samples.

Hypothesis testing can be used to make this estimate. When making a decision about whether a water should be included in Category 5 on the basis of data for conventional pollutants, the null hypothesis is that the water is not impaired and sufficient data must be collected to minimize the probability that this assumption is incorrect (Type I error). For the purpose of this methodology, a 90% confidence level will be used so that we can say for a given sample size with a given number of criterion exceedances we are 90% confident that the true exceedance percentage is greater than 0.1 (10%). Using the binomial distribution it is possible to determine the number of exceedances out of a given number of samples which will result in a greater than 10 percent exceedance rate at approximately the 90% confidence level. This is the number of exceedances need to reject the null hypothesis.

When making a decision about whether a water in Category 5 should be removed to Category 1 for a particular conventional pollutant, the null hypothesis is that the water is impaired and sufficient data must be collected to minimize the probability that this assumption is incorrect. Again, a 90% confidence level will be used in the binomial distribution function to estimate the number of samples required to be 90% confident that the water is truly not impaired.

4.8.2 Use of Data Older than Six Years

More recent data shall take precedence over older data if:

The newer data indicate a change in water quality and the change is related to changes in pollutant loading to the watershed or improved pollution control mechanisms in the watershed contributing to the assessed area. Or, the Department determines that the older data do not meet the data quality

requirements of this methodology or are no longer representative of the water quality of the segment.

Data older than six years will generally not be considered valid, for the purpose of initially placing a water in Category 1 or Category 5. Data older than six years may be used to demonstrate that a waterbody was placed in the wrong category (Category 1 or Category 5) when the original water quality assessment was completed. Also, data older than six years may be used if the data was not considered during a previous reporting cycle and there is evidence that conditions affecting water quality have not changed since the original data was collected. Waters will not be removed from Category 5 on the basis of age of data. However, water may be removed from Category 1 to Category 2 on the basis of age of data when there is evidence that water quality conditions are likely to have changed since the water was originally placed in Category 1.

4.8.3 Use of Accurate Location Data

Accurate location data is required to ensure the appropriate use classification is applied, as well as confirming that sampling stations are located outside of regulatory mixing zones where water quality criteria do not apply. The monitoring data is acceptable if the locations are correct to within 200 feet. Digital spatial data (GIS or GPS) or latitude/longitude information obtained from USGS 7.5 minute quadrangle maps are acceptable methods of providing location information.

4.8.4 Use of Temporally Independent Samples and Data from Continuous Monitoring

When relying solely upon chemical data to determine designated use support, at least ten temporally independent samples of chemical and physical conditions obtained during a time period that includes conditions considered critical for the particular pollutant of interest are needed. Independent samples, for the purpose of parameters other than bacteria and in-situ water quality measurements, will have been collected at least four days apart. Samples collected at the same location less than four days apart shall be considered as one sample for the purpose of determining compliance with toxic pollutant criteria, with the mean value used to represent the sampling period.

For conventional parameters measured using continuous monitoring instruments such as multi-probe datasondes, compliance with the applicable criteria will be determined at the regulatory depth established for dissolved oxygen measurements. This depth is five feet in water that is ten feet or more in total depth or is at mid-depth in water that is less than ten feet in total depth. Hourly measurements of dissolved oxygen, temperature, and pH data collected using continuous monitoring equipment will be assessed using the same binomial distribution function used for discrete sampling of these parameters. When

measurements are made more frequently than hourly, the hourly values will be calculated as the mean of the measured values within each hour.

4.8.5 Use of Fish / Shellfish Consumption Advisories and Shellfish Growing Area Classifications

In October 2000 EPA issued guidance to states regarding the use of fish and shellfish consumption advisories (EPA, 2000). The guidance recommended that states consider certain information when determining if designated uses were impaired, including consumption advisories for fish and shellfish and certain shellfish growing area classifications. The following is an excerpt from the EPA guidance.

“Certain shellfish growing area classifications should be used as part of determinations of attainment of water quality standards and listing of impaired waterbodies. Shellfish growing area classifications are developed by the National Shellfish Sanitation Program (NSSP) using water column and tissue data (where available), and information from sanitary surveys of the contributing watershed, to protect public health. The States review these NSSP classifications every three years. There are certain NSSP classifications that are not appropriate to consider, and certain data and information that should not be considered independently of the classification (unless the data and information were not used in the development or review of the classification). These instances are: “Prohibited” classifications set as a precautionary measure due to the proximity of wastewater treatment discharges, or absence of a required sanitary survey; shellfish tissue pathogen data (which can fluctuate based on short-term conditions not representative of general water quality); or short-term actions to place growing areas in the closed status.”

The ADPH, Seafood Program, regulates shellfish harvesting in coastal waters of Alabama. The ADPH has designated four areas in Mobile Bay and adjacent coastal waters and classifies shellfish harvesting waters within these areas as “conditionally open”, “conditionally restricted”, “unclassified”, and “prohibited”. Area I waters comprise most of Mobile Bay south of East Fowl River and west of Bon Secour Bay and including Mississippi Sound. Area II waters include Grand Bay and Portersville Bay with exceptions near wastewater discharges. Area III waters are located in Bon Secour Bay and east of a line drawn from Fort Morgan to Mullet Point. Area IV is located in approximately the northern half of Mobile Bay.

Most of the waters designated as Shellfish Harvesting are classified as “conditionally open”. These harvesting areas are closed when the river stage on the Mobile River at Bucks, Alabama reaches a river stage of 8.0 feet above mean sea level and a public notice announcing the closure is published. These procedures are described in detail in the Conditional Area Management Plan developed by ADPH (ADPH, 2001).

For purposes of making use support decisions relative to the SH designated use, the Department will consider the shellfish harvesting closure notices in waters classified as “conditionally open” in Areas I, II, and III. When the shellfish harvesting waters are closed for more than 25% of the year, the area will be included in Category 5. In Area IV and in “prohibited”, “conditionally restricted”, and “unclassified” waters the Department will use water column bacteria sampling results to determine use support. When the applicable bacteria criterion is exceeded in more than 10% of the samples as determined using the binomial distribution function and Table 2, these waters will be included in Category 5.

The October 2000 EPA guidance concerning the use of fish and shellfish consumption advisories for protection of human health also recommended that state’s include waters in Category 5 when there was a consumption advisory which suggested either limited consumption or no consumption of fish due to the presence of toxics in fish tissue. The following is an excerpt from the guidance.

“When deciding whether to identify a water as impaired, States, Territories, and authorized Tribes need to determine whether there are impairments of designated uses and narrative criteria, as well as the numeric criteria. Although the CWA does not explicitly direct the use of fish and shellfish consumption advisories or NSSP classifications to determine attainment of water quality standards, States, Territories, and authorized Tribes are required to consider all existing and readily available data and information to identify impaired waterbodies on their section 303(d) lists. For purposes of determining whether a waterbody is impaired and should be included on a section 303(d) list, EPA considers a fish or shellfish consumption advisory, a NSSP classification, and the supporting data, to be existing and readily available data and information that demonstrates non-attainment of a section 101(a) “fishable” use when:

- 1. the advisory is based on fish and shellfish tissue data,*
- 2. a lower than “Approved” NSSP classification is based on water column and shellfish tissue data (and this is not a precautionary “Prohibited” classification or the state water quality standard does not identify lower than “Approved” as attainment of the standard)*
- 3. the data are collected from the specific waterbody in question and*
- 4. the risk assessment parameters (e.g., toxicity, risk level, exposure duration and consumption rate) of the advisory or classification are cumulatively equal to or less protective than those in the State, Territory, or authorized Tribal water quality standards.”*

This listing and assessment methodology will consider fish consumption advisories issued by the ADPH as an indication of impaired use. However, there may be circumstances under which these waters could be placed in a category other than Category 5. For example, it may be appropriate to place certain waters in Category 4b when activities are ongoing under another restoration program with the goal of restoring the water to fully supporting its uses. These decisions will be made on a case by case basis and documented in the ADB.

4.8.6 Use of Biological Assessments

Biological assessments compare data from biological surveys and other direct measurements of resident biota in surface waters to established biological criteria and assess the waterbody's degree of use support. Alabama has not established numeric biological criteria (except in the case of chlorophyll *a* in reservoirs) and, as a result, biological data are used as a means of applying narrative criteria contained in Alabama's water quality criteria document (ADEM Administrative Code Chapter 335-6-10). ADEM has been gathering biological assessment data for streams across Alabama since the 1970s. In the early 1990's the Department began assessing the biological health of wadeable streams using the USEPA Rapid Bioassessment Protocol (Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT)) and the Intensive Wadeable Multi-habitat Bioassessment (Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I)). USEPA has offered the following technical considerations when using biological data to make use support determinations.

- A waterbody's use support should be based on a comparison of site-specific biological data to a reference condition established for the ecoregion in which the waterbody is located.
- A multimetric approach to bioassessment is recommended.
- The use of a standardized index or sampling period is recommended.
- Standard operation procedures and a quality assurance program should be established.
- A determination of the performance characteristics of the bioassessment methodology is suggested.
- An identification of the appropriate number of sampling sites that are representative of the waterbody is also recommended.

Biological assessment data will be used in combination with other surface water quality data or information to arrive at an overall use support determination. However, EPA recommends that biological data should be weighted more heavily than other types of data when integrating information to make use support determinations since biological data provide a more direct indication of the condition of the aquatic community. Alabama's assessment methodology has weighted biological data more heavily by requiring at least one biological assessment for certain use classifications and stream types and by reducing the number of water quality samples needed when a biological assessment is available. However, the biological assessment must include a habitat assessment conducted at the time of the biological sampling. When available, periphyton

assessment data and algal growth potential tests results will be used to refine stressor identification.

In this methodology, several bioassessment methodologies can be used to assess aquatic life use support. Two Level III Wadeable Multi-habitat Bioassessments – EPT Families (WMB-EPT) are required since these assessments are intended for screening purposes only. A combination of one WMB-EPT assessment and one fish IBI assessment is sufficient but only in the Cahaba and Black Warrior River basins since the metric ranges for the fish IBI have been calibrated only to the Cahaba and Black Warrior River basins. Alternatively, one Level IV Intensive Wadeable Multi-habitat Bioassessment (WMB-I) would be sufficient for assessing aquatic life use support. These methodologies are described in detail in the Department’s SOPs referenced earlier. Occasionally it may be appropriate to place a water in Category 5 based on a single screening level assessment (WMB-EPT) when there is a clear indication of impairment and the cause is readily apparent. These decisions will be made on a case by case basis in consultation with the biologist(s) responsible for conducting the assessment and will be documented in the ADB.

4.8.7 Use of Data Collected by Others

Data collected by other agencies, industry or industry groups, and watershed groups will be considered and evaluated provided the data meet the minimum data requirements specified for each designated use and comply with the quality control and quality assurance requirements discussed in Section 4.9. Examples of other agencies and groups collecting water quality data in Alabama include, but are not limited to, the following agencies and groups:

- USGS
- USEPA
- Tennessee Valley Authority
- National Oceanic and Atmospheric Administration
- United States Fish and Wildlife Service
- Mobile Bay National Estuary Program
- Dauphin Island Sea Lab
- Geological Survey of Alabama
- Natural Resources Conservation Service
- Soil and Water Conservation Districts
- Alabama Department of Conservation and Natural Resources
- Alabama Clean Water Partnership
- Alabama Department of Public Health
- Alabama Department of Transportation
- Citizen and Watershed Groups
- Industries and municipalities conducting river monitoring pursuant to NPDES or CWA Section 401 requirements

Data submitted by third parties for consideration should include documentation describing the data, including a study plan or SOP, and certification that the data were (or were not) collected consistent with the requirements presented in this methodology.

4.8.8 Use of *Bacteria Data*

Waterbody segments are sampled for bacteria either as part of a special study, routine ambient monitoring, or as part of the Department's Beach Monitoring Program. Bacteria of the fecal coliform group are currently used as indicators of the possible presence of pathogens in non-coastal waters. In coastal waters, bacteria of the enterococci group are used as indicators of the possible presence of pathogens. Alabama's bacteria criteria are summarized for each designated use in **Table 1**.

Table 1
Alabama's Bacteria Criteria

Outstanding Alabama Water (OAW)	Public Water Supply (PWS)	Swimming and Other Whole Body Water-Contact Sports (S)	Shellfish Harvesting (SH)	Fish and Wildlife (F&W)	Limited Warmwater Fishery (LWF)	Agricultural and Industrial Water Supply (A&I)
Coastal Waters: Enterococci - Geometric mean ≤ 35 Single Max. ≤ 104 Non-coastal Waters: Fecal Coliform - Geometric mean ≤ 200	Coastal Waters: Enterococci - June through Sept. Geometric mean ≤ 35 Single Max. ≤ 158 Enterococci - Oct. through May Single Max. ≤ 275 Non-coastal Waters: Fecal Coliform - June through Sept. Geometric mean ≤ 200 Oct. through May Geometric mean ≤ 1000 Single Max. ≤ 2000	Coastal Waters: Enterococci - Geometric mean < 35 Single Max. < 104 Non-coastal Waters: Fecal Coliform - Geometric mean < 200	Coastal Waters: Not to exceed FDA limits ¹ for fecal coliform bacteria Enterococci - June through Sept. Geometric mean ≤ 35 Single Max. ≤ 104 Non-coastal Waters: Fecal Coliform - June through Sept. Geometric mean ≤ 200	Coastal Waters: Enterococci - June through Sept. Geometric mean ≤ 35 Single Max. ≤ 158 Enterococci - Oct. through May Single Max. ≤ 275 Non-coastal Waters: Fecal Coliform - June through Sept. Geometric mean ≤ 200 Oct. through May Geometric mean ≤ 1000 Single Max. ≤ 2000	Coastal Waters: Enterococci Single Max. ≤ 275 Non-coastal Waters: Fecal Coliform - Geometric mean ≤ 1000 Single Max. ≤ 2000	Coastal Waters: Enterococci Single Max. ≤ 500 Non-coastal Waters: Fecal Coliform - Geometric mean ≤ 2000 Single Max. ≤ 4000

¹ Not to exceed the limits specified in the latest edition of the National Shellfish Sanitation Program Manual of Operations, Sanitation of Shellfish Growing Areas (1999), published by the Food and Drug Administration, U.S. Department of Health and Human Services.

4.8.9 Consideration of Stream Flow and Method Detection Limits

During toxicant sampling in rivers or streams the measured flow must be at or above the 7Q10 value for that location. In cases where the applicable water quality criterion is less than the method detection limit (MDL) for a particular pollutant and the concentration for the pollutant is reported as less than detection (<MDL), the Department will evaluate the data consistent with EPA guidance provided in “*Guidance for Data Quality Assessment*”, EPA QA/G-9, QA00 UPDATE, EPA, July 2000 and will use the approach that is appropriate for the data set.

These requirements are intended to ensure that existing water quality conditions are accurately portrayed, do not characterize transitional conditions, and that obsolete or inaccurate data are not used. In addition, the minimum data requirements may change on a case by case basis if pollutant sources upstream of the monitoring locations are likely. This determination will be made using information obtained from the Department’s geographic information system or other databases. Failure to meet the minimum data requirements for any waterbody type will place the waterbody in Category 2.

4.9 Quality Control / Quality Assurance Requirements

All data (including chemical, physical, and biological) should be collected and analyzed consistent with the SOPs presented earlier. Study plans should reference the SOP appropriate for the type of data being collected and should discuss how data quality will be documented. This should include a discussion of the quality control procedures followed during sample collection and analysis. These procedures should describe the number and type of field and laboratory quality control samples for the project, if appropriate for the type of sampling being conducted, field blanks, equipment blanks, split samples, duplicate samples, the name of the laboratory performing the analyses, name of the laboratory contact person, and the number and type of laboratory quality control samples.

While the Department will consider any readily available data and information, the Department reserves the right to not use data or information in making use support decisions which do not comply with the minimum data requirements presented in this document. The decision not to use certain data will be documented in the ADB.

4.10 Minimum Sample Size and Allowable Number of Water Quality Criterion Exceedances

Table 2 shows the allowable number of exceedances for various samples sizes up to 199 samples. The number of exceedances in each range of sample sizes was calculated using the binomial distribution function. This number is the number of exceedances of a particular water quality criterion needed to say with 90% confidence that the criterion is exceeded in more than 10% of the population represented by the available samples. This table will be used to determine the number of exceedances of Alabama numeric water quality criteria listed in ADEM Administrative Code 335-6-10 (for dissolved oxygen, temperature, turbidity, pH, and bacteria), consistent with the assessment methodology for each use discussed earlier, necessary to establish that a waterbody segment is not fully

supporting its designated uses. This approach is consistent with ADEM Administrative Code 335-6-10 which recognizes that natural conditions may cause sporadic excursions of numeric water quality criteria. For conventional water quality parameters, there must be at least ten temporally independent samples collected during the previous six year period to be considered adequate for making use support determinations. As used in this context, temporally independent means that the samples were collected at an interval appropriate to capture the expected variation in the parameter. For example, dissolved oxygen, temperature and pH measurements should capture the normal diurnal variation that occurs in the parameters and temporal independence may occur in several hours (i.e. morning versus afternoon). Measurements for turbidity and bacteria should typically be at least 24 hours apart.

It is the intent of the methodology to ensure that an adequate number of samples are available for use in the assessment process and for developing future monitoring plans. Smaller sample sizes may be appropriate in certain circumstances where there is a clear indication that exceedances of the criteria are not due to natural conditions. For example, a data set comprised of fewer than the required minimum number of samples collected monthly may be sufficient to determine that a waterbody is not supporting its use when a significant number (more than two) exceed a particular criterion. Conversely, a data set with fewer than the required minimum number of samples collected monthly may be sufficient to determine that a waterbody is fully supporting its use if none of the samples exceed any of the criteria and there is sufficient supporting information to support this conclusion (i.e. biological assessment indicates full use support). The decision to use smaller data sets for making use support decisions will be made on a case by case basis using best professional judgment. The basis for these decisions will be documented in the ADB.

Table 2

Minimum Number of Samples Exceeding the Numeric Criterion Necessary for Listing*

Sample Size	Number of Exceedances	Sample Size	Number of Exceedances
8 thru 11	2	97 thru 104	14
12 thru 18	3	105 thru 113	15
19 thru 25	4	114 thru 121	16
26 thru 32	5	122 thru 130	17
33 thru 40	6	131 thru 138	18
41 thru 47	7	139 thru 147	19
48 thru 55	8	148 thru 156	20
56 thru 63	9	157 thru 164	21
64 thru 71	10	165 thru 173	22
72 thru 79	11	174 thru 182	23
80 thru 88	12	183 thru 191	24
89 thru 96	13	192 thru 199	25

* - For conventional parameters, including bacteria, at the 90 percent confidence level

5.0 Removing a Waterbody from Category 5

Waterbodies may be removed from a 303(d) list (category 5) for various reasons, including:

- Assessment of more recent water quality data demonstrates that the waterbody is meeting all applicable water quality standards. (Move to Category 1)
- A review of the original listing decision demonstrates that the waterbody should not have been included in Category 5. (Move to Category 1 or Category 2)
- TMDL has been completed. (Move to Category 4a)
- Other pollution control requirements are reasonably expected to result in the attainment of the water quality standards in the near future. These requirements must be specifically applicable to the particular water quality problem. (Move to Category 4b)
- Impairment is not caused by a pollutant. (Move to Category 4c)
- Natural causes – When it can be demonstrated the exceedance of a numeric water quality criterion is due to natural conditions and not to human disturbance activities, the water may be removed from Category 5. (Move to Category 1)

Table 3 shows the allowable number of exceedances of criteria for conventional pollutants for various sample sizes and a 90% confidence level. This table will be used to determine the number of allowable exceedances of Alabama numeric water quality criteria for pollutants listed in ADEM Administrative Code 335-6-10, with the exception of chlorophyll *a* criteria and the toxics criteria listed in the appendix to ADEM Administrative Code 335-6-10, for the waterbody to be removed from a 303(d) list for a specific pollutant (move to Category 1).

Table 3

**Maximum Number of Samples Exceeding the Numeric
Criterion Necessary for Delisting***

Sample Size	Number of Exceedances	Sample Size	Number of Exceedances
8 thru 21	0	104 thru 115	7
22 thru 37	1	116 thru 127	8
38 thru 51	2	128 thru 139	9
52 thru 64	3	140 thru 151	10
65 thru 77	4	152 thru 163	11
78 thru 90	5	164 thru 174	12
91 thru 103	6	175 thru 186	13

* - For conventional parameters, including bacteria, at the 90 percent confidence level

When a waterbody has been included in Category 5 due to a fish consumption advisory, the waterbody will be moved to Category 1 when subsequent fish tissue results indicate that pollutant concentrations have declined and a fish consumption advisory is no longer needed. The determination that a fish consumption advisory is no longer needed is made by the Alabama Department of Public Health.

For waters originally placed in Category 5 due to a specific toxic pollutant or specific toxic pollutants, there should be no violations of the appropriate criteria in a minimum of 8 samples collected over a three year period before the cause of impairment is removed or the water is placed in Category 1.

6.0 Estimating the Size of the Assessed Waterbody

Waterbodies are assessed on the basis of assessment units. Assessment units vary in size depending on the waterbody type, watershed characteristics, designated use, and the location of

monitoring stations. In most cases, individual assessments will lie completely within a designated use or multiple uses. For example, an assessment unit will not generally be partially within one designated use and partially within a different designated use. However, assessment units may be assigned more than one designated use. For example, an assessment unit may have classified uses of both Fish and Wildlife and Public Water Supply provided both uses are assigned to the entire assessment unit. An assessment unit may be defined as a stream, the mainstem of a river, embayment, portion of a lake or reservoir, or a part of an estuary or coastal water.

A monitoring unit is defined as the watershed draining to, or close to, a sampling location and is made up of many assessment units (individual reaches). A monitoring unit will generally have a drainage area of more than 10 square miles and will be characterized by a predominant land use / land cover. When it is necessary to better characterize assessment units within the larger monitoring units, new monitoring units can be delineated based on the location of the additional sampling location or locations. Water quality data and information gathered at a sampling location which defines a monitoring unit will be the primary means for assigning a use support status to assessment units within the monitoring unit.

The spatial extent of each monitoring unit will be determined using information contained in the Department's Geographic Information System (GIS). Specifically, stream coverages contained within the National Hydrography Dataset (NHD) will be the basis for determining the size of assessed waters. This database of natural and constructed surface waters is a comprehensive set of digital spatial data that contains information about surface water features such as lakes, ponds, streams, rivers, springs and wells. Within the NHD, surface water features are combined to form "reaches", which provide the framework for linking water-related data to the NHD surface drainage network. These linkages enable the analysis and display of these water-related data in upstream and downstream order. Characteristics such as stream length or reservoir area can be aggregated within a monitoring unit to estimate the size of assessed waters.

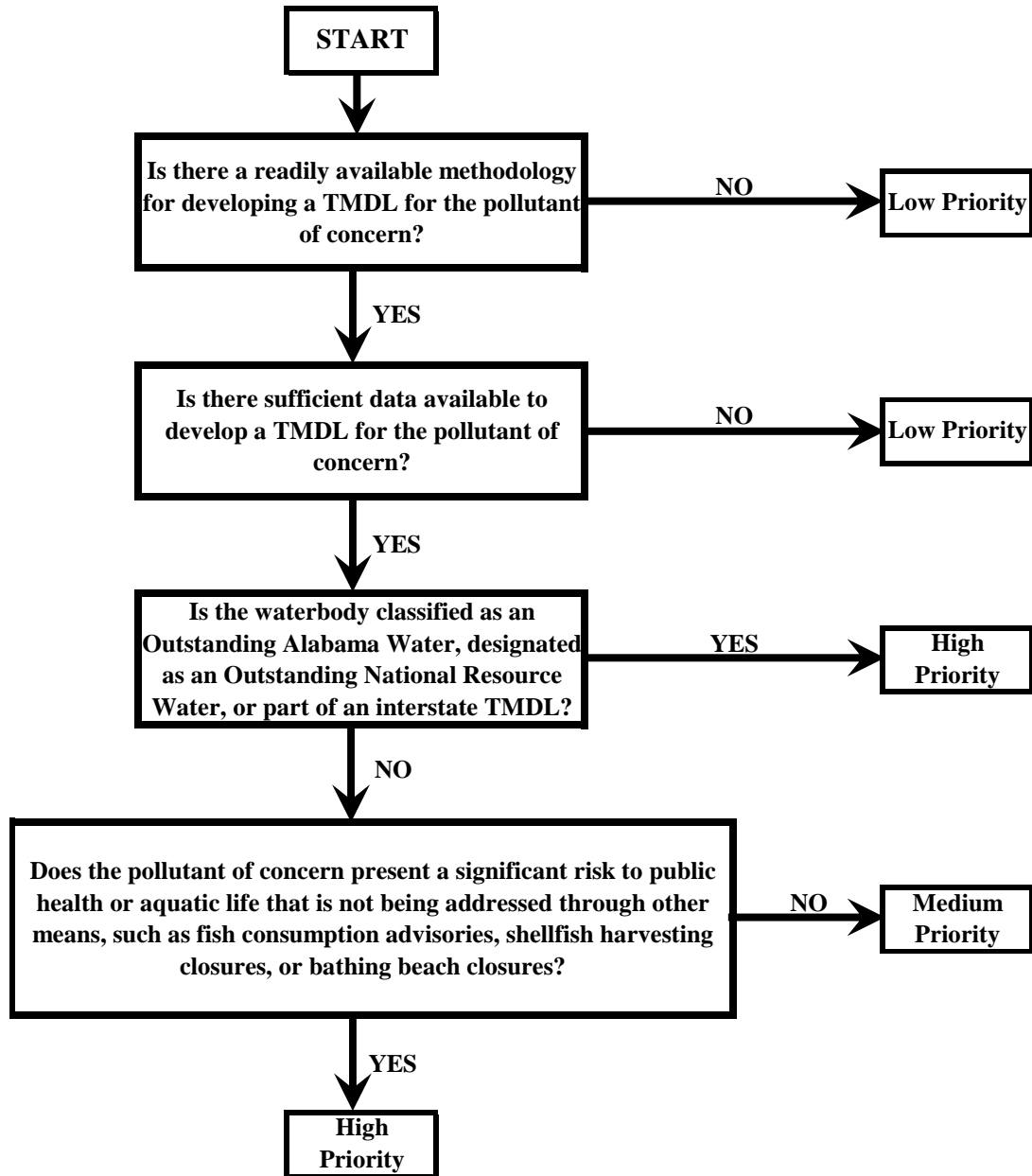
7.0 Ranking and Prioritizing Impaired Waters

Waters in Category 5 will be prioritized based on the nature of the pollutant of concern. Pollutants that relate directly to human health issues rank "high", while more conventional water quality parameters rank "medium" while other non-conventional or legacy pollutant impacts such as contaminated sediments, or impaired habitat rank "low". An example of high priority pollutants are toxics. Dissolved oxygen, pH, and unionized ammonia are examples of medium priority. **Figure 16** describes the general approach to assigning a ranking to each TMDL included in Category 5. However, the TMDL development schedule may not always consider only the ranking of the impaired waterbody. The following factors may be used to determine the timing for the development of the TMDL.

- TMDL complexity
- Pollutants of concern
- Need for additional data and information
- Sources of the pollutants

- Severity of the impairment
- Spatial extent of impairment
- Designated uses of the waterbodies
- General watershed management activities (e.g. 319 grant activities and watershed management planning)
- Existence of endangered and sensitive aquatic species
- Degree of public interest and support for particular waterbodies.

Figure 16
Alabama's TMDL Prioritization Strategy



Waters which are currently listed on the §303(d) list will have their TMDL developed within 8 to 13 years unless they become eligible for delisting. TMDLs for Category 5 waters will be developed no later than 13 years after the water is first placed in Category 5.

The Integrated Monitoring Report will include proposed schedules (both long term and annually) for the development of TMDLs.

The Department will communicate with bordering states concerning the status of shared waters. When requested, the state will provide data concerning shared waters to the adjacent state.

8.0 Schedule for Assessing State Waters

The State has developed a Watershed Management Schedule and has been operating under the rotating basin plan since 1997. This schedule has the state divided into 5 river basin groups which are sampled on a five year rotating basis. The rotating basin schedule is as follows:

- 2005 - Alabama, Coosa, and Tallapoosa River Basins
- 2006 – Escatawpa, Lower Tombigbee, Upper Tombigbee, and Mobile River Basins
- 2007 – Cahaba and Black Warrior River Basins
- 2008 – Tennessee River Basin
- 2009 – Chipola, Choctawhatchee, Perdido-Escambia, and Chattahoochee River Basins
- 2010 – Tallapoosa, Alabama, and Coosa River Basins
- 2011 – Escatawpa, Lower Tombigbee, Upper Tombigbee, and Mobile River Basins

The Integrated Monitoring and Assessment Report will include a comprehensive monitoring and assessment plan that describes the state's proposed schedule for the following two years. Elements of this plan include: a description of the sampling approach (i.e. rotating basin and fixed ambient), and a list of the parameters to be collected (i.e. physical, chemical, and biological). The report will also include a schedule (both long term and annually) for collecting data and information for basic assessments and for TMDLs.

9.0 Public Participation

The Integrated Report will combine the Water Quality Inventory Report (§305(b)) with the Impaired Waterbodies (§303(d)) listing. Category 5 in the Integrated Report is considered to be the Impaired Waterbodies list. The remaining categories are considered the Water Quality Inventory. This methodology lays out the framework for assessing data and determining which of the five categories the waterbody will be assigned to. The entire Integrated List will follow the same public process as the §303(d) listing but Categories 1 through 4 and the monitoring schedule will be provided for informational purposes only since these schedules are subject to change as resources allow.

The Department will solicit the submittal of data and information for use in developing the Integrated Report. The public notice requesting data will be published in four major newspapers in the state and on the Department's Website. The time period for submitting data will be

specified in the public notice. The data must be received by the Department by October 31 in the year prior to the report being due to EPA. Data submitted after the specified period will be considered in the development of subsequent Integrated Reports. The Department reviews all existing and readily available data and is committed to using only data with acceptable quality assurance to develop the Integrated Report. Only electronic data or data available in published reports are considered “readily available”. Typically, the Department uses Microsoft databases (i.e., Excel, Access) or the Water Resources Database (WRDB) for database management and retrieval.

The Department will publish notice of the availability of the Integrated Water Quality Monitoring and Assessment Methodology and Draft Integrated Report in four major newspapers of general circulation throughout the State and on the Department Website. Adjacent states, federal and interstate agencies shall also be noticed as necessary. The comment period on a proposed Category 5 (§303(d)) list will be a minimum of 30 days.

The Integrated Report, which will include the integrated List, expected monitoring schedules, TMDL schedules, as well as any other information usually included in the §305(b) Report, will be submitted to the USEPA as required by §305(b) of the Clean Water Act. The Department will post the availability of the Integrated Report on its web page at that time.

10.0 References

ADEM, 2004. Alabama's 2004 Integrated Water Quality Monitoring & Assessment Report. Alabama Department of Environmental Management. Montgomery, AL

ADEM, 2005. ADEM Administrative Code R. 335-6-10, Water Quality Criteria. Alabama Department of Environmental Management, Montgomery, AL.

ADEM, 2005. ADEM Administrative Code R. 335-6-11, Water Use Classifications for Interstate and Intrastate Waters. Alabama Department of Environmental Management, Montgomery, AL.

ADPH, 2001. ADPH, Seafood Branch. Area I-II-III Triennial Report – 1999, 2000, 2001. Alabama Department of Public Health, Montgomery, AL.

EPA, 2000. Guidance: Use of Fish and Shellfish Advisories and Classifications in 303(d) and 305(b) Listing Decisions, Geoffrey H. Grubbs and Robert H. Wayland, III, October 24, 2000. United States Environmental Protection Agency, Washington, DC.

EPA, 2005. Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to Sections 303(d), 305(b) and 3314 of the Clean Water Act; United States Environmental Protection Agency. Washington, DC.

O'Neil, P.E., and T.E. Shepard, 1998. Standard operating procedure manual for sampling freshwater fish communities and application of the index of biotic integrity for assessing biological condition of flowing, wadeable streams in Alabama. ADEM Contract No. AGY7042. Geological Survey of Alabama, Tuscaloosa, Alabama.

APPENDIX

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION - WATER QUALITY PROGRAM**

**CHAPTER 335-6-10
WATER QUALITY CRITERIA**

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335-6-10-.01 Purpose.

(1) Title 22, Section 22-22-1 et seq., Code of Alabama 1975, includes as its purpose "... to conserve the waters of the State and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses; to provide for the prevention, abatement and control of new or existing water pollution; and to cooperate with other agencies of the State, agencies of other states and the federal government in carrying out these objectives."

(2) Water quality criteria, covering all legitimate water uses, provide the tools and means for determining the manner in which waters of the State may be best utilized, provide a guide for determining waste treatment requirements, and provide the basis for standards of quality for State waters and portions thereof. Water quality criteria are not intended to freeze present uses of water, nor to exclude other uses not now possible. They are not a device to insure the lowest common denominator of water quality, but to encourage prudent use of the State's water resources and to enhance their quality and productivity commensurate with the stated purpose of Title 22, Section 22-22-1 et seq., Code of Alabama 1975.

(3) Water quality criteria herein set forth have been developed by the Commission for those uses of surface waters known and expected to exist over the State. They are based on present scientific knowledge, experience and judgment. Characteristics or parameters included in the criteria are those of fundamental significance to a determination of

water quality and are those which are and can be routinely monitored and compared to data that are generally available. It is the intent that these criteria will be applied only after reasonable opportunity for mixture of wastes with receiving waters has been afforded. The reasonableness of the opportunity for mixture of wastes and receiving waters shall be judged on the basis of the physical characteristics of the receiving waters and approval by the Department of the method in which the discharge is physically made.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; July 17, 1972; February 26, 1973; May 30, 1977; December 19, 1977; February 4, 1981; March 2, 1990; April 3, 1991.

335-6-10-.02 Definitions.

- (1) "Commission" means the Environmental Management Commission, established by the Environmental Management Act, Code of Alabama 1975, §§ 22-22A-1 to 22-22A-16.
- (2) "Department" means the Alabama Department of Environmental Management, established by the Alabama Environmental Management Act, Code of Alabama 1975, §§ 22-22A-1 to 22-22A-16.
- (3) "existing uses" means those legitimate beneficial uses of a water body attained in fact on or after November 28, 1975, whether or not they are included as classified uses in ADEM Administrative Code Rule 335-6-11-.02.
- (4) "industrial waste" means liquid or other wastes resulting from any process of industry, manufacture, trade or business or from the development of natural resources.
- (5) "NPDES" means National Pollutant Discharge Elimination System.
- (6) "other wastes" means all other substances, whether liquid, gaseous or solid, from all other sources including, but not limited to, any vessels, or other conveyances traveling or using the waters of this State, except industrial wastes or sewage, which may cause pollution of any waters of the State.
- (7) "pollutant" includes but is not limited to dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. Pollutant does not mean (a) sewage from vessels; or (b) water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil or gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State, and if the Department determines that such injection or disposal will not result in the degradation of ground or surface water resources.
- (8) "pollution" means the discharge of a pollutant or combination of pollutants.
- (9) "sewage" means water-carried human wastes from residences, buildings, industrial establishments or other places including, but not limited to, any vessels, or other

conveyances traveling or using the waters of this State, together with such ground, surface, storm or other waters as may be present.

(10) "State waters" or "waters of the State" means all waters of any river, stream, watercourse, pond, lake, coastal, or surface water, wholly or partially within the State, natural or artificial. This does not include waters which are entirely confined and retained completely upon the property of a single individual, partnership or corporation unless such waters are used in interstate commerce.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; July 17, 1972; February 26, 1973; May 30, 1977; December 19, 1977; February 4, 1981; March 2, 1990; April 3, 1991.

335-6-10-.03 Water Use Classifications.

- (1) Outstanding Alabama Water
- (2) Public Water Supply
- (3) Swimming and Other Whole Body Water-Contact Sports
- (4) Shellfish Harvesting
- (5) Fish and Wildlife
- (6) Limited Warmwater Fishery
- (7) Agricultural and Industrial Water Supply

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; July 17, 1972; February 26, 1973; May 30, 1977; December 19, 1977; February 4, 1981; December 30, 1992; September 7, 2000.

335-6-10-.04 Antidegradation Policy.

(1) The purpose and intent of the water quality standards is to conserve the waters of the State of Alabama and to protect, maintain and improve the quality thereof for public water supplies, for the propagation of wildlife, fish and aquatic life, and for domestic, agricultural, industrial, recreational and other legitimate beneficial uses; and to provide for the prevention, abatement and control of new or existing water pollution.

(2) Existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. Uses and the water quality to support such uses were established through public participation in the initial establishment, and periodic review, of water quality standards. Should the Department determine that an existing use is not encompassed in the classification of a waterbody, that use shall be recognized.

(3) Where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected, except that a new or increased discharge of pollutants may be allowed, after intergovernmental coordination and public participation pursuant to applicable permitting and management processes, when the person proposing the new or increased

discharge of pollutants demonstrates that the proposed discharge is necessary for important economic or social development. In such cases, water quality adequate to protect existing uses fully shall be maintained. All new and existing point source discharges shall be subject to the highest statutory and regulatory requirements, and nonpoint source discharges shall use best management practices adequate to protect water quality consistent with the Department's nonpoint source control program.

(4) Where high quality waters constitute an outstanding National resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water quality shall be maintained and protected.

(5) Developments constituting a new or increased source of thermal pollution shall assure that such release will not impair the propagation of a balanced indigenous population of fish and aquatic life.

(6) In applying these policies and requirements, the State of Alabama will recognize and protect the interests of the federal government. Toward this end the Department will consult and cooperate with the Environmental Protection Agency on all matters affecting the federal interest.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; July 17, 1972; February 26, 1973; May 30, 1977; December 19, 1977; February 4, 1981; March 2, 1990; April 3, 1991.

335-6-10-.05

General Conditions Applicable to All Water Quality Criteria.

(1) The quality of any waters receiving sewage, industrial wastes or other wastes, regardless of their use, shall be such as will not cause the best usage of any other waters to be adversely affected by such sewage, industrial wastes or other wastes.

(2) Tests or analytical procedures to determine compliance or noncompliance with water quality criteria shall be in accordance with the methods specified in 40 CFR 136.3 (2003). Where other tests or analytical procedures are found to be more applicable and satisfactory, these may be used upon acceptance and approval by the Department.

(3) In making any tests or analytical determinations to determine compliance or noncompliance with water quality criteria, samples shall be collected in such manner and at such locations approved by a duly authorized representative of the Department as being representative of the receiving waters after reasonable opportunity for dilution and mixture with the wastes discharged thereto. Mixing zones, i.e., that portion of the receiving waters where mixture of effluents and natural waters take place, shall not preclude passage of free-swimming and drifting aquatic organisms to the extent that their populations are significantly affected.

(4) Natural waters may, on occasion, have characteristics outside of the limits established by these criteria. The criteria contained herein relate to the condition of waters as affected by the discharge of sewage, industrial wastes or other wastes, not to conditions resulting from natural forces.

(5) All waters, where attainable, shall be suitable for recreation in and on the waters during the months of June through September except that recreational use is not

recommended in the vicinity of discharges or other conditions which the Department or the Department of Public Health does not control.

(6) Where necessary to attain compliance with a new water quality standard, existing permits for the discharge of wastewaters shall be modified or reissued to limit the discharge of a substance causing or contributing to the failure of a water of the state to meet the new standard. Compliance with the modified limit shall be required as soon as practical, but in all cases within three years of the adoption of the new standard.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; July 17, 1972; February 26, 1973; May 30, 1977; December 19, 1977; February 4, 1981; March 2, 1990; April 3, 1991; January 14, 2005.

335-6-10-.06 **Minimum Conditions Applicable to All State Waters.** The following minimum conditions are applicable to all State waters, at all places and at all times, regardless of their uses:

(a) State waters shall be free from substances attributable to sewage, industrial wastes or other wastes that will settle to form bottom deposits which are unsightly, putrescent or interfere directly or indirectly with any classified water use.

(b) State waters shall be free from floating debris, oil, scum, and other floating materials attributable to sewage, industrial wastes or other wastes in amounts sufficient to be unsightly or interfere directly or indirectly with any classified water use.

(c) State waters shall be free from substances attributable to sewage, industrial wastes or other wastes in concentrations or combinations which are toxic or harmful to human, animal or aquatic life to the extent commensurate with the designated usage of such waters.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; July 17, 1972; February 26, 1973; May 30, 1977; December 19, 1977; February 4, 1981.

335-6-10-.07 **Toxic Pollutant Criteria Applicable to State Waters.**

(1) The U. S. Environmental Protection Agency has listed the chemical constituents given in Table 1 as toxic pollutants pursuant to Section 307(a)(1) of the Federal Water Pollution Control Act (FWPCA). Concentrations of these toxic pollutants in State waters shall not exceed the criteria indicated in Table 1 to the extent commensurate with the designated usage of such waters.

(a) The freshwater and marine aquatic life criteria for certain of the pollutants are dependent on hardness or pH. For these pollutants, the criteria are given by the following equations. In the hardness-dependent equations for metals, a conversion factor converts the total recoverable value to a criterion expressed as the dissolved fraction in the water column. All numeric values listed for metals in Table 1 at the end of this chapter are expressed as dissolved metals unless otherwise noted.

1. Cadmium

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(1.0166[\ln(\text{hardness in mg/l as CaCO}_3)]-3.924)})(\text{CF}); \quad \text{(Eq. 1)}$$

conversion factor (CF) = $1.136672 - [\ln(\text{hardness})(0.041838)]$

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.7409[\ln(\text{hardness in mg/l as CaCO}_3)]-4.719)})(\text{CF}); \quad \text{(Eq. 2)}$$

conversion factor (CF) = $1.101672 - [\ln(\text{hardness})(0.041838)]$

2. Chromium (trivalent)

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.8190[\ln(\text{hardness in mg/l as CaCO}_3)]+3.7256)})(\text{CF}); \quad \text{(Eq. 3)}$$

conversion factor (CF) = 0.316

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.8190[\ln(\text{hardness in mg/l as CaCO}_3)]+0.6848)})(\text{CF}); \quad \text{(Eq. 4)}$$

conversion factor (CF) = 0.860

3. Copper

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.9422[\ln(\text{hardness in mg/l as CaCO}_3)]-1.700)})(\text{CF}); \quad \text{(Eq. 5)}$$

conversion factor (CF) = 0.960

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.8545[\ln(\text{hardness in mg/l as CaCO}_3)]-1.702)})(\text{CF}); \quad \text{(Eq. 6)}$$

conversion factor (CF) = 0.960

4. Lead

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(1.273[\ln(\text{hardness in mg/l as CaCO}_3)]-1.460)})(\text{CF}); \quad \text{(Eq. 7)}$$

conversion factor (CF) = $1.46203 - [\ln(\text{hardness})(0.145712)]$

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(1.273[\ln(\text{hardness in mg/l as CaCO}_3)]-4.705)})(\text{CF}); \quad \text{(Eq. 8)}$$

conversion factor (CF) = $1.46203 - [\ln(\text{hardness})(0.145712)]$

5. Nickel

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.8460[\ln(\text{hardness in mg/l as CaCO}_3)]+2.255)})(\text{CF}); \quad \text{(Eq. 9)}$$

conversion factor (CF) = 0.998

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.8460[\ln(\text{hardness in mg/l as CaCO}_3)]+0.0584)})(\text{CF}); \quad \text{(Eq. 10)}$$

conversion factor (CF) = 0.997

6. Pentachlorophenol

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu\text{g/l}) = e^{[1.005(\text{pH})-4.869]} \quad \text{(Eq. 11)}$$

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu\text{g/l}) = e^{[1.005(\text{pH})-5.134]} \quad (\text{Eq. 12})$$

7. Silver

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(1.72[\ln(\text{hardness in mg/l as CaCO}_3)]-6.59)})(\text{CF}); \quad (\text{Eq. 13})$$

conversion factor (CF) = 0.85

8. Zinc

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.8473[\ln(\text{hardness in mg/l as CaCO}_3)]+0.884)})(\text{CF}); \quad (\text{Eq. 14})$$

conversion factor (CF) = 0.978

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu\text{g/l}) = (e^{(0.8473[\ln(\text{hardness in mg/l as CaCO}_3)]+0.884)})(\text{CF}); \quad (\text{Eq. 15})$$

conversion factor (CF) = 0.986

(b) The marine aquatic life criteria apply only to interstate and coastal waters of the Mobile River - Mobile Bay Basin and interstate and coastal waters of the Perdido River Basin, as identified in Rule 335-6-11-.02 of the Department's regulations. The acute aquatic life criteria apply to all waters of the State. The chronic aquatic life criteria apply only to waters classified Outstanding Alabama Water, Public Water Supply, Swimming and Other Whole Body Water-Contact Sports, Shellfish Harvesting, Fish and Wildlife, and Limited Warmwater Fishery, as identified in Rule 335-6-11-.02 of the Department's regulations.

(c) For the purpose of establishing effluent limitations pursuant to Chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years (7Q₁₀) shall be the basis for applying the chronic aquatic life criteria, except as noted in Rule 335-6-10-.09(6), and the minimum 1-day low flow that occurs once in 10 years (1Q₁₀) shall be the basis for applying the acute aquatic life criteria, except as noted in Rule 335-6-10-.09(7)(c)(5). Where a permit specifies a minimum flow greater than 7Q₁₀, the specified minimum flow may be used as the basis for applying the acute and chronic aquatic life criteria for that permit.

(d) Except as noted in Table 1, two human health criteria are provided for each pollutant--a criterion for consumption of water and fish, and a criterion for consumption of fish only. For certain pollutants, the human health criterion for consumption of water and fish may represent a maximum contaminant level (MCL) developed under the Safe Drinking Water Act.

1. For pollutants classified by the U.S. Environmental Protection Agency as non-carcinogens, the criteria shall be given by the following equations, except where numeric values are given in Table 1.

(i) Consumption of water and fish:

$$\text{conc. (mg/l)} = (\text{HBW} \times \text{RfD}) / [(\text{FCR} \times \text{BCF}) + \text{WCR}] \quad (\text{Eq. 16})$$

(ii) Consumption of fish only:

$$\text{conc. (mg/l)} = (\text{HBW} \times \text{RfD}) / (\text{FCR} \times \text{BCF}) \quad (\text{Eq. 17})$$

where: HBW = human body weight, set at 70 kg

RfD = reference dose, in mg/(kg-day)

FCR = fish consumption rate, set at 0.030 kg/day

BCF = bioconcentration factor, in l/kg

WCR = water consumption rate, set at 2 l/day

(iii) The values used for the reference dose (RfD) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS), and values used for the bioconcentration factor (BCF) shall be values contained in ambient water quality criteria documents published by the U.S. Environmental Protection Agency, except where other values are established pursuant to subparagraph (1)(g). The RfD and BCF values for specific pollutants are provided in Appendix A.

2. For pollutants classified by the U.S. Environmental Protection Agency as carcinogens, the criteria shall be given by the following equations, except where numeric values are given in Table 1.

(i) Consumption of water and fish:

$$\text{conc. (mg/l)} = (\text{HBW} \times \text{RL}) / (\text{CPF} \times [(\text{FCR} \times \text{BCF}) + \text{WCR}]) \quad (\text{Eq. 18})$$

(ii) Consumption of fish only:

$$\text{conc. (mg/l)} = (\text{HBW} \times \text{RL}) / (\text{CPF} \times \text{FCR} \times \text{BCF}) \quad (\text{Eq. 19})$$

where: HBW = human body weight, set at 70 kg

RL = risk level, set at 1×10^{-5}

CPF = cancer potency factor, in (kg-day)/mg

FCR = fish consumption rate, set at 0.030 kg/day

BCF = bioconcentration factor, in l/kg

WCR = water consumption rate, set at 2 l/day

(iii) The values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS), and values used for the bioconcentration factor (BCF) shall be values contained in ambient water quality criteria documents published by the U.S. Environmental Protection Agency, except where other values are established pursuant to subparagraph (1)(g). The CPF and BCF values for specific pollutants are provided in Appendix A.

(e) The criteria given in Table 1 for consumption of water and fish, or computed from equation 16 or equation 18 for consumption of water and fish, shall apply only to those waters of the State classified Public Water Supply, as identified in Rule 335-6-11-.02 of the Department's regulations. The criteria given in Table 1 for consumption of fish only, or computed from equation 17 or equation 19 for consumption of fish only, shall apply to all waters of the State.

(f) For the purposes of establishing effluent limitations pursuant to Chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years (7Q₁₀) shall be the basis for applying the human health criteria for pollutants classified as non-carcinogens, and the mean annual flow shall be the basis for applying the human health criteria for pollutants classified as carcinogens; except that where a permit specifies a minimum flow greater than 7Q₁₀, the specified minimum flow may be used as the basis for applying the human health criteria for pollutants classified as non-carcinogens for that permit.

(g) Numeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the reference dose (RfD), cancer potency factor (CPF), and bioconcentration factor (BCF) determined by the Department in consultation with the State Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) or ambient water quality criteria documents. Such criteria, or the RfD, CPF, and BCF values used to compute criteria, shall not be effective until adopted following established rulemaking procedures.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: March 2, 1990. **Amended:** April 3, 1991; May 28, 1992; August 29, 1994; May 30, 1997; September 7, 2000; January 12, 2001; January 14, 2005; September 21, 2005.

335-6-10-.08 **Waste Treatment Requirements.** The following treatment requirements apply to all industrial waste discharges, sewage treatment plants, and combined waste treatment plants:

(a) As a minimum, secondary treatment or "equivalent to secondary treatment" as provided for in rules and regulations promulgated by the U.S. Environmental Protection Agency at 40 CFR Part 133 (1990), shall be applied to all waste discharges. The term

"secondary treatment" is applied to biologically degradable waste and is interpreted to mean a facility which at design flow is capable of removing substantially all floating and settleable solids and to achieve a minimum removal of 85 percent of both the 5-day biochemical oxygen demand and suspended solids which, in the case of municipal wastes, is generally considered to produce an effluent quality containing a BOD₅ concentration of 30 mg/l and a suspended solids concentration of 30 mg/l. For municipal waste treatment facilities with effluent concentration limitations that are more stringent than secondary treatment, minimum removal of 85 percent of both the 5-day biochemical oxygen demand and suspended solids shall be at the Department's discretion. Disinfection, where necessary, will also be required. Waste treatment requirements also include those established under the provisions of Sections 301, 304, 306, and 307 of the Federal Water Pollution Control Act (FWPCA). In addition, the Department may require secondary treatment of biologically degradable industrial wastewaters when the application of guidelines published under federal law do not produce a similar reduction in the parameters of concern. In the application of this requirement, consideration will be given to efficiencies achieved through in-process improvements.

(b) In all cases an analysis of water use and flow characteristics for the receiving stream shall be provided to determine the degree of treatment required. Where indicated by the analysis, a higher degree of treatment may be required.

(c) The minimum 7-day low flow that occurs once in 10 years shall be the basis for design criteria.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; July 17, 1972; February 26, 1973; May 30, 1977; December 19, 1977; February 4, 1981; March 2, 1990; April 3, 1991; January 14, 2005.

335-6-10-.09 Specific Water Quality Criteria.

(1) OUTSTANDING ALABAMA WATER

(a) Best usage of waters: activities consistent with the natural characteristics of the waters.

(b) Conditions related to best usage:

1. High quality waters that constitute an outstanding Alabama resource, such as waters of state parks and wildlife refuges and waters of exceptional recreational or ecological significance, may be considered for classification as an Outstanding Alabama Water (OAW).

(c) Specific criteria:

1. Sewage, industrial wastes, or other wastes:

(i) Existing point source discharges to an Outstanding Alabama Water shall be allowed; however, within three years of assignment of the OAW classification or at permit renewal, whichever is later, existing point sources shall be required to meet the effluent limitations specified for new point source discharges in subparagraph (ii) hereof.

(ii) New point source discharges or expansions of existing point source discharges shall not be allowed unless a thorough evaluation of all practicable treatment and disposal alternatives by the permit applicant has demonstrated to the satisfaction of the

Department that there is no feasible alternative to discharge to the waters classified OAW. At a minimum, domestic wastewater discharges shall be required to meet monthly average effluent limitations of 15 mg/l biochemical oxygen demand (5-day), 3 mg/l ammonia nitrogen, and 6 mg/l dissolved oxygen, and shall be required to provide disinfection of the effluent. Non-domestic wastewater discharges shall be required to provide a comparably stringent level of treatment as determined by the Department.

(iii) Effluent limitations for new point source discharges or expansions of existing point source discharges to waters upstream of, or tributary to, waters classified OAW shall be established by the Department such that the impact of the discharge within the waters classified OAW is no greater than if the discharge occurred at the OAW boundary at the treatment levels specified in subparagraph (ii) hereof.

(iv) All NPDES permits shall contain toxics limits that will ensure compliance with all applicable water quality standards. Such limits shall be acute and chronic toxicity limits for individual toxic substances, whole effluent toxicity limits, or both. For permittees subject to whole effluent toxicity limitations, both acute and chronic testing will be required. Whole effluent acute toxicity will be demonstrated if the effluent causes more than 10 percent mortality of test organisms when tested at an effluent concentration of 100 percent. For permittees whose discharge will result in an in-stream waste concentration of 10 percent or more, whole effluent chronic toxicity limits will be based on an in-stream concentration of 100 percent; for permittees whose discharge will result in an in-stream waste concentration of less than 10 percent, whole effluent chronic toxicity limits will be based on the in-stream waste concentration.

(v) Nonpoint source discharges shall use best management practices adequate to protect water quality consistent with the Department's nonpoint source control program.

(vi) All NPDES permits and nonpoint sources shall incorporate or employ water pollution prevention or waste reduction measures as established by the Department.

2. pH: sewage, industrial wastes or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.0, nor greater than 8.5. For salt waters and estuarine waters to which this classification is assigned, wastes as herein described shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.5, nor greater than 8.5.

3. Temperature:

(i) The maximum temperature in streams, lakes, and reservoirs, other than those in river basins listed in subparagraph (ii) hereof, shall not exceed 90° F.

(ii) The maximum temperature in streams, lakes, and reservoirs in the Tennessee and Cahaba River Basins, and for that portion of the Tallapoosa River Basin from the tailrace of Thurlow Dam at Tallassee downstream to the junction of the Coosa and Tallapoosa Rivers which has been classified by the Alabama Department of Conservation and Natural Resources as supporting smallmouth bass, sauger, or walleye, shall not exceed 86° F.

(iii) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 5° F in streams, lakes, and reservoirs in non-coastal and non-estuarine areas.

(iv) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 4° F in coastal or estuarine waters during the period October through May, nor shall the rise exceed 1.5° F during the period June through September.

(v) In lakes and reservoirs there shall be no withdrawal from, nor discharge of heated waters to, the hypolimnion unless it can be shown that such discharge or withdrawal will be beneficial to water quality.

(vi) In all waters the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained, and there shall be no thermal block to the migration of aquatic organisms.

(vii) Thermal permit limitations in NPDES permits may be less stringent than those required by subparagraphs (i)-(iv) hereof when a showing by the discharger has been made pursuant to Section 316 of the Federal Water Pollution Control Act (FWPCA), 33 U.S.C. § 1251 et seq. or pursuant to a study of an equal or more stringent nature required by the State of Alabama authorized by Title 22, Section 22-22-9(c), Code of Alabama 1975, that such limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, in and on the body of water to which the discharge is made. Any such demonstration shall take into account the interaction of the thermal discharge component with other pollutants discharged.

4. Dissolved oxygen:

(i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5.5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5.5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. In no event shall the dissolved oxygen level be less than 4 mg/l due to hydroelectric turbine discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments, shall be designed so that the discharge will contain at least 5.5 mg/l dissolved oxygen where practicable and technologically possible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

(ii) In coastal waters, surface dissolved oxygen concentrations shall not be less than 5.5 mg/l, except where natural phenomena cause the value to be depressed.

(iii) In estuaries and tidal tributaries, dissolved oxygen concentrations shall not be less than 5.5 mg/l, except in dystrophic waters or where natural conditions cause the value to be depressed.

(iv) In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.

5. Toxic substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances, as will not exhibit

acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and aquatic life, including shrimp and crabs in estuarine or salt waters or the propagation thereof.

6. Taste, odor, and color-producing substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances, as will not exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and aquatic life, including shrimp and crabs in estuarine and salt waters or adversely affect the propagation thereof; impair the palatability or marketability of fish and wildlife or shrimp and crabs in estuarine and salt waters; or unreasonably affect the aesthetic value of waters for any use under this classification.

7. Bacteria: in non-coastal waters, bacteria of the fecal coliform group shall not exceed a geometric mean of 200 colonies/100 ml. In coastal waters, bacteria of the enterococci group shall not exceed a geometric mean of 35 colonies/100 ml nor exceed a maximum of 104 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours.

8. Radioactivity: the concentrations of radioactive materials present shall not exceed the requirements of the State Department of Public Health.

9. Turbidity: there shall be no turbidity of other than natural origin that will cause substantial visible contrast with the natural appearance of waters or interfere with any beneficial uses which they serve. Furthermore, in no case shall turbidity exceed 50 Nephelometric units above background. Background will be interpreted as the natural condition of the receiving waters without the influence of man-made or man-induced causes. Turbidity levels caused by natural runoff will be included in establishing background levels.

(2) PUBLIC WATER SUPPLY

(a) Best usage of waters: source of water supply for drinking or food-processing purposes.*

(b) Conditions related to best usage: the waters, if subjected to treatment approved by the Department equal to coagulation, sedimentation, filtration and disinfection, with additional treatment if necessary to remove naturally present impurities, and which meet the requirements of the Department, will be considered safe for drinking or food-processing purposes.

(c) Other usage of waters: it is recognized that the waters may be used for incidental water contact and recreation during June through September, except that water contact is strongly discouraged in the vicinity of discharges or other conditions beyond the control of the Department or the Alabama Department of Public Health.

(d) Conditions related to other usage: the waters, under proper sanitary supervision by the controlling health authorities, will meet accepted standards of water quality

* **NOTE:** In determining the safety or suitability of waters for use as sources of water supply for drinking or food-processing purposes after approved treatment, the Commission will be guided by the physical and chemical standards specified by the Department.

for outdoor swimming places and will be considered satisfactory for swimming and other whole body water-contact sports.

(e) Specific criteria:

1. Sewage, industrial wastes, or other wastes: none which are not effectively treated or controlled in accordance with Rule 335-6-10-.08.

2. pH: sewage, industrial wastes or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.0, nor greater than 8.5.

3. Temperature:

(i) The maximum temperature in streams, lakes, and reservoirs, other than those in river basins listed in subparagraph (ii) hereof, shall not exceed 90° F.

(ii) The maximum temperature in streams, lakes, and reservoirs in the Tennessee and Cahaba River Basins, and for that portion of the Tallapoosa River Basin from the tailrace of Thurlow Dam at Tallassee downstream to the junction of the Coosa and Tallapoosa Rivers which has been designated by the Alabama Department of Conservation and Natural Resources as supporting smallmouth bass, sauger, or walleye, shall not exceed 86° F.

(iii) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 5° F in streams, lakes, and reservoirs in non-coastal and non-estuarine areas.

(iv) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 4° F in coastal or estuarine waters during the period October through May, nor shall the rise exceed 1.5° F during the period June through September.

(v) In lakes and reservoirs there shall be no withdrawal from, nor discharge of heated waters to, the hypolimnion unless it can be shown that such discharge or withdrawal will be beneficial to water quality.

(vi) In all waters the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained, and there shall be no thermal block to the migration of aquatic organisms.

(vii) Thermal permit limitations in NPDES permits may be less stringent than those required by subparagraphs (i) - (iv) hereof when a showing by the discharger has been made pursuant to Section 316 of the Federal Water Pollution Control Act (FWPCA), 33 U.S.C. § 1251 et seq. or pursuant to a study of an equal or more stringent nature required by the State of Alabama authorized by Title 22, Section 22-22-9(c), Code of Alabama, 1975, that such limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, in and on the body of water to which the discharge is made. Any such demonstration shall take into account the interaction of the thermal discharge component with other pollutants discharged.

4. Dissolved oxygen:

(i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. In no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments, shall be designed so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically possible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

(ii) In coastal waters, surface dissolved oxygen concentrations shall not be less than 5 mg/l, except where natural phenomena cause the value to be depressed.

(iii) In estuaries and tidal tributaries, dissolved oxygen concentrations shall not be less than 5 mg/l, except in dystrophic waters or where natural conditions cause the value to be depressed.

(iv) In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.

5. Toxic substances; color producing; heated liquids; or other deleterious substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances, and only such temperatures as will not render the waters unsafe or unsuitable as a source of water supply for drinking or food-processing purposes, or exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish, wildlife and aquatic life, or adversely affect the aesthetic value of waters for any use under this classification.

6. Taste and odor producing substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances or wastes, as will not cause taste and odor difficulties in water supplies which cannot be corrected by treatment as specified under subparagraph (b), or impair the palatability of fish.

7. Bacteria:

(i) In non-coastal waters, bacteria of the fecal coliform group shall not exceed a geometric mean of 1,000 colonies/100 ml; nor exceed a maximum of 2,000 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours. In coastal waters, bacteria of the enterococci group shall not exceed a maximum of 275 colonies/100 ml in any sample.

(ii) For incidental water contact and recreation during June through September, the bacterial quality of water is acceptable when a sanitary survey by the controlling health authorities reveals no source of dangerous pollution and when the geometric mean fecal coliform organism density does not exceed 200 colonies/100 ml in non-coastal waters. In coastal waters, bacteria of the enterococci group shall not exceed a geometric mean of 35 colonies/100 ml nor exceed a maximum of 158 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at

intervals not less than 24 hours. When the geometric mean bacterial organism density exceeds these levels, the bacterial water quality shall be considered acceptable only if a second detailed sanitary survey and evaluation discloses no significant public health risk in the use of the waters. Waters in the immediate vicinity of discharges of sewage or other wastes likely to contain bacteria harmful to humans, regardless of the degree of treatment afforded these wastes, are not acceptable for swimming or other whole body water-contact sports.

8. Radioactivity: no radionuclide or mixture of radionuclides shall be present at concentrations greater than those specified by the requirements of the State Department of Public Health.

9. Turbidity: there shall be no turbidity of other than natural origin that will cause substantial visible contrast with the natural appearance of waters or interfere with any beneficial uses which they serve. Furthermore, in no case shall turbidity exceed 50 Nephelometric units above background. Background will be interpreted as the natural condition of the receiving waters, without the influence of man-made or man-induced causes. Turbidity levels caused by natural runoff will be included in establishing background levels.

(3) **SWIMMING AND OTHER WHOLE BODY WATER-CONTACT SPORTS**

(a) Best usage of waters: swimming and other whole body water-contact sports.*

(b) Conditions related to best usage: the waters, under proper sanitary supervision by the controlling health authorities, will meet accepted standards of water quality for outdoor swimming places and will be considered satisfactory for swimming and other whole body water-contact sports. The quality of waters will also be suitable for the propagation of fish, wildlife and aquatic life. The quality of salt waters and estuarine waters to which this classification is assigned will be suitable for the propagation and harvesting of shrimp and crabs.

(c) Specific criteria:

1. Sewage, industrial wastes, or other wastes: none which are not effectively treated or controlled in accordance with Rule 335-6-10-.08.

2. pH: sewage, industrial wastes or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.0, nor greater than 8.5. For estuarine waters and salt waters to which this classification is assigned, wastes as described herein shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.5, nor greater than 8.5.

3. Temperature:

(i) The maximum temperature in streams, lakes, and reservoirs, other than those in river basins listed in subparagraph (ii) hereof, shall not exceed 90° F.

* **NOTE:** In assigning this classification to waters intended for swimming and water-contact sports, the Commission will take into consideration the relative proximity of discharges of wastes and will recognize the potential hazards involved in locating swimming areas close to waste discharges. The Commission will not assign this classification to waters, the bacterial quality of which is dependent upon adequate disinfection of waste and where the interruption of such treatment would render the water unsafe for bathing.

(ii) The maximum temperature in streams, lakes, and reservoirs in the Tennessee and Cahaba River Basins, and for that portion of the Tallapoosa River Basin from the tailrace of Thurlow Dam at Tallassee downstream to the junction of the Coosa and Tallapoosa Rivers which has been designated by the Alabama Department of Conservation and Natural Resources as supporting smallmouth bass, sauger, or walleye, shall not exceed 86° F.

(iii) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 5° F in streams, lakes, and reservoirs in non-coastal and non-estuarine areas.

(iv) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 4° F in coastal or estuarine waters during the period October through May, nor shall the rise exceed 1.5° F during the period June through September.

(v) In lakes and reservoirs there shall be no withdrawal from, nor discharge of heated waters to, the hypolimnion unless it can be shown that such discharge or withdrawal will be beneficial to water quality.

(vi) In all waters the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained, and there shall be no thermal block to the migration of aquatic organisms.

(vii) Thermal permit limitations in NPDES permits may be less stringent than those required by subparagraphs (i)-(iv) hereof when a showing by the discharger has been made pursuant to Section 316 of the Federal Water Pollution Control Act (FWPCA), 33 U.S.C. § 1251 *et seq.* or pursuant to a study of an equal or more stringent nature required by the State of Alabama authorized by Title 22, Section 22-22-9(c), Code of Alabama, 1975, that such limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, in and on the body of water to which the discharge is made. Any such demonstration shall take into account the interaction of the thermal discharge component with other pollutants discharged.

4. Dissolved oxygen:

(i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. In no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments, shall be designed so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically possible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

(ii) In coastal waters, surface dissolved oxygen concentrations shall not be less than 5 mg/l, except where natural phenomena cause the value to be depressed.

(iii) In estuaries and tidal tributaries, dissolved oxygen concentrations shall not be less than 5 mg/l, except in dystrophic waters or where natural conditions cause the value to be depressed.

(iv) In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.

5. Toxic substances; color producing substances; odor producing substances; or other deleterious substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances or wastes, as will not render the water unsafe or unsuitable for swimming and water-contact sports; exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish, wildlife, and aquatic life or, where applicable, shrimp and crabs; impair the palatability of fish, or where applicable, shrimp and crabs; impair the waters for any other usage established for this classification or unreasonably affect the aesthetic value of waters for any use under this classification.

6. Bacteria:

(i) Waters in the immediate vicinity of discharges of sewage or other wastes likely to contain bacteria harmful to humans, regardless of the degree of treatment afforded these wastes*, are not acceptable for swimming or other whole body water-contact sports.

(ii) In all other areas, the bacterial quality of water is acceptable when a sanitary survey by the controlling health authorities reveals no source of dangerous pollution and when the geometric mean fecal coliform organism density does not exceed 200 colonies/100 ml in non-coastal waters. In coastal waters, bacteria of the enterococci group shall not exceed a geometric mean of 35 colonies/100 ml nor exceed a maximum of 104 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours. When the geometric mean bacterial organism density exceeds these levels, the bacterial water quality shall be considered acceptable only if a second detailed sanitary survey and evaluation discloses no significant public health risk in the use of the waters.

(iii) The policy of nondegradation of high quality waters shall be stringently applied to bacterial quality of recreational waters.

7. Radioactivity: the concentrations of radioactive materials present shall not exceed the requirement of the State Department of Public Health.

8. Turbidity: there shall be no turbidity of other than natural origin that will cause substantial visible contrast with the natural appearance of waters or interfere with any beneficial uses which they serve. Furthermore, in no case shall turbidity exceed 50 Nephelometric units above background. Background will be interpreted as the natural condition

* **NOTE:** In assigning this classification to waters intended for swimming and water-contact sports, the Commission will take into consideration the relative proximity of discharges of wastes and will recognize the potential hazards involved in locating swimming areas close to waste discharges. The Commission will not assign this classification to waters, the bacterial quality of which is dependent upon adequate disinfection of waste and where the interruption of such treatment would render the water unsafe for bathing.

of the receiving waters, without the influence of man-made or man-induced causes. Turbidity levels caused by natural runoff will be included in establishing background levels.

(4) **SHELLFISH HARVESTING**

(a) Best usage of waters: propagation and harvesting of shellfish for sale or use as a food product.

(b) Conditions related to best usage: waters will meet the sanitary and bacteriological standards included in the *National Shellfish Sanitation Program Model Ordinance, 1999, Chapter IV*, published by the Food and Drug Administration, U.S. Department of Health and Human Services and the requirements of the State Department of Public Health. The waters will also be of a quality suitable for the propagation of fish and other aquatic life, including shrimp and crabs.

(c) Other usage of waters: it is recognized that the waters may be used for incidental water contact and recreation during June through September, except that water contact is strongly discouraged in the vicinity of discharges or other conditions beyond the control of the Department or the Alabama Department of Public Health.

(d) Conditions related to other usage: the waters, under proper sanitary supervision by the controlling health authorities, will meet accepted standards of water quality for outdoor swimming places and will be considered satisfactory for swimming and other whole body water-contact sports.

(e) Specific criteria:

1. Sewage, industrial wastes, or other wastes: none which are not effectively treated in accordance with Rule 335-6-10-.08.

2. pH: sewage, industrial wastes or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.5, nor greater than 8.5.

3. Temperature:

(i) The maximum temperature in streams, lakes, and reservoirs, other than those in river basins listed in subparagraph (ii) hereof, shall not exceed 90° F.

(ii) The maximum temperature in streams, lakes, and reservoirs in the Tennessee and Cahaba River Basins, and for that portion of the Tallapoosa River Basin from the tailrace of Thurlow Dam at Tallassee downstream to the junction of the Coosa and Tallapoosa Rivers which has been designated by the Alabama Department of Conservation and Natural Resources as supporting smallmouth bass, sauger, or walleye, shall not exceed 86° F.

(iii) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 5° F in streams, lakes, and reservoirs in non-coastal and non-estuarine areas.

(iv) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 4° F in coastal or estuarine waters during the period October through May, nor shall the rise exceed 1.5° F during the period June through September.

(v) In lakes and reservoirs there shall be no withdrawal from, nor discharge of heated waters to, the hypolimnion unless it can be shown that such discharge or withdrawal will be beneficial to water quality.

(vi) In all waters the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained, and there shall be no thermal block to the migration of aquatic organisms.

(vii) Thermal permit limitations in NPDES permits may be less stringent than those required by subparagraphs (i)-(iv) hereof when a showing by the discharger has been made pursuant to Section 316 of the Federal Water Pollution Control Act (FWPCA), 33 U.S.C. § 1251 *et seq.* or pursuant to a study of an equal or more stringent nature required by the State of Alabama authorized by Title 22, Section 22-22-9(c), Code of Alabama, 1975, that such limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, in and on the body of water to which the discharge is made. Any such demonstration shall take into account the interaction of the thermal discharge component with other pollutants discharged.

4. Dissolved oxygen:

(i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. In no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments, shall be designed so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically possible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

(ii) In coastal waters, surface dissolved oxygen concentrations shall not be less than 5 mg/l, except where natural phenomena cause the value to be depressed.

(iii) In estuaries and tidal tributaries, dissolved oxygen concentrations shall not be less than 5 mg/l, except in dystrophic waters or where natural conditions cause the value to be depressed.

(iv) In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.

5. Toxic substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances, as will not exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and aquatic life, including shrimp and crabs; or affect the marketability of fish and shellfish, including shrimp and crabs.

6. Color, taste, and odor-producing substances and other deleterious substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances, as will not exhibit acute toxicity or chronic

toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and shellfish, including shrimp and crabs; adversely affect marketability or palatability of fish and shellfish, including shrimp and crabs; or unreasonably affect the aesthetic value of waters for any use under this classification.

7. Bacteria:

(i) Not to exceed the limits specified in the latest edition of the National Shellfish Sanitation Program Manual of Operations, Sanitation of Shellfish Growing Areas (1965), published by the Food and Drug Administration, U. S. Department of Health and Human Services.

(ii) For incidental water contact and recreation during June through September, the bacterial quality of water is acceptable when a sanitary survey by the controlling health authorities reveals no source of dangerous pollution and when the geometric mean fecal coliform organism density does not exceed 200 colonies/100 ml in non-coastal waters. In coastal waters, bacteria of the enterococci group shall not exceed a geometric mean of 35 colonies/100 ml nor exceed a maximum of 104 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours. When the geometric mean bacterial organism density exceeds these levels, the bacterial water quality shall be considered acceptable only if a second detailed sanitary survey and evaluation discloses no significant public health risk in the use of the waters. Waters in the immediate vicinity of discharges of sewage or other wastes likely to contain bacteria harmful to humans, regardless of the degree of treatment afforded these wastes, are not acceptable for swimming or other whole body water-contact sports.

8. Radioactivity: the concentrations of radioactive materials present shall not exceed the requirements of the State Department of Public Health.

9. Turbidity: there shall be no turbidity of other than natural origin that will cause substantial visible contrast with the natural appearance of waters or interfere with any beneficial uses which they serve. Furthermore, in no case shall turbidity exceed 50 Nephelometric units above background. Background will be interpreted as the natural condition of the receiving waters without the influence of man-made or man-induced causes. Turbidity levels caused by natural runoff will be included in establishing background levels.

(5) **FISH AND WILDLIFE**

(a) Best usage of waters: fishing, propagation of fish, aquatic life, and wildlife, and any other usage except for swimming and water-contact sports or as a source of water supply for drinking or food-processing purposes.

(b) Conditions related to best usage: the waters will be suitable for fish, aquatic life and wildlife propagation. The quality of salt and estuarine waters to which this classification is assigned will also be suitable for the propagation of shrimp and crabs.

(c) Other usage of waters: it is recognized that the waters may be used for incidental water contact and recreation during June through September, except that water contact is strongly discouraged in the vicinity of discharges or other conditions beyond the control of the Department or the Alabama Department of Public Health.

(d) Conditions related to other usage: the waters, under proper sanitary supervision by the controlling health authorities, will meet accepted standards of water quality for outdoor swimming places and will be considered satisfactory for swimming and other whole body water-contact sports.

(e) Specific criteria:

1. Sewage, industrial wastes, or other wastes: none which are not effectively treated in accordance with Rule 335-6-10-.08.

2. pH: sewage, industrial wastes or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.0, nor greater than 8.5. For salt waters and estuarine waters to which this classification is assigned, wastes as herein described shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.5, nor greater than 8.5.

3. Temperature:

(i) The maximum temperature in streams, lakes, and reservoirs, other than those in river basins listed in subparagraph (ii) hereof, shall not exceed 90° F.

(ii) The maximum temperature in streams, lakes, and reservoirs in the Tennessee and Cahaba River Basins, and for that portion of the Tallapoosa River Basin from the tailrace of Thurlow Dam at Tallassee downstream to the junction of the Coosa and Tallapoosa Rivers which has been designated by the Alabama Department of Conservation and Natural Resources as supporting smallmouth bass, sauger, or walleye, shall not exceed 86° F.

(iii) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 5° F in streams, lakes, and reservoirs in non-coastal and non-estuarine areas.

(iv) The maximum in-stream temperature rise above ambient water temperature due to the addition of artificial heat by a discharger shall not exceed 4° F in coastal or estuarine waters during the period October through May, nor shall the rise exceed 1.5° F during the period June through September.

(v) In lakes and reservoirs there shall be no withdrawal from, nor discharge of heated waters to, the hypolimnion unless it can be shown that such discharge or withdrawal will be beneficial to water quality.

(vi) In all waters the normal daily and seasonal temperature variations that were present before the addition of artificial heat shall be maintained, and there shall be no thermal block to the migration of aquatic organisms.

(vii) Thermal permit limitations in NPDES permits may be less stringent than those required by subparagraphs (i)-(iv) hereof when a showing by the discharger has been made pursuant to Section 316 of the Federal Water Pollution Control Act (FWPCA), 33 U.S.C. § 1251 *et seq.* or pursuant to a study of an equal or more stringent nature required by the State of Alabama authorized by Title 22, Section 22-22-9(c), Code of Alabama, 1975, that such limitations will assure the protection and propagation of a balanced, indigenous population of shellfish, fish and wildlife, in and on the body of water to which the discharge is made. Any

such demonstration shall take into account the interaction of the thermal discharge component with other pollutants discharged.

4. Dissolved oxygen:

(i) For a diversified warm water biota, including game fish, daily dissolved oxygen concentrations shall not be less than 5 mg/l at all times; except under extreme conditions due to natural causes, it may range between 5 mg/l and 4 mg/l, provided that the water quality is favorable in all other parameters. The normal seasonal and daily fluctuations shall be maintained above these levels. In no event shall the dissolved oxygen level be less than 4 mg/l due to discharges from existing hydroelectric generation impoundments. All new hydroelectric generation impoundments, including addition of new hydroelectric generation units to existing impoundments, shall be designed so that the discharge will contain at least 5 mg/l dissolved oxygen where practicable and technologically possible. The Environmental Protection Agency, in cooperation with the State of Alabama and parties responsible for impoundments, shall develop a program to improve the design of existing facilities.

(ii) In coastal waters, surface dissolved oxygen concentrations shall not be less than 5 mg/l, except where natural phenomena cause the value to be depressed.

(iii) In estuaries and tidal tributaries, dissolved oxygen concentrations shall not be less than 5 mg/l, except in dystrophic waters or where natural conditions cause the value to be depressed.

(iv) In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.

5. Toxic substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances, as will not exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and aquatic life, including shrimp and crabs in estuarine or salt waters or the propagation thereof.

6. Taste, odor, and color-producing substances attributable to sewage, industrial wastes, or other wastes: only such amounts, whether alone or in combination with other substances, as will not exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and aquatic life, including shrimp and crabs in estuarine and salt waters or adversely affect the propagation thereof; impair the palatability or marketability of fish and wildlife or shrimp and crabs in estuarine and salt waters; or unreasonably affect the aesthetic value of waters for any use under this classification.

7. Bacteria:

(i) In non-coastal waters, bacteria of the fecal coliform group shall not exceed a geometric mean of 1,000 colonies/100 ml; nor exceed a maximum of 2,000 colonies/100 ml in any sample. In coastal waters, bacteria of the enterococci group shall not exceed a maximum of 275 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours.

(ii) For incidental water contact and recreation during June through September, the bacterial quality of water is acceptable when a sanitary survey by the controlling health authorities reveals no source of dangerous pollution and when the geometric mean fecal coliform organism density does not exceed 200 colonies/100 ml in non-coastal waters. In coastal waters, bacteria of the enterococci group shall not exceed a geometric mean of 35 colonies/100 ml nor exceed a maximum of 158 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours. When the geometric bacterial coliform organism density exceeds these levels, the bacterial water quality shall be considered acceptable only if a second detailed sanitary survey and evaluation discloses no significant public health risk in the use of the waters. Waters in the immediate vicinity of discharges of sewage or other wastes likely to contain bacteria harmful to humans, regardless of the degree of treatment afforded these wastes, are not acceptable for swimming or other whole body water-contact sports.

8. Radioactivity: the concentrations of radioactive materials present shall not exceed the requirements of the State Department of Public Health.

9. Turbidity: there shall be no turbidity of other than natural origin that will cause substantial visible contrast with the natural appearance of waters or interfere with any beneficial uses which they serve. Furthermore, in no case shall turbidity exceed 50 Nephelometric units above background. Background will be interpreted as the natural condition of the receiving waters without the influence of man-made or man-induced causes. Turbidity levels caused by natural runoff will be included in establishing background levels.

(6) **LIMITED WARMWATER FISHERY**

(a) The provisions of the Fish and Wildlife water use classification at Rule 335-6-10-.09(5) shall apply to the Limited Warmwater Fishery water use classification, except as noted below. Unless alternative criteria for a given parameter are provided in paragraph (e) below, the applicable Fish and Wildlife criteria at paragraph 10-.09(5)(e) shall apply year-round. At the time the Department proposes to assign the Limited Warmwater Fishery classification to a specific waterbody, the Department may apply criteria from other classifications within this chapter if necessary to protect a documented, legitimate existing use.

(b) Best usage of waters (May through November): agricultural irrigation, livestock watering, industrial cooling and process water supplies, and any other usage, except fishing, bathing, recreational activities, including water-contact sports, or as a source of water supply for drinking or food-processing purposes.

(c) Conditions related to best usage (May through November):

1. The waters will be suitable for agricultural irrigation, livestock watering, and industrial cooling waters. The waters will be usable after special treatment, as may be needed under each particular circumstance, for industrial process water supplies. The waters will also be suitable for other uses for which waters of lower quality will be satisfactory.

2. This category includes watercourses in which natural flow is intermittent, or under certain conditions non-existent, and which may receive treated wastes from existing municipalities and industries. In such instances, recognition is given to the lack of opportunity for mixture of the treated wastes with the receiving stream for purposes of compliance. It is also

understood in considering waters for this classification that urban runoff or natural conditions may impact any waters so classified.

(d) Other usage of waters: none recognized.

(e) Specific criteria:

1. Dissolved oxygen (May through November): treated sewage, industrial wastes, or other wastes shall not cause the dissolved oxygen to be less than 3.0 mg/l. In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.

2. Toxic substances and taste-, odor-, and color-producing substances attributable to treated sewage, industrial wastes, and other wastes: only such amounts as will not render the waters unsuitable for agricultural irrigation, livestock watering, industrial cooling, and industrial process water supply purposes; interfere with downstream water uses; or exhibit acute toxicity or chronic toxicity, as demonstrated by effluent toxicity testing or by application of numeric criteria given in Rule 335-6-10-.07, to fish and aquatic life, including shrimp and crabs in estuarine or salt waters or the propagation thereof. For the purpose of establishing effluent limitations pursuant to Chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 2 years (7Q₂) shall be the basis for applying the chronic aquatic life criteria. The use of the 7Q₂ low flow for application of chronic criteria is appropriate based on the historical uses and/or flow characteristics of streams to be considered for this classification.

3. Bacteria: In non-coastal waters, bacteria of the fecal coliform group shall not exceed a geometric mean of 1,000 colonies/100 ml; nor exceed a maximum of 2,000 colonies/100 ml in any sample. In coastal waters, bacteria of the enterococci group shall not exceed a maximum of 275 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours.

(7) **AGRICULTURAL AND INDUSTRIAL WATER SUPPLY**

(a) Best usage of waters: agricultural irrigation, livestock watering, industrial cooling and process water supplies, and any other usage, except fishing, bathing, recreational activities, including water-contact sports, or as a source of water supply for drinking or food-processing purposes.

(b) Conditions related to best usage:

(i) The waters, except for natural impurities which may be present therein, will be suitable for agricultural irrigation, livestock watering, industrial cooling waters, and fish survival. The waters will be usable after special treatment, as may be needed under each particular circumstance, for industrial process water supplies. The waters will also be suitable for other uses for which waters of lower quality will be satisfactory.

(ii) This category includes watercourses in which natural flow is intermittent and non-existent during droughts and which may, of necessity, receive treated wastes from existing municipalities and industries, both now and in the future. In such instances, recognition must be given to the lack of opportunity for mixture of the treated wastes with the receiving

stream for purposes of compliance. It is also understood in considering waters for this classification that urban runoff or natural conditions may impact any waters so classified.

(c) Specific criteria:

1. Sewage, industrial wastes, or other wastes: none which are not effectively treated or controlled in accordance with Rule 335-6-10-.08.
2. pH: sewage, industrial wastes or other wastes shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.0, nor greater than 8.5. For salt waters and estuarine waters to which this classification is assigned, wastes as herein described shall not cause the pH to deviate more than one unit from the normal or natural pH, nor be less than 6.5, nor greater than 8.5.
3. Temperature: the maximum temperature rise above natural temperatures due to the addition of artificial heat shall not exceed 5° F in streams, lakes, and reservoirs, nor shall the maximum water temperature exceed 90° F.
4. Dissolved oxygen: sewage, industrial wastes, or other wastes shall not cause the dissolved oxygen to be less than 3.0 mg/l. In the application of dissolved oxygen criteria referred to above, dissolved oxygen shall be measured at a depth of 5 feet in waters 10 feet or greater in depth; and for those waters less than 10 feet in depth, dissolved oxygen criteria will be applied at mid-depth.
5. Color, odor, and taste-producing substances, toxic substances, and other deleterious substances, including chemical compounds attributable to sewage, industrial wastes, and other wastes: only such amounts as will not render the waters unsuitable for agricultural irrigation, livestock watering, industrial cooling, industrial process water supply purposes, and fish survival, nor interfere with downstream water uses. For the purpose of establishing effluent limitations pursuant to Chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years (7Q₁₀) shall be the basis for applying the acute aquatic life criteria. The use of the 7Q₁₀ low flow for application of acute criteria is appropriate based on the historical uses and/or flow characteristics of streams to be considered for this classification.
6. Bacteria: In non-coastal waters, bacteria of the fecal coliform group shall not exceed a geometric mean of 2,000 colonies/100 ml; nor exceed a maximum of 4,000 colonies/100 ml in any sample. In coastal waters, bacteria of the enterococci group shall not exceed a maximum of 500 colonies/100 ml in any sample. The geometric mean shall be calculated from no less than five samples collected at a given station over a 30-day period at intervals not less than 24 hours.
7. Radioactivity: the concentrations of radioactive materials present shall not exceed the requirements of the State Department of Public Health.
8. Turbidity: there shall be no turbidity of other than natural origin that will cause substantial visible contrast with the natural appearance of waters or interfere with any beneficial uses which they serve. Furthermore, in no case shall turbidity exceed 50 Nephelometric units above background. Background will be interpreted as the natural condition of the receiving waters without the influence of man-made or man-induced causes. Turbidity levels caused by natural runoff will be included in establishing background levels.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; July 17, 1972; February 26, 1973; May 30, 1977; December 19, 1977; February 4, 1981; March 2, 1990; April 3, 1991; December 30, 1992; September 7, 2000; May 27, 2004; January 14, 2005.

335-6-10-.10 Special Designations.

(1) OUTSTANDING NATIONAL RESOURCE WATER

(a) Designation:

1. High quality waters that constitute an outstanding National resource, such as waters of national and state parks and wildlife refuges and waters of exceptional recreational or ecological significance, may be considered for designation as an Outstanding National Resource Water (ONRW). For waters designated as ONRW, existing water quality shall be maintained and protected.

(b) Specific Criteria:

1. Sewage, industrial wastes or other wastes:

(i) No new point source discharges or expansions of existing point source discharges to Outstanding National Resource Waters shall be allowed.

(ii) Existing point source discharges to the Outstanding National Resource Water shall be allowed provided they are treated or controlled in accordance with applicable laws and regulations.

(iii) New point source discharges or expansions of existing point source discharges to waters upstream of, or tributary to, Outstanding National Resource Waters shall be regulated in accordance with applicable laws and regulations, including compliance with water quality criteria for the use classification applicable to the particular water. However, no new point source discharge or expansion of an existing point source discharge to waters upstream of, or tributary to, Outstanding National Resource Waters shall be allowed if such discharge would not maintain and protect water quality within the Outstanding National Resource Water.

(iv) Nonpoint source discharges shall use best management practices adequate to protect water quality consistent with the Department's nonpoint source control program.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: April 3, 1991

335-6-10-.11 Water Quality Criteria Applicable to Specific Lakes.

(1) For certain lakes and reservoirs, waterbody-specific criteria are appropriate to enhance nutrient management. The response to nutrient input may vary significantly lake-to-lake, and for a given lake year-to-year, depending on a number of factors such as rainfall distribution and hydraulic retention time. For this reason, lake nutrient quality targets necessary to maintain and protect existing uses, expressed as chlorophyll *a* criteria, may also vary lake-to-lake. Because the relationship between nutrient input and lake chlorophyll *a* levels is not always well-understood, it may be necessary to revise the criteria as additional water quality data and improved assessment tools become available.

(2) The following lake-specific criteria apply to the waters listed below, in addition to any other applicable criteria commensurate with the designated usage of such waters.

(a) **The Alabama River Basin**

1. Claiborne Lake: those waters impounded by Claiborne Lock and Dam on the Alabama River. The lake has a surface area of 5,930 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 15 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Dannelly Lake: those waters impounded by Millers Ferry Lock and Dam on the Alabama River. The lake has a surface area of 17,200 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 17 µg/l, as measured at the deepest point, main river channel, dam forebay.

(b) **The Chattahoochee River Basin**

1. Walter F. George Lake: those waters impounded by Walter F. George Lock and Dam on the Chattahoochee River. The lake has a surface area of 45,181 acres at full power pool, 18,672 acres of which are within Alabama. The Alabama-Georgia state line is represented by the west bank of the original river channel, and the points of measurement for the criteria given below are located in Georgia waters.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 15 µg/l, as measured at the deepest point, main river channel, dam forebay; or 18 µg/l, as measured at the deepest point, main river channel, approximately 0.25 miles upstream of U.S. Highway 82.

2. Lake Harding: those waters impounded by Bartletts Ferry Dam on the Chattahoochee River. The lake has a surface area of 5850 acres at full pool, 2,176 acres of which are within Alabama. The point of measurement for the criterion given below is located in Georgia waters.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 15 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. West Point Lake: those waters impounded by West Point Dam on the Chattahoochee River. The lake has a surface area of 25,864 acres at full power pool, 2,765 acres of which are within Alabama. The point of measurement for the criterion given below is located in Georgia waters.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of photic-zone composite

chlorophyll *a* samples collected monthly April through October shall not exceed 27 µg/l, as measured at the LaGrange, Georgia Water Intake.

(c) **The Coosa River Basin**

1. Weiss Lake: those waters impounded by Weiss Dam on the Coosa River. The lake has a surface area of 30,200 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 20 µg/l, as measured at the deepest point, main river channel, power dam forebay; or 20 µg/l, as measured at the deepest point, main river channel, immediately upstream of causeway (Alabama Highway 9) at Cedar Bluff. If the mean of photic-zone composite chlorophyll *a* samples collected monthly April through October is significantly less than 20 µg/l for a given year, the Department will re-evaluate the chlorophyll *a* criteria, associated nutrient management strategies, and available data and information, and recommend changes, if appropriate, to maintain and protect existing uses.

(d) **The Lower Tombigbee River Basin**

1. Coffeeville Lake: those waters impounded by Coffeeville Dam on the Tombigbee River. The lake has a surface area of 8,500 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 10 µg/l, as measured at the deepest point, main river channel, upstream of the lock canal.

(e) **The Perdido/Escambia River Basin**

1. Lake Jackson: This natural lake, located in Florala, Alabama, has a surface area of 256 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 7 µg/l, as measured at mid-lake.

2. Point A Lake: those waters impounded by Point A Dam on the Conecuh River. The lake has a surface area of 900 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 9 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Gantt Lake: those waters impounded by Gantt Dam on the Conecuh River. The lake has a surface area of 2,767 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 11 µg/l, as measured at the deepest point, main river channel, dam forebay.

(f) **The Tallapoosa River Basin**

1. Thurlow Lake: those waters impounded by Thurlow Dam on the Tallapoosa River. The reservoir has a surface area of 574 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 5 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Yates Lake: those waters impounded by Yates Dam on the Tallapoosa River. The lake has a surface area of 2,000 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 5 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Lake Martin: those waters impounded by Martin Dam on the Tallapoosa River. The lake has a surface area of 40,000 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 5 µg/l, as measured at the deepest point, main river channel, dam forebay; or 5 µg/l, as measured at the deepest point main river channel, immediately upstream of Blue Creek embayment; or 5 µg/l as measured at the deepest point, main creek channel, immediately upstream of Alabama Highway 63 (Kowaliga) bridge.

4. R.L. Harris Lake: those waters impounded by R.L. Harris Dam on the Tallapoosa River. The lake has a surface area of 10,660 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 10 µg/l, as measured at the deepest point, main river channel, dam forebay; or 12 µg/l, as measured at the deepest point, main river channel, immediately upstream of the Tallapoosa River - Little Tallapoosa River confluence.

(g) **The Tennessee River Basin**

1. Pickwick Lake: those waters impounded by Pickwick Dam on the Tennessee River. The reservoir has a surface area of 43,100 acres at full pool, 33,700 acres of which are within Alabama. The point of measurement for the criterion given below is located in Tennessee waters.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through September shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Wilson Lake: those waters impounded by Wilson Dam on the Tennessee River. The lake has a surface area of 15,930 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through September shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Wheeler Lake: those waters impounded by Wheeler Dam on the Tennessee River. The lake has a surface area of 67,100 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through September shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

4. Guntersville Lake: those waters impounded by Guntersville Dam on the Tennessee River. The lake has a surface area of 69,700 acres at full pool, 67,900 of which are within Alabama.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of photic-zone composite chlorophyll *a* samples collected monthly April through September shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

5. Cedar Creek Lake: those waters impounded by Cedar Creek Dam on Cedar Creek. The reservoir has a surface area of 4,200 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 8 µg/l, as measured at the deepest point, main creek channel, dam forebay.

6. Little Bear Creek Lake: those waters impounded by Little Bear Dam on Little Bear Creek. The reservoir has a surface area of 1,600 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 8 µg/l, as measured at the deepest point, main creek channel, dam forebay.

(h) **The Upper Tombigbee River Basin**

1. Demopolis Lake: those waters impounded by Demopolis Dam downstream of the confluence of the Tombigbee and the Black Warrior Rivers. The lake has a surface area of 10,000 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 10 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Gainesville Lake: those waters impounded by Gainesville Dam on the Tombigbee River. The lake has a surface area of 6,400 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of photic-zone composite

chlorophyll *a* samples collected monthly April through October shall not exceed 14 µg/l, as measured at the deepest point, main river channel, dam forebay.

(i) **The Warrior River Basin**

1. Warrior Lake: those waters impounded by Warrior Lock and Dam on the Black Warrior River. The lake has a surface area of 7,800 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 12 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Oliver Lake: those waters impounded by William Bacon Oliver Lock and Dam on the Black Warrior River. The lake has a surface area of 800 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 12 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Holt Lake: those waters impounded by Holt Lock and Dam on the Black Warrior River. The lake has a surface area of 3,200 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 16 µg/l, as measured at the deepest point, main river channel, dam forebay.

4. Lake Tuscaloosa: those waters impounded by Lake Tuscaloosa Dam on the North River. The lake has a surface area of 5,885 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 8 µg/l, as measured at the deepest point, main river channel, dam forebay.

5. Bankhead Lake: those waters impounded by John Hollis Bankhead Lock and Dam on the Black Warrior River. The lake has a surface area of 9,200 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 16 µg/l, as measured at the deepest point, main river channel, dam forebay.

6. Smith Lake: those waters impounded by Lewis M. Smith Dam on the Sipsey Fork River. The lake has a surface area of 21,200 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 5 µg/l, as measured at the deepest point, main river channel, dam forebay; 5 µg/l, as measured at the deepest point, main river channel, at Duncan Creek/Sipsey River confluence (downstream of

the Alabama Highway 257 bridge); and 5 µg/l, as measured at the deepest point, main river channel, immediately downstream of Brushy Creek confluence.

7. Inland Lake: those waters impounded by Inland Lake Dam on the Blackburn Fork of the Little Warrior River. The lake has a surface area of 1,095 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater*, 20th Edition, 1998): the mean of the photic-zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 6 µg/l, as measured at the deepest point, main river channel, dam forebay.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: January 12, 2001. **Amended:** May 16, 2002; May 27, 2004; September 21, 2005.

335-6-10-.12 Implementation of the Antidegradation Policy.

(1) The antidegradation policy at Rule 335-6-10-.04 addresses three categories of waters/uses:

(a) High quality waters that constitute an outstanding national resource (Tier 3);

(b) Waters where the quality exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water (Tier 2); and

(c) Existing instream water uses and the level of water quality necessary to protect the existing uses (Tier 1).

(2) Tier 3 waters are those waters designated pursuant to the Outstanding National Resource Water (ONRW) special designation at Rule 335-6-10-.10, and are identified in Rule 335-6-11-.02.

(3) Tier 1 waters are:

(a) Those waters (except waters assigned the use classification of Outstanding Alabama Water, which are Tier 2 waters) identified on the most recent EPA-approved Section 303(d) list;

(b) Those waters (except waters assigned the use classification of Outstanding Alabama Water, which are Tier 2 waters) for which attainment of applicable water quality standards has been, or is expected to be, achieved through implementation of effluent limitations more stringent than technology-based controls (BPT, BAT, and secondary treatment); and

(c) Those waters assigned the use classification of Limited Warmwater Fishery or Agricultural and Industrial Water Supply (as identified in Rule 335-6-11-.02).

(4) Tier 2 waters are all other waters (those waters not identified as either Tier 3 waters or Tier 1 waters), including all waters assigned the use classification of Outstanding Alabama Water (as identified in Rule 335-6-11-.02).

(5) All new or expanded discharges to Tier 2 waters (except discharges eligible for coverage under general permits) covered by the NPDES permitting program are

potentially subject to the provisions of Rule 335-6-10-.04(3). Applicants for such discharges are required to demonstrate that the proposed discharge is necessary for important economic or social development as a part of the permit application process.

(6) After receipt of a permit application for a potentially covered discharge, the Department will determine whether the proposed discharge is to a Tier 2 water, as defined in paragraph (4) above. Of necessity, this determination will be made on a case-by-case basis.

(7) The basic framework of the permitting process is unchanged for a covered discharge to a Tier 2 water. However, the process is enhanced to document the consideration of Tier 2 provisions. The additional documentation includes:

(a) The Department's determination that the application is for a new or expanded discharge;

(b) The Department's determination that the receiving stream is considered to be a Tier 2 water; and

(c) The Department's determination, based on the applicant's demonstration, that the proposed discharge is necessary for important economic or social development in the area in which the waters are located.

(8) All three items will be documented in the permit file and/or fact sheet, and will be used by the Department in its decision process. The public notice process will be used to announce a preliminary Department decision to deny or to allow a covered discharge to a Tier 2 water, while the final determination will be made concurrently with the final Department decision regarding the permit application for a covered discharge.

(9) Documentation by the applicant shall include:

(a) An evaluation of discharge alternatives completed by a Registered Professional Engineer licensed to practice in the State of Alabama.

1. The applicant shall document the discharge alternatives evaluation by completing and submitting the following forms, or by submitting the same information in another format acceptable to the Department:

(i) ADEM Form 311, Alternatives Analysis; and, as applicable,

(ii) ADEM Form 312, Calculation of Total Annualized Costs for Public-Sector Projects, or ADEM Form 313, Calculation of Total Annualized Costs for Private-Sector Projects. Alternatives with total annualized project costs that are less than 110% of the total annualized project costs for the Tier 2 discharge proposal are considered viable alternatives.

(b) A demonstration that the proposed discharge will support important economic or social development in the area in which the waters are located, documented by the applicant's response, in writing, to the following questions. The applicant shall provide supporting information for each response.

1. What environmental or public health problem will the discharger be correcting?

2. How much will the discharger be increasing employment (at its existing facility or as the result of locating a new facility)?

3. How much reduction in employment will the discharger be avoiding?
 4. How much additional state or local taxes will the discharger be paying?
 5. What public service to the community will the discharger be providing?
 6. What economic or social benefit will the discharger be providing to the community?
- (10) The following forms are embodied in this rule:
- (a) ADEM Form 311 Alternatives Analysis
 - (b) ADEM Form 312 Calculation of Total Annualized Costs
for Public-Sector Projects
 - (c) ADEM Form 313 Calculation of Total Annualized Costs
for Private-Sector Projects

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: August 1, 2002.

Alternatives Analysis

Applicant/Project: _____

All new or expanded discharges (except discharges eligible for coverage under general permits) covered by the NPDES permitting program are subject to the provisions of the antidegradation policy. Applicants for such discharges to Tier 2 waters are required to demonstrate " . . . that the proposed discharge is necessary for important economic or social development." As a part of this demonstration, the applicant must complete an evaluation of the discharge alternatives listed below, to include calculation of total annualized project costs for each technically feasible alternative (using ADEM Form 312 for public-sector projects and ADEM Form 313 for private-sector projects). Alternatives with total annualized project costs that are less than 110% of the total annualized project costs for the Tier 2 discharge proposal are considered viable alternatives.

Alternative	Viable	Non-Viable	Comment
1 Land Application			
2 Pretreatment/Discharge to POTW			
3 Relocation of Discharge			
4 Reuse/Recycle			
5 Process/Treatment Alternatives			
6 On-site/Sub-surface Disposal			
(other project-specific alternatives identified by the applicant or the Department; attach additional sheets if necessary)			
7			
8			
9			

Pursuant to ADEM Administrative Code Rule 335-6-3-.04, I certify on behalf of the applicant that I have completed an evaluation of the discharge alternatives identified above,

Signature: _____
(Professional Engineer)

Date: _____

and reached the conclusions indicated.

(Supporting documentation to be attached, referenced, or otherwise handled as appropriate.)

ADEM Form 311 3/02

Calculation of Total Annualized Project Costs for Public-Sector Projects

A. Capital Costs

Capital Cost of Project	\$	
Other One-Time Costs of Project (Please List, if any)		
	\$	
	\$	
	\$	
Total Capital Costs (Sum column)	\$	(1)
Portion of Capital Costs to be Paid for with Grant Monies	\$	(2)
Capital Costs to be Financed [Calculate: (1) – (2)]	\$	(3)
Type of Financing (e.g., G.O. bond, revenue bond, bank loan)		
Interest Rate for Financing (expressed as decimal)		(i)
Time Period of Financing (in years)		(n)
Annualization Factor = $\frac{i}{(1+i)^n - 1} + i$		(4)
Annualized Capital Cost [Calculate: (3) x (4)]		(5)

B. Operating and Maintenance Costs

Annual Costs of Operation and Maintenance (including but not limited to: monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement.) (Please list below.)

	\$	
	\$	
	\$	
	\$	
Total Annual O & M Costs (Sum column)	\$	(6)

C. Total Annual Cost of Pollution Control Project

Total Annual Cost of Pollution Control Project [(5) + (6)]	\$	(7)
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Calculation of Total Annualized Project Costs for Private-Sector Projects

Capital Costs to be Financed (Supplied by applicant)	\$ _____ (1)
Interest rate for Financing (Expressed as a decimal)	_____ (i)
Time Period of Financing (Assume 10 years [*])	_____ 10 years (n)
Annualization Factor = $\frac{i}{(1+i)^{10} - 1} + i$	_____ (2)
Annualized Capital Cost [Calculate: (1) x (2)]	\$ _____ (3)
Annual Cost of Operation and Maintenance (including but not limited to monitoring, inspection, permitting fees, waste disposal charges, repair, administration and replacement) ^{**}	\$ _____ (4)
Total Annual Cost of Pollution Control Project [(3) + (4)]	\$ _____ (5)

^{*} While actual payback schedules may differ across projects and companies, assume equal annual payments over a 10-year period for consistency in comparing projects.

^{**} For recurring costs that occur less frequently than once a year, pro rate the cost over the relevant number of years (e.g., for pumps replaced once every three years, include one-third of the cost in each year).

TABLE 1
TOXIC POLLUTANT CRITERIA

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Acenaphthene					Eq. 16	Eq. 17
Acrolein					Eq. 16	Eq. 17
Acrylonitrile ¹					Eq. 18	Eq. 19
Aldrin ¹	3.0		1.3		Eq. 18	Eq. 19
Anthracene					Eq. 16	Eq. 17
Antimony					Eq. 16	Eq. 17
Arsenic ¹	340 (tri)	150 (tri)	69 (tri)	36 (tri)	Eq. 18	Eq. 19
Asbestos					7,000,000 fibers/l (MCL)	
Benzene ¹					Eq. 18	Eq. 19
Benzidine ¹					Eq. 18	Eq. 19
Benzo(a)anthracene ¹					Eq. 18	Eq. 19
Benzo(a)pyrene ¹					Eq. 18	Eq. 19
Benzo(b)fluoranthene ¹					Eq. 18	Eq. 19
Benzo(k)fluoranthene ¹					Eq. 18	Eq. 19
Bis(2-chloroethyl)ether ¹					Eq. 18	Eq. 19
Bis(2-chloroisopropyl)ether					Eq. 16	Eq. 17
Bis(2-ethylhexyl)phthalate ¹					Eq. 18	Eq. 19
Bromoform ¹					Eq. 18	Eq. 19

TABLE 1
TOXIC POLLUTANT CRITERIA

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Butylbenzyl phthalate					Eq. 16	Eq. 17
Cadmium	Eq. 1	Eq. 2	40	8.8		
Carbon tetrachloride ¹					Eq. 18	Eq. 19
Chlordane ¹	2.4	0.0043	0.09	0.004	Eq. 18	Eq. 19
Chlorobenzene					Eq. 16	Eq. 17
Chlorodibromomethane ¹					Eq. 18	Eq. 19
Chloroform ¹					Eq. 18	Eq. 19
2-Chloronaphthalene					Eq. 16	Eq. 17
2-Chlorophenol					Eq. 16	Eq. 17
Chromium (trivalent)	Eq. 3	Eq. 4				
Chromium (hexavalent)	16	11	1100	50		
Chrysene ¹					Eq. 18	Eq. 19
Copper	Eq. 5	Eq. 6	4.8	3.1	1300 (MCL)	
Cyanide (free)	22	5.2	1.0	1.0	Eq. 16	Eq. 17
4,4'-DDD ¹					Eq. 18	Eq. 19
4,4'-DDE ¹					Eq. 18	Eq. 19
4,4'-DDT ¹	1.1	0.001	0.13	0.001	Eq. 18	Eq. 19
Dibenzo(a,h)anthracene ¹					Eq. 18	Eq. 19
1,2-Dichlorobenzene					Eq. 16	Eq. 17

TABLE 1
TOXIC POLLUTANT CRITERIA

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
1,3-Dichlorobenzene					Eq. 16	Eq. 17
1,4-Dichlorobenzene					Eq. 16	Eq. 17
3,3'-Dichlorobenzidine ¹					Eq. 18	Eq. 19
Dichlorobromomethane ¹					Eq. 18	Eq. 19
1,2-Dichloroethane ¹					Eq. 18	Eq. 19
1,1-Dichloroethylene					Eq. 16	Eq. 17
2,4-Dichlorophenol					Eq. 16	Eq. 17
1,2 Dichloropropane ¹					Eq. 18	Eq. 19
1,3 Dichloropropylene ¹					Eq. 18	Eq. 19
Dieldrin ¹	0.24	0.056	0.71	0.0019	Eq. 18	Eq. 19
2,4-Dimethylphenol					Eq. 16	Eq. 17
Diethyl phthalate					Eq. 16	Eq. 17
Dimethyl phthalate					Eq. 16	Eq. 17
Di-n-butyl phthalate					Eq. 16	Eq. 17
4,6-Dinitro-2-methylphenol					Eq. 16	Eq. 17
2,4 Dinitrotoluene ¹					Eq. 18	Eq. 19
2,4-Dinitrophenol					Eq. 16	Eq. 17
Dioxin (2,3,7,8-TCDD) ¹					Eq. 18	Eq. 19

TABLE 1
TOXIC POLLUTANT CRITERIA

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
1,2-Diphenylhydrazine ¹					Eq. 18	Eq. 19
Endosulfan (alpha)	0.22	0.056	0.034	0.0087	Eq. 16	Eq. 17
Endosulfan (beta)	0.22	0.056	0.034	0.0087	Eq. 16	Eq. 17
Endosulfan sulfate					Eq. 16	Eq. 17
Endrin	0.086	0.036	0.037	0.0023	Eq. 16	Eq. 17
Endrin aldehyde					Eq. 16	Eq. 17
Ethylbenzene					Eq. 16	Eq. 17
Fluoranthene					Eq. 16	Eq. 17
Fluorene					Eq. 16	Eq. 17
Heptachlor ¹	0.52	0.0038	0.053	0.0036	Eq. 18	Eq. 19
Heptachlor epoxide ¹	0.52	0.0038	0.053	0.0036	Eq. 18	Eq. 19
Hexachlorobenzene ¹					Eq. 18	Eq. 19
Hexachlorobutadiene ¹					Eq. 18	Eq. 19
Hexachlorocyclohexane (alpha) ¹					Eq. 18	Eq. 19
Hexachlorocyclohexane (beta) ¹					Eq. 18	Eq. 19
Hexachlorocyclohexane (gamma)	0.95		0.16		Eq. 16	Eq. 17
Hexachlorocyclopentadiene					Eq. 16	Eq. 17
Hexachloroethane ¹					Eq. 18	Eq. 19
Indeno (1,2,3-cd) pyrene ¹					Eq. 18	Eq. 19

TABLE 1
TOXIC POLLUTANT CRITERIA

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Isophorone ¹					Eq. 18	Eq. 19
Lead	Eq. 7	Eq. 8	210	8.1		
Mercury	2.4	0.012	2.1	0.025	Eq. 16	Eq. 17
Methyl bromide					Eq. 16	Eq. 17
Methylene chloride ¹					Eq. 18	Eq. 19
Nickel	Eq. 9	Eq. 10	74	8.2	Eq. 16	Eq. 17
Nitrobenzene					Eq. 16	Eq. 17
N-Nitrosodimethylamine ¹					Eq. 18	Eq. 19
N-Nitrosodi-n-propylamine ¹					Eq. 18	Eq. 19
N-Nitrosodiphenylamine ¹					Eq. 18	Eq. 19
PCB-1016 ^{1,2}		0.014		0.03	Eq. 18	Eq. 19
PCB-1221 ^{1,2}		0.014		0.03	Eq. 18	Eq. 19
PCB-1232 ^{1,2}		0.014		0.03	Eq. 18	Eq. 19
PCB-1242 ^{1,2}		0.014		0.03	Eq. 18	Eq. 19
PCB-1248 ^{1,2}		0.014		0.03	Eq. 18	Eq. 19
PCB-1254 ^{1,2}		0.014		0.03	Eq. 18	Eq. 19
PCB-1260 ^{1,2}		0.014		0.03	Eq. 18	Eq. 19
Pentachlorophenol ¹	Eq. 11	Eq. 12	13	7.9	Eq. 18	Eq. 19

TABLE 1
TOXIC POLLUTANT CRITERIA

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Phenol					Eq. 16	Eq. 17
Pyrene					Eq. 16	Eq. 17
Selenium	20	5.0	290	71	Eq. 16	Eq. 17
Silver	Eq. 13		1.9			
1,1,2,2-Tetrachloroethane ¹					Eq. 18	Eq. 19
Tetrachloroethylene ¹					Eq. 18	Eq. 19
Thallium					Eq. 16	Eq. 17
Toluene					Eq. 16	Eq. 17
Toxaphene ¹	0.73	0.0002	0.21	0.0002	Eq. 18	Eq. 19
1,2-Trans-dichloroethylene					Eq. 16	Eq. 17
Tributyltin (TBT)	0.46	0.072	0.42	0.0074		
1,2,4-Trichlorobenzene					Eq. 16	Eq. 17
1,1,2-Trichloroethane ¹					Eq. 18	Eq. 19
Trichloroethylene ¹					Eq. 18	Eq. 19
2,4,6-Trichlorophenol ¹					Eq. 18	Eq. 19
Vinyl chloride ¹					Eq. 18	Eq. 19
Zinc	Eq. 14	Eq. 15	90	81	Eq. 16	Eq. 17

¹ Pollutants considered by EPA to be carcinogenic.

² The criteria for Polychlorinated Biphenyls (PCBs) apply to total PCBs, which is defined as the sum of the seven particular Aroclors (1016, 1221, 1232, 1242, 1248, 1254, and 1260) listed in this table.

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO- CONCENTRATION FACTOR l/kg
Acenaphthene	83329	0.06		242
Acrolein	107028	0.0156		215
Acrylonitrile	107131		0.54	30
Aldrin	309002		17	4670
Anthracene	120127	0.3		30
Antimony	7440360	0.0004		1
Arsenic	7440382		1.75	44
Benzene	71432		0.029	5.2
Benzidine	92875		230	87.5
Benzo(a)anthracene	56553		7.3	30
Benzo(a)pyrene	50328		7.3	30
Benzo(b)fluoranthene	205992		7.3	30
Benzo(k)fluoranthene	207089		7.3	30
Bis(2-chloroethyl)ether	111444		1.1	6.9
Bis(2-chloroisopropyl)ether	108601	0.04		2.47
Bis(2-ethylhexyl)phthalate	117817		0.014	130
Bromoform	75252		0.0079	3.75
Butylbenzyl phthalate	85687	0.2		414
Carbon tetrachloride	56235		0.13	18.75
Chlordane	57749		0.35	14100
Chlorobenzene	108907	0.02		10.3

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO- CONCENTRATION FACTOR l/kg
Chlorodibromomethane	124481		0.084	3.75
Chloroform	67663		0.0061	3.75
2-Chloronaphthalene	91587	0.08		202
2-Chlorophenol	95578	0.005		134
Chrysene	218019		7.3	30
Cyanide	57125	0.02		1
4,4'-DDD	72548		0.24	53600
4,4'-DDE	72559		0.34	53600
4,4'-DDT	50293		0.34	53600
Dibenzo(a,h)anthracene	53703		7.3	30
1,2-Dichlorobenzene	95501	0.09		55.6
1,3-Dichlorobenzene	541731	0.0134		55.6
1,4-Dichlorobenzene	106467	0.0134		55.6
3,3'-Dichlorobenzidine	91941		0.45	312
Dichlorobromomethane	75274		0.062	3.75
1,2-Dichloroethane	107062		0.091	1.2
1,1-Dichloroethylene	75354	0.05		5.6
2,4-Dichlorophenol	120832	0.003		40.7
1,2-Dichloropropane	78875		.067	4.1
1,3-Dichloropropylene	542756		0.1	1.9
Dieldrin	60571		16	4670

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO- CONCENTRATION FACTOR l/kg
Diethyl phthalate	84662	0.8		73
2,4 Dimethylphenol	105679	0.02		93.8
Dimethyl phthalate	131113	10		36
Di-n-butyl phthalate	84742	0.1		89
4,6-Dinitro-2-methylphenol	534521	0.00039		5.5
2,4-Dinitrophenol	51285	0.002		1.5
2,4 Dinitrotoluene	121142		0.31	3.8
Dioxin (2,3,7,8-TCDD)	1746016		17500	5000
1,2-Diphenylhydrazine	122667		0.8	24.9
Endosulfan (alpha)	959988	0.006		270
Endosulfan (beta)	33213659	0.006		270
Endosulfan sulfate	1031078	0.006		270
Endrin	72208	0.0003		3970
Endrin aldehyde	7421934	0.0003		3970
Ethylbenzene	100414	0.1		37.5
Fluoranthene	206440	0.04		1150
Fluorene	86737	0.04		30
Heptachlor	76448		4.5	11200
Heptachlor epoxide	1024573		9.1	11200
Hexachlorobenzene	118741		1.6	8690
Hexachlorobutadiene	87683		0.078	2.78

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO- CONCENTRATION FACTOR l/kg
Hexachlorocyclohexane (alpha)	319846		6.3	130
Hexachlorocyclohexane (beta)	319857		1.8	130
Hexachlorocyclohexane (gamma)	58899	0.0003		130
Hexachlorocyclopentadiene	77474	0.006		4.34
Hexachloroethane	67721		0.014	86.9
Indeno (1,2,3-cd) pyrene	193395		7.3	30
Isophorone	78591		0.00095	4.38
Mercury	7439976	0.0001		5500
Methyl bromide	74839	0.0014		3.75
Methylene chloride	75092		0.0075	0.9
Nickel	7440020	0.02		47
Nitrobenzene	98953	0.0005		2.89
N-Nitrosodimethylamine	62759		51	0.026
N-Nitrosodi-n-propylamine	621647		7	1.13
N-Nitrosodiphenylamine	86306		0.0049	136
PCB-1016 ¹	12674112		2.0	31200
PCB-1221 ¹	11104282		2.0	31200
PCB-1232 ¹	11141165		2.0	31200
PCB-1242 ¹	53469219		2.0	31200
PCB-1248 ¹	12672296		2.0	31200
PCB-1254 ¹	11097691		2.0	31200

APPENDIX A

POLLUTANT	CAS Registry Number	REFERENCE DOSE mg/(kg-day)	CANCER POTENCY FACTOR (kg-day)/mg	BIO- CONCENTRATION FACTOR l/kg
PCB-1260 ¹	11096825		2.0	31200
Pentachlorophenol	87865		0.12	11
Phenol	108952	0.6		1.4
Pyrene	129000	0.03		30
Selenium	7782492	0.005		4.8
1,1,2,2-Tetrachloroethane	79345		0.2	5
Tetrachloroethylene	127184		0.039776	30.6
Thallium	7440280	0.000068		116
Toluene	108883	0.2		10.7
Toxaphene	8001352		1.1	13100
1,2-Trans-dichloroethylene	156605	0.02		1.58
1,2,4-Trichlorobenzene	120821	0.01		114
1,1,2-Trichloroethane	79005		0.057	4.5
Trichloroethylene	79016		0.0126	10.6
2,4,6-Trichlorophenol	88062		0.011	150
Vinyl chloride	75014		1.4	1.17
Zinc	7440666	0.3		47

¹ The criteria for Polychlorinated Biphenyls (PCBs) apply to total PCBs, which is defined as the sum of the seven particular Aroclors (1016, 1221, 1232, 1242, 1248, 1254, and 1260) listed in this table.

**ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION - WATER QUALITY PROGRAM**

**CHAPTER 335-6-11
WATER USE CLASSIFICATIONS FOR INTERSTATE AND INTRASTATE WATERS**

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335-6-11-.01	The Use Classification System
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335-6-11-.013	<u>The Use Classification System</u>
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(1) Use classifications utilized by the State of Alabama are as follows:

Outstanding Alabama Water	OAW
Public Water Supply	PWS
Swimming and Other Whole Body Water-Contact Sports	S
Shellfish Harvesting	SH
Fish and Wildlife	F&W
Limited Warmwater Fishery	LWF
Agricultural and Industrial Water Supply	A&I

(2) Use classifications apply water quality criteria adopted for particular uses based on existing utilization, uses reasonably expected in the future, and those uses not now possible because of correctable pollution but which could be made if the effects of pollution were controlled or eliminated. Of necessity, the assignment of use classifications must take into consideration the physical capability of waters to meet certain uses.

(3) Those use classifications presently included in the standards are reviewed informally by the Department's staff as the need arises, and the entire standards package, to include the use classifications, receives a formal review at least once each three years. Efforts currently underway through local 201 planning projects will provide additional technical data on certain streams in the State, information on treatment alternatives, and applicability of various management techniques, which, when available, will hopefully lead to new decisions regarding use classifications. Of particular interest are those segments which are currently classified for any usage which has an associated degree of quality criteria considered to be less than that applicable to a classification of "Fish and Wildlife." As rapidly as it can be demonstrated that new classifications are feasible on these segments from an economic and technological viewpoint, based on the information being generated pursuant to staff studies and the planning efforts previously outlined, such improvement will be sought.

(4) Although it is not explicitly stated in the classifications, it should be understood that the use classification of "Shellfish Harvesting" is only applicable in the coastal area and, therefore, is included only in the Mobile River Basin and the Perdido-Escambia River Basin. It should also be noted that with the exception of those segments in the "Public Water Supply" classification, every segment, in addition to being considered acceptable for its designated use, is also considered acceptable for any other use with a less stringent associated criteria.

(5) Not all waters are included by name in the use classifications since it would be a tremendous administrative burden to list all stream segments in the State. In addition, in virtually every instance where a segment is not included by name, the Department has no information or stream data upon which to base a decision relative to the assignment of a particular classification. An effort has been made, however, to include all major stream segments and all segments which, to the Department's knowledge, are currently recipients of point source discharges. Those segments which are not included by name will be considered to be acceptable for a "Fish and Wildlife" classification unless it can be demonstrated that such a generalization is inappropriate in specific instances.

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: May 5, 1967. **Amended:** June 19, 1967; April 1, 1970; October 16, 1972; September 17, 1973; May 30, 1977; December 19, 1977; February 4, 1981; April 5, 1982; December 11, 1985; March 26, 1986; September 7, 2000.

335-6-11-.014 Use Classifications

(1) **THE ALABAMA RIVER BASIN**

INTERSTATE WATERS

Stream	From	To	Classification
ALABAMA RIVER	MOBILE RIVER	Claiborne Lock and Dam	F&W
ALABAMA RIVER	Claiborne Lock and Dam	Frisco Railroad Crossing	S/F&W
ALABAMA RIVER	Frisco Railroad Crossing	River Mile 131	F&W
ALABAMA RIVER	River Mile 131	Millers Ferry Lock and Dam	PWS

Stream	From	To	Classification
ALABAMA RIVER	Millers Ferry Lock and Dam	Blackwell Bend (Six Mile Creek)	S/F&W
ALABAMA RIVER	Blackwell Bend (Six Mile Creek)	Jones Bluff Lock and Dam	F&W
ALABAMA RIVER	Jones Bluff Lock and Dam	Pintlalla Creek	S/F&W
ALABAMA RIVER	Pintlalla Creek	Its source	F&W

INTRASTATE WATERS

Stream	From	To	Classification
Little River	ALABAMA RIVER	Its source	S/F&W
Randons Creek	ALABAMA RIVER	Its source	F&W
Bear Creek	Randons Creek	Its source	F&W
Limestone Creek	ALABAMA RIVER	Its source	F&W
Double Bridges Creek	Limestone Creek	Its source	F&W
Hudson Branch	Limestone Creek	Its source	F&W
Big Flat Creek	ALABAMA RIVER	Its source	S/F&W
Pursley Creek	ALABAMA RIVER	Its source	F&W
Unnamed tributary south of Camden	Pursley Creek	Its source	F&W
Beaver Creek	ALABAMA RIVER	Its source	F&W
Cub Creek	Beaver Creek	Its source	F&W
Turkey Creek	Beaver Creek	Its source	F&W
Rockwest Creek	ALABAMA RIVER	Its source	F&W

Stream	From	To	Classification
Unnamed tributary west of Camden	Rockwest Creek	Its source	F&W
Pine Barren Creek	ALABAMA RIVER	Its source	S/F&W
Chilatchee Creek	ALABAMA RIVER	Its source	S/F&W
Bogue Chitto Creek	ALABAMA RIVER	Its source	F&W
Sand Creek	Bogue Chitto Creek	Its source	F&W
Big Cedar Creek	ALABAMA RIVER	Its source	S/F&W
Valley Creek	ALABAMA RIVER	Selma-Summerfield Rd.	F&W
Valley Creek	Selma-Summerfield Rd.	Its source	S/F&W
Mulberry Creek	ALABAMA RIVER	Plantersville	S/F&W
Mulberry Creek	Plantersville	Its source	F&W
Gale Creek	Mulberry Creek	Its source	F&W
Charlotte Creek	Gale Creek	Its source	F&W
Big Swamp Creek	ALABAMA RIVER	Its source	S/F&W
Swift Creek	ALABAMA RIVER	Its source	S/F&W
Pintlalla Creek	ALABAMA RIVER	Its source	S/F&W
Autauga Creek	ALABAMA RIVER	Western boundary of Prattville	F&W
Autauga Creek	Western boundary of Prattville	Its source	S/F&W
Catoma Creek	ALABAMA RIVER	Its source	F&W

Stream	From	To	Classification
Mortar Creek	ALABAMA RIVER	Its source	F&W
Valley Creek Lake	Within Valley Creek State Park		S/F&W
Little River Lake	Within Valley Creek State Park		S/F&W

(2)

THE CAHABA RIVER BASIN**INTRASTATE WATERS**

Stream	From	To	Classification
CAHABA RIVER	ALABAMA RIVER	Junction of lower Little Cahaba River	OAW/S
CAHABA RIVER	Junction of lower Little Cahaba River	Shelby County Road 52	OAW/F&W
CAHABA RIVER	Shelby County Road 52	Dam near U.S. Highway 280	F&W
CAHABA RIVER	Dam near U.S. Highway 280	Grant's Mill Road	OAW/PWS
CAHABA RIVER	Grant's Mill Road	U.S. Highway 11	F&W
CAHABA RIVER	U.S. Highway 11	Its source	OAW/F&W
Childers Creek	CAHABA RIVER	Its source	F&W
Oakmulgee Creek	CAHABA RIVER	Its source	S
Little Oakmulgee Creek	Oakmulgee Creek	Its source	S
Rice Creek	CAHABA RIVER	Its source	F&W
Waters Creek	CAHABA RIVER	Its source	S
Old Town Creek	CAHABA RIVER	Its source	S
Blue Girth Creek	CAHABA RIVER	Its source	S
Affonee Creek	CAHABA RIVER	Its source	S
Haysop Creek	CAHABA RIVER	Its source	F&W
Schultz Creek	CAHABA RIVER	Its source	S

Stream	From	To	Classification
Little Cahaba River (Bibb County)	CAHABA RIVER	Its source (junction of Mahan and Shoal Creeks)	OAW/F&W
Sixmile Creek	Little Cahaba River	Its source	S
Mahan Creek	Little Cahaba River	Its source	F&W
Shoal Creek	Little Cahaba River	Its source	F&W
Caffee Creek	CAHABA RIVER	Its source	F&W
Shades Creek	CAHABA RIVER	Its source	F&W
Buck Creek	CAHABA RIVER	Cahaba Valley Creek	F&W
Buck Creek	Cahaba Valley Creek	Shelby County Road 44	LWF ⁴
Buck Creek	Shelby County Road 44	Its source	F&W
Cahaba Valley Creek	Buck Creek	Its source	F&W
Peavine Creek	Buck Creek	Its source	F&W
Oak Mountain State Park Lakes			PWS
Patton Creek	CAHABA RIVER	Its source	F&W
Little Shades Creek	CAHABA RIVER	Its source	F&W
Little Cahaba River (Jefferson-Shelby Counties)	CAHABA RIVER	Head of Lake Purdy	PWS
Little Cahaba River (Jefferson County)	Head of Lake Purdy	Its source	F&W

⁴Applicable dissolved oxygen level is 4.0 mg/l during May through November. Fish and Wildlife fecal coliform bacteria criteria at paragraph 10-.09(5)(e)7. are applicable year-round. For the purpose of establishing effluent limitations pursuant to Chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years (7Q₁₀) shall be the basis for applying the chronic aquatic life criteria.

INTERSTATE WATERS

Stream	From	To	Classification
CHATTAHOOCHEE RIVER	Alabama-Florida state line	Water supply intake of Great Southern Division, Great Northern Paper Co.	F&W
CHATTAHOOCHEE RIVER	Water supply intake of Great Southern Division, Great Northern Paper Co.	Cowikee Creek	S/F&W
CHATTAHOOCHEE RIVER	Cowikee Creek	14th Street Bridge between Columbus and Phenix City	F&W
CHATTAHOOCHEE RIVER	14th Street Bridge between Columbus and Phenix City	Osanippa Creek	PWS/S/F&W
CHATTAHOOCHEE RIVER	Osanippa Creek	West Point Manufacturing Company water supply intake at Lanett	F&W
CHATTAHOOCHEE RIVER	West Point Manufacturing Company water supply intake at Lanett	West Point Dam	PWS
CHATTAHOOCHEE RIVER (West Point Lake)	West Point Dam	West Point Lake limits in Alabama	S/F&W
Oseligee Creek	Alabama-Georgia state line	Its source	F&W
Wehadkee Creek	Alabama-Georgia state line	Its source	F&W

Stream	From	To	Classification
Finley Creek	Alabama-Georgia State line	Its source	F&W
Hardley Creek	Alabama-Georgia State line	Its source	F&W
Veasey Creek	Alabama-Georgia State line	Its source	F&W

INTRASTATE WATERS

Stream	From	To	Classification
Omusee Creek	CHATTAHOOCHEE RIVER	Its source	F&W
Mill Creek	Omusee Creek	Its source	F&W
Abbie Creek	CHATTAHOOCHEE RIVER	Its source	F&W
Skippers Creek	Abbie Creek	Its source	F&W
Owens Branch	Abbie Creek	Its source	F&W
Cheneyhatchee Creek	CHATTAHOOCHEE RIVER	Its source	S/F&W
Barbour Creek	CHATTAHOOCHEE RIVER	Its source	F&W
Chewalla Creek	CHATTAHOOCHEE RIVER	Its source	S/F&W
Cowikee Creek	CHATTAHOOCHEE RIVER	Its source	S/F&W
North Fork of Cowikee Creek	Cowikee Creek	Its source	F&W

Stream	From	To	Classification
Middle Fork of Cowikee Creek	North Fork of Cowikee Creek	Its source	S/F&W
Hurtsboro Creek	North Fork of Cowikee Creek	Its source	A&I
South Fork of Cowikee Creek	Cowikee Creek	Its source	S/F&W
Hatchechubbee Creek	CHATTAHOOCHEE RIVER	Russell County Highway 4, west of Pittsview	S/F&W
Hatchechubbee Creek	Russell County Highway 4, west of Pittsview	Its source	F&W
Ihagee Creek	CHATTAHOOCHEE RIVER	Its source	S/F&W
Uchee Creek	CHATTAHOOCHEE RIVER	County Road 39	S/F&W
Uchee Creek	County Road 39	Alabama Highway 169	PWS/S/F&W
Uchee Creek	Alabama Highway 169	Its source	S/F&W
Halawakee Creek	CHATTAHOOCHEE RIVER	Three miles upstream of County Road 79	PWS/F&W
Halawakee Creek	Three miles upstream Of County Road 79	Its source	F&W
Osanippa Creek	CHATTAHOOCHEE RIVER	Its source	F&W
Kellum Hill Creek	Osligee Creek	Its source	F&W
Allen Creek	Kellum Hill Creek	Its source	F&W
Moore's Creek	CHATTAHOOCHEE RIVER	Its source	F&W

Stream	From	To	Classification
Guss Creek	Wehadkee Creek	Its source	F&W
Gladney Mill Branch	Guss Creek	Its source	F&W

(4) **THE CHIPOLA RIVER BASIN**

INTERSTATE WATERS

Stream	From	To	Classification
Big Creek	Alabama-Florida state line	Its source	F&W
Buck Creek	Alabama-Florida state line	Its source	F&W
Cowarts Creek	Alabama-Florida state line	Its source	F&W

INTRASTATE WATERS

Stream	From	To	Classification
Limestone Creek	Big Creek	Its source	F&W
Cypress Creek	Limestone Creek	Its source	F&W
Rocky Creek	Cowarts Creek	Its source	F&W

(5) **THE CHOCTAWHATCHEE RIVER BASIN**

INTERSTATE WATERS

Stream	From	To	Classification
Pea River	CHOCTAWHATCHEE RIVER	Its source	F&W
CHOCTAWHATCHEE RIVER	Alabama-Florida state line	Its source	F&W
Wright Creek	Alabama-Florida state line	Its source	F&W
Holmes Creek	Alabama-Florida state line	Its source	F&W

Stream	From	To	Classification
Ten Mile Creek	Alabama-Florida state line	Its source	F&W

INTRASTATE WATERS

Stream	From	To	Classification
Sandy Creek	Pea River	Samson	F&W
Flat Creek	Pea River	Junction with Eightmile Creek	F&W
Flat Creek	Junction with Eightmile Creek	Its source	S/F&W
Eightmile Creek	Flat Creek	Its source	F&W
Corner Creek	Eightmile Creek	Its source	F&W
Cripple Creek	Pea River	Its source	F&W
Samson Branch	Pea River	Its source	F&W
Whitewater Creek	Pea River	Its source	F&W
Big Creek	Whitewater Creek	Its source	F&W
Walnut Creek	Whitewater Creek	Its source	F&W
Mims Creek	Whitewater Creek	Its source	F&W
Pea Creek	Pea River	Its source	F&W
Double Bridges Creek	CHOCTAWHATCHE E RIVER	Its source	F&W
Blanket Creek	Double Bridges Creek	Its source	F&W
Claybank Creek	CHOCTAWHATCHE E RIVER	Lake Tholocco	F&W
Lake Tholocco	Dam	Its source	S/F&W
Claybank Creek	Lake Tholocco	Its source	F&W

Stream	From	To	Classification
Harrand Creek	Claybank Creek	Its source	F&W
Tributary of Harrand Creek	Harrand Creek	Its source	F&W
Hurricane Creek	CHOCTAWHATCHE E RIVER	Its source	F&W
Mill Creek	Hurricane Creek	Hartford	F&W
Little Choctawhatchee River	CHOCTAWHATCHE E RIVER	Its source	F&W
Newton Creek	Little Choctawhatchee River	Its source	F&W
Beaver Creek	Newton Creek	Its source	F&W
Hurricane Creek (Dale County)	CHOCTAWHATCHE E RIVER	Its source	F&W
West Fork of Choctawhatchee River	CHOCTAWHATCHE E RIVER	Its source	F&W
Judy Creek	West Fork of Choctawhatchee River	Its source	F&W
Little Judy Creek	Judy Creek	Its source	F&W
Lindsey Creek	West Fork of Choctawhatchee River	Its source	F&W
East Fork of Choctawhatchee River	CHOCTAWHATCHE E RIVER	Blackwood Creek	F&W
East Fork of Choctawhatchee River	Blackwood Creek	Its source	S/F&W
Blackwood Creek	East Fork of Choctawhatchee River	Its source	F&W

(6) **THE COOSA RIVER BASIN**

INTERSTATE WATERS

Stream	From	To	Classification
COOSA RIVER	Its junction with the TALLAPOOSA RIVER	Jordan Dam	F&W
COOSA RIVER (Lake Jordan)	Jordan Dam	Mitchell Dam	S/F&W
COOSA RIVER (Lake Jordan)	Bouldin Dam	Alabama Highway 111	PWS/S/F&W
COOSA RIVER (Lake Mitchell)	Mitchell Dam	Lay Dam	PWS/S/F&W
COOSA RIVER (Lay Lake)	Lay Dam	Southern RR Bridge (1-1/3 miles above Yellowleaf Creek)	PWS/S/F&W
COOSA RIVER (Lay Lake)	Southern RR Bridge (1-1/3 miles above Yellowleaf Creek)	River Mile 89 (1-1/2 miles above Talladega Creek)	S/F&W ²
COOSA RIVER (Lay Lake)	River Mile 89 (1-1/2 miles above Talladega Creek)	Logan Martin Dam	PWS/S/F&W
COOSA RIVER (Logan Martin Lake)	Logan Martin Dam	Broken Arrow Creek	S/F&W
COOSA RIVER (Logan Martin Lake)	Broken Arrow Creek	Trout Creek	PWS/S/F&W
COOSA RIVER (Logan Martin Lake) (Lake Henry)	Trout Creek	McCardney's Ferry (3 miles upstream of Big Canoe Creek)	S/F&W

²Applicable dissolved oxygen level below existing impoundments is 4.0 mg/l.

Stream	From	To	Classification
COOSA RIVER (Lake Henry)	McCardney's Ferry (3 miles upstream of Big Canoe Creek)	City of Gadsden's water supply intake	F&W
COOSA RIVER (Lake Henry)	City of Gadsden's water supply intake	Weiss Dam powerhouse	PWS/F&W
COOSA RIVER	Weiss Dam powerhouse	Weiss Dam	F&W
COOSA RIVER (Weiss Lake)	Weiss Dam and Weiss Dam powerhouse	Spring Creek	PWS/S/F&W
COOSA RIVER (Weiss Lake)	Spring Creek	Alabama-Georgia state line	S/F&W
Bouldin Tailrace Canal (Callaway Creek)	COOSA RIVER	Bouldin Dam	F&W
Terrapin Creek	COOSA RIVER	U.S. Highway 278	F&W
Terrapin Creek	U.S. Highway 278	Calhoun County Road 70, east of Vigo	PWS/F&W
Terrapin Creek	Calhoun County Road 70, east of Vigo	Alabama-Georgia state line	F&W
Little River and tributaries	COOSA RIVER (Weiss Lake)	Junction of East Fork of Little River and West Fork of Little River	PWS/S/ F&W ³
East Fork of Little River and tributaries	Little River	Alabama-Georgia state line	PWS/S/ F&W ³
West Fork of Little River and tributaries	Little River	Alabama-Georgia state line	PWS/S/ F&W ³

³The special designation of Outstanding National Resource Water applies to this segment.

Stream	From	To	Classification
Chattooga River	COOSA RIVER (Weiss Lake)	Gaylesville	S/F&W
Chattooga River	Gaylesville	Alabama-Georgia state line	F&W
Spring Creek	COOSA RIVER (Weiss Lake)	Alabama-Georgia state line	F&W

INTRASTATE WATERS

Stream	From	To	Classification
Weoka Creek	COOSA RIVER (Lake Jordan)	Its source	S/F&W
Chestnut Creek	COOSA RIVER (Lake Jordan)	Its source	F&W
Hatchet Creek	COOSA RIVER (Lake Mitchell)	Norfolk Southern Railway-	OAW/S/F&W
Hatchet Creek	Norfolk Southern Railway-	Junction of East Fork Hatchet Creek and West Fork Hatchet Creek	OAW/PWS/ S/F&W
East Fork Hatchet Creek	Hatchet Creek	Its source	OAW/F&W
West Fork Hatchet Creek	Hatchet Creek	Its source	OAW/F&W
Socapatoy Creek	Hatchet Creek	Its source	F&W
Weogufka Creek	Hatchet Creek (Lake Mitchell)	Its source	S/F&W
Walnut Creek	COOSA RIVER (Lake Mitchell)	Its source	F&W

Stream	From	To	Classification
Waxahatchee Creek	COOSA RIVER (Lay Lake)	Its source	F&W
Tributary of Waxahatchee Creek	Waxahatchee Creek	Its source	F&W
Buxahatchee Creek	Waxahatchee Creek (Lay Lake)	Its source	F&W
Yellowleaf Creek	COOSA RIVER (Lay Lake)	Its source	S/F&W
Tallassee hatchee Creek	COOSA RIVER (Lay Lake)	City of Sylacauga's water supply reservoir dam	F&W
Tallassee hatchee Creek	City of Sylacauga's water supply reservoir dam	Its source	PWS/F&W
Shirtee Creek	Tallassee hatchee Creek	Its source	F&W
Talladega Creek	COOSA RIVER (Lay Lake)	County Road 303	F&W
Talladega Creek	County Road 303	Alabama Highway 77	PWS/F&W
Talladega Creek	Alabama Highway 77	Its source	F&W
Mump Creek	Talladega Creek	City of Talladega's water supply reservoir dam	F&W
Mump Creek	City of Talladega's water supply reservoir dam	Its source	PWS/F&W
Kelly Creek	COOSA RIVER (Lay Lake)	Its source	S/F&W
Wolf Creek	Kelly Creek	Its source	F&W

Stream	From	To	Classification
Choccolocco Creek	COOSA RIVER (Logan Martin Lake)	Its source	F&W
Eastaboga Creek	Choccolocco Creek	Its source	F&W
Cheaha Creek	Choccolocco Creek	Lake Chinnabee	S/F&W
Lake Chinnabee	Within Talladega National Forest		S/F&W
Kelly Creek	Cheaha Creek	Its source	F&W
Brecon Branch	Kelly Creek	Its source	F&W
Coldwater Creek	Choccolocco Creek	Its source	F&W
Coldwater Spring			PWS/F&W
Snow Creek	Choccolocco Creek	Its source	F&W
Dye Creek	COOSA RIVER (Logan Martin Lake)	Its source	F&W
Cane Creek	COOSA RIVER (Logan Martin Lake)	Its source	F&W
Cave Creek	Cane Creek	Its source	F&W
Ohatchee Creek	COOSA RIVER (Logan Martin Lake)	Its source	S/F&W
Tallahatchee Creek	Ohatchee Creek	Its source	F&W
Tributary of Tallahatchee Creek	Tallahatchee Creek	Its source	F&W
Big Canoe Creek	COOSA RIVER (Lake Henry)	Its source	F&W
Little Canoe Creek	Big Canoe Creek	Its source	F&W
Spring Creek	Little Canoe Creek	Its source	F&W

Stream	From	To	Classification
Big Wills Creek	COOSA RIVER (Lake Henry- Lake Gadsden)	100 yds. below Allen Branch	F&W
Big Wills Creek	100 yds. below Allen Branch	Its source	PWS/F&W
Lake Gadsden (Lake Henry)	U. S. Highway 411	Impoundment limits	F&W
Black Creek	Lake Henry (Lake Gadsden)	U. S. Highway 431	A&I
Black Creek	U. S. Highway 431	Its source	F&W
Allen Branch	Big Wills Creek	Ft. Payne public water supply dam	F&W
Allen Branch	Ft. Payne public water supply dam	Its source	PWS/F&W
Coleman Lake	Within Talladega National Forest		S/F&W
Sweetwater Lake	Within Talladega National Forest		PWS/S/F&W
High Rock Lake	Within Talladega National Forest		S/F&W
Hillabee Lake	Within Talladega National Forest		PWS/S/F&W
Salt Creek Lake	Within Talladega National Forest		S/F&W
Shoal Creek	Choccolocco Creek	Whitesides Mill Lake	S/F&W
Whitesides Mill Lake	Western border of Talladega National Forest		PWS/S/F&W
Shoal Creek	Whitesides Mill Lake	Sweetwater Lake	S/F&W
Ladiga Creek	Terrapin Creek	Terrapin Creek	PWS

(7) **THE ESCATAWPA RIVER BASIN**

INTERSTATE WATERS

Stream	From	To	Classification
Big Creek	Alabama-Mississippi state line	Big Creek Reservoir	F&W
Big Creek	Big Creek Reservoir	Its source	PWS/F&W
ESCATAWPA RIVER	Alabama-Mississippi state line	Its source	S/F&W

INTRASTATE WATERS

Stream	From	To	Classification
Puppy Creek	ESCATAWPA RIVER	Its source	F&W

(8) THE LOWER TOMBIGBEE RIVER BASIN

INTERSTATE WATERS

Stream	From	To	Classification
TOMBIGBEE RIVER	MOBILE RIVER	One-half mile downstream from Southern Railway Crossing	F&W
TOMBIGBEE RIVER	One-half mile downstream from Southern Railway Crossing	Five miles upstream from U. S. Highway 43	PWS/S/F&W
TOMBIGBEE RIVER	Five miles upstream from U. S. Highway 43	Jackson Lock and Dam	F&W
TOMBIGBEE RIVER	Jackson Lock and Dam	Beach Bluff (River Mile 141)	S/F&W

Stream	From	To	Classification
TOMBIGBEE RIVER	Beach Bluff (River Mile 141)	One-half mile downstream from Alabama Highway 114	F&W ¹
TOMBIGBEE RIVER	One-half mile downstream from Alabama Highway 114	Three miles upstream from Alabama Highway 114	PWS/F&W ¹
TOMBIGBEE RIVER	Three miles upstream from Alabama Highway 114	Demopolis Lock and Dam	F&W ¹
TOMBIGBEE RIVER	Demopolis Lock and Dam	WARRIOR RIVER	S/F&W
Okatuppa Creek	TOMBIGBEE RIVER	Alabama-Mississippi state line	F&W
Bogueloosa Creek	Okatuppa Creek	Its source	F&W
Tuckabum Creek	TOMBIGBEE RIVER	Alabama-Mississippi state line	F&W
Yantley Creek	Tuckabum Creek	Alabama-Mississippi state line	F&W
Sucarnoochee River	TOMBIGBEE RIVER	U. S. Highway 11	F&W
Sucarnoochee River	U. S. Highway 11	Five miles upstream from Livingston city limits	PWS/S/F&W
Sucarnoochee River	Five miles upstream from U. S. Highway 11	Alabama-Mississippi state line	F&W
Alamuchee Creek	Sucarnoochee River	Alabama-Mississippi state line	F&W
Toomsaba Creek	Alamuchee Creek	AT&N Railroad	F&W

¹ Applicable dissolved oxygen level below existing impoundments is 4.0 mg/l.

Stream	From	To	Classification
Toomsuba Creek	AT&N Railroad	Alabama-Mississippi state line	PWS/F&W

INTRASTATE WATERS

Stream	From	To	Classification
Bilbo Creek	TOMBIGBEE RIVER	Its source	S/F&W
Bates Creek	Bilbo Creek	Its source	S/F&W
Lewis Creek	TOMBIGBEE RIVER	Its source	S/F&W
Bassetts Creek (Washington County)	TOMBIGBEE RIVER	Its source	S/F&W
Little Bassetts Creek (Washington County)	Bassetts Creek (Washington County)	Its source	F&W
Miles Creek	Little Bassetts Creek (Washington County)	Its source	F&W
Bassett Creek (Clarke County)	TOMBIGBEE RIVER	Its source	F&W
James Creek	Bassett Creek (Clarke Co.)	Its source	F&W
Jackson Creek	TOMBIGBEE RIVER	Its source	F&W
Satilpa Creek	TOMBIGBEE RIVER	Its source	S/F&W
Santa Bogue Creek	TOMBIGBEE RIVER	Its source	S/F&W
Turkey Creek	TOMBIGBEE RIVER	Its source	S/F&W
Bashi Creek	TOMBIGBEE RIVER	Its source	S/F&W
Tishlarka Creek	TOMBIGBEE RIVER	Its source	F&W
Wahalak Creek	Tishlarka Creek	Its source	F&W

Stream	From	To	Classification
Horse Creek	TOMBIGBEE RIVER	Its source	S/F&W
Beaver Creek	TOMBIGBEE RIVER	Its source	S/F&W
Kinterbish Creek	TOMBIGBEE RIVER	Its source	S/F&W
Chickasaw Bogue	TOMBIGBEE RIVER	Its source	F&W
Sycamore Creek	Chickasaw Bogue	Its source	F&W
Unnamed tributary southwest of York (Lake Louise)	Toomsuba Creek	Its source	PWS

(9) **THE MOBILE RIVER-MOBILE BAY BASIN**

INTERSTATE AND COASTAL WATERS

Stream	From	To	Classification
Mobile River and all other rivers, creeks, lakes of the Mobile River Delta and their tributaries except as otherwise designated			F&W
MOBILE RIVER	Barry Steam Plant	Tensaw River	PWS/F&W
MOBILE RIVER	Its mouth	Spanish River	LWF ⁴
Tensaw River	Junction of Tensaw and Apalachee Rivers	Junction of Briar Lake	OAW/S/F&W
Tensaw River	Junction of Briar Lake	Junction of Tensaw Lake	OAW/F&W
Briar Lake	Junction of Tensaw River	Junction of Tensaw Lake	OAW/F&W

⁴ For the purpose of establishing effluent limitations pursuant to Chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years (7Q₁₀) shall be the basis for applying the chronic aquatic life criteria.

Stream	From	To	Classification
Tensaw Lake	Junction of Tensaw River	Bryant Landing	OAW/F&W
MOBILE BAY	West of a line drawn due south from the western shore of Chacaloochee Bay (Lat. 304047.3/ Long. 0875944.2)	A point due east of the mouth of Dog River (Lat. 303353.2/ Long. 0880515.3)	F&W
MOBILE BAY	South of a line drawn due east from the mouth of Dog River (Lat. 303353.2/ Long. 0880515.3) and east of a line drawn due south from the western shore of Chacaloochee Bay (Lat. 304047.3/ Long. 0875944.2) and all other portions of MOBILE BAY		S/F&W
MOBILE BAY	All that portion lying south of a line extending in an easterly direction from the south bank of East Fowl River at its mouth (Lat. 302703.1/ Long. 0880622.6) through lighted beacon (FL 2 seconds) (Lat. 302707.5/ Long. 0880539.3) to lighted beacon (FLG 4 seconds "23") (Lat. 302718.3/ Long. 0880058.3) at the Mobile Ship Channel thence in a northeasterly direction to Daphne (Bench Mark 157, Lat. 303607.5/ Long. 0875416.4)		SH/F&W
Bon Secour Bay	In its entirety (east and south of a line connecting Mullet Point, Lat. 302435.0/ Long. 0875423.2, and Engineers Point, Lat. 301350.1/ Long. 0880126.2, at Fort Morgan)		SH/S/F&W

Stream	From	To	Classification
Mississippi Sound and contiguous waters excepting: that portion of Portersville Bay 1,000 feet on each side of a straight line connecting the shore at Bayou Coden to a lighted beacon (FLR 4 seconds "6") (Lat. 302231.2/ Long. 0881425.8) and lighted beacon (FL 4 seconds "1") (Lat. 302223.7/ Long. 0881434.8); that portion of Portersville Bay 1,000 feet on each side of a straight line connecting the shore at Bayou La Batre and lighted beacons (FR)(Lat. 302311.0/ Long. 0881609.6), and (FLR 4 seconds "6") (Lat.302105.2/1 Long. 0881702.2); and that portion of Bayou Aloe within 1,000 feet of the outfall (Lat. 301552.0/ Long. 0880702.1) of the Dauphin Island sewage treatment plant			SH/S/F&W
Waters excepted in foregoing description of Portersville Bay and contiguous waters			F&W
Oyster Bay and that portion of Bon Secour River west of a line drawn due north from the east bank of the inlet connecting Oyster Bay and Bon Secour River			SH/F&W
Coastal waters of the Gulf of Mexico contiguous to the State of Alabama			SH/S/F&W
Intracoastal Waterway	Bon Secour Bay	Alabama Highway 59	F&W
Bon Secour River	Bon Secour Bay	One mile upstream from first bridge above its mouth	S/F&W
Boggy Branch	Bon Secour River	Its source	S/F&W
Weeks Bay	Bon Secour Bay	Fish River	S/F&W ³
Magnolia River	Weeks Bay	Its source	S/F&W
Fish River	Weeks Bay	Clay City	S/F&W
Turkey Branch	Fish River	Its source	S/F&W
Waterhole Branch	Fish River	Its source	S/F&W

³The special designation of Outstanding National Resource Water applies to this segment.

Stream	From	To	Classification
Cowpen Creek	Fish River	Its source	S/F&W
Point Clear Creek	MOBILE BAY	Its source	F&W
Fly Creek	MOBILE BAY	Its source	S/F&W
Rock Creek	MOBILE BAY	Its source	F&W
D'Olive Creek	D'Olive Bay	Its source	F&W
West Fowl River	Fowl River Bay	Its source	S/F&W
Bayou Coden	Portersville Bay	Its source	F&W
Bayou La Batre	Portersville Bay	Its source	F&W
Little River	Portersville Bay	Its source	F&W
East Fowl River	Fowl River	Its source	S/F&W
Fowl River	MOBILE BAY	Its source	S/F&W
Deer River and its forks	MOBILE BAY	Their sources	F&W
Dog River	MOBILE BAY	Halls Mill Creek	S/F&W
Halls Mill Creek	Dog River	Its source	F&W
Alligator Bayou	Dog River	Its source	F&W
Rabbit Creek	Dog River	Its source	F&W
Rattlesnake Bayou	Dog River	Its source	F&W
Robinson's Bayou	Dog River	Its source	F&W
Threemile Creek	MOBILE RIVER	Mobile Street	A&I
Industrial Canal	Threemile Creek	Its source	A&I

Stream	From	To	Classification
Chickasaw Creek	MOBILE RIVER	Limit of tidal effects (Highway 43)	LWF
Hog Bayou	Chickasaw Creek	Its source	F&W
Little Lagoon (Baldwin County)	In its entirety		SH/S/F&W
Bayou Sara	MOBILE RIVER	U. S. Highway 43	S/F&W
Bayou Sara	U. S. Highway 43	Its source	F&W
Gunnison Creek	Bayou Sara	Its source	S/F&W
Steele Creek	Gunnison Creek	Its source	S/F&W

NOTE: Waters of the Mobile River-Mobile Bay Basin classified for SWIMMING AND OTHER WHOLE BODY WATER-CONTACT SPORTS, SHELLFISH HARVESTING and/or FISH AND WILDLIFE in which natural conditions provide an appropriate habitat for shrimp and crabs are to be suitable for the propagation and harvesting of shrimp and crabs.

INTRASTATE WATERS

Stream	From	To	Classification
Bon Secour River	One mile upstream from first bridge above its mouth	Its source	S/F&W
Fish River	Clay City	Its source	S/F&W
Polecat Creek	Fish River	Its source	S/F&W
Corn Branch	Fish River	Its source	F&W
Threemile Creek	Mobile Street	Its source	A&I
Chickasaw Creek	Limit of tidal effects	Mobile College	F&W
Chickasaw Creek	Mobile College	Its source	S/F&W

Stream	From	To	Classification
Eight Mile Creek	Chickasaw Creek	City of Prichard's water supply intake	F&W
Eight Mile Creek	City of Prichard's water supply intake	U. S. Highway 45	PWS/F&W
Eight Mile Creek	U. S. Highway 45	Its source	F&W
Norton Creek	Bayou Sara	Its source	F&W
Martin Branch	Tensaw River	Its source	F&W
Cold Creek	MOBILE RIVER	Dam 1 1/2 miles west of U.S. Highway 43	F&W ²
Cold Creek	Dam 1 1/2 miles west of U. S. Highway 43	Its source	PWS/F&W

(10) THE PERDIDO/ESCAMBIA RIVER BASIN (TO INCLUDE THE BLACKWATER, CONECUH, PERDIDO, AND YELLOW RIVER SUB-BASINS)

INTERSTATE WATERS OF THE BLACKWATER RIVER BASIN

Stream	From	To	Classification
BLACKWATER RIVER	Alabama-Florida state line	Its source	F&W
Big Juniper Creek	Alabama-Florida state line	Its source	F&W
Sweetwater Creek	Alabama-Florida state line	Its source	F&W
Rock Creek	Alabama-Florida state line	Its source	F&W
Boggy Hollow Creek	Alabama-Florida state line	Its source	F&W

²Due to naturally occurring conditions, quality in this segment may not always be commensurate with the classification assigned.

INTERSTATE WATERS OF THE CONECUH RIVER BASIN

Stream	From	To	Classification
CONECUH RIVER	Alabama-Florida state line	Point A Dam	F&W
CONECUH RIVER	Point A Dam	Head of Gantt Lake	S/F&W
CONECUH RIVER	Head of Gantt Lake	Its source	F&W
Little Escambia Creek	Alabama-Florida state line	Its source	F&W
Big Escambia Creek	Alabama-Florida state line	Its source	F&W
Pine Barren Creek	Alabama-Florida state line	Its source	F&W
Dixon Creek	Alabama-Florida state line	Its source	F&W
Canoe Creek	Alabama-Florida state line	Its source	F&W
Reedy Creek	Alabama-Florida state line	Its source	F&W
Beaver Dam Creek	Alabama-Florida state line	Its source	F&W

INTRASTATE WATERS OF THE CONECUH RIVER BASIN

Stream	From	To	Classification
Murder Creek	CONECUH RIVER	Its source	F&W
Sandy Creek	Murder Creek	Its source	F&W

Stream	From	To	Classification
Burnt Corn Creek	Murder Creek	Its source	S/F&W
Sepulga River	CONECUH RIVER	Its source	F&W
Pigeon Creek	Sepulga River	Its source	F&W
Unnamed Tributary	Pigeon Creek	Its source	F&W
Persimmon Creek	Sepulga River	Its source	F&W
Rocky Creek	Persimmon Creek	Its source	F&W
Prestwood Creek	CONECUH RIVER	Its source	F&W
Unnamed Tributary west of Andalusia	CONECUH RIVER	Its source	F&W
Patsaliga Creek	CONECUH RIVER	Its source	F&W
Little Patsaliga Creek	Patsaliga Creek	Its source	S/F&W
Double Branch	CONECUH RIVER	Its source	F&W
Sizemore Creek	Big Escambia Creek	Its source	S/F&W
Wet Weather Creek	Sizemore Creek	Its source	F&W

INTERSTATE AND COASTAL WATERS OF THE PERDIDO RIVER BASIN

Stream	From	To	Classification
PERDIDO BAY and all connecting coves and bayous	Gulf of Mexico	Its source	S/F&W/SH
Intracoastal Waterway	Alabama Highway 59	Wolf Bay	F&W

Stream	From	To	Classification
Wolf Bay and all connecting coves and bayous	Intracoastal Waterway	Its source	S/F&W/SH
Bay La Launch and all connecting coves and bayous	Wolf Bay	Arnica Bay	S/F&W/SH
Arnica Bay and all connecting coves and bayous	Bay La Launch	PERDIDO BAY	S/F&W/SH
Mifflin Creek	Wolf Bay	Limit of tidal effects	S/F&W
Hammock Creek	Wolf Bay	Limit of tidal effects	S/F&W
Palmetto Creek	PERDIDO BAY	Its source	S/F&W
Spring Branch	PERDIDO BAY	Its source	S/F&W
Soldier Creek	PERDIDO BAY	Its source	S/F&W
PERDIDO RIVER	PERDIDO BAY	Its source	F&W
Perdido Creek	PERDIDO RIVER	Its source	F&W
Brushy Creek	Alabama-Florida state line	Its source	F&W
Shelby Lakes	Within Gulf State Park		S/F&W
Coastal waters of the Gulf of Mexico Contiguous to the State of Alabama			S/F&W/SH

NOTE: Waters of the Perdido River Basin classified for SWIMMING AND OTHER WHOLE BODY WATER-CONTACT SPORTS, SHELLFISH HARVESTING and/or FISH AND WILDLIFE in which natural conditions provide an appropriate habitat for shrimp and crabs are to be suitable for the propagation and harvesting of shrimp and crabs.

INTRASTATE WATERS OF THE PERDIDO RIVER BASIN

Stream	From	To	Classification
Wolf Creek	Wolf Bay	Its source	F&W
Sandy Creek	Wolf Bay	Its source	S/F&W
Miflin Creek	Limit of tidal effects	Its source	F&W
BLACKWATER RIVER	PERDIDO RIVER	Its source	F&W
Negro Creek	BLACKWATER RIVER	Its source	F&W
Rock Creek	BLACKWATER RIVER	Its source	F&W
Styx River	PERDIDO RIVER	Hollinger Creek	F&W
Styx River	Hollinger Creek	Its source	S/F&W
Hollinger Creek	Styx River	Its source	F&W
Dyas Creek	PERDIDO RIVER	Its source	S/F&W

INTERSTATE WATERS OF THE YELLOW RIVER BASIN

Stream	From	To	Classification
YELLOW RIVER	Alabama-Florida state line	Its source	F&W
Pond Creek	Alabama-Florida state line	Its source	F&W
Big Creek	Alabama-Florida state line	Its source	F&W
Horsehead Creek	Alabama-Florida state line	Its source	F&W
Fleming Creek	Alabama-Florida state line	Its source	F&W

Stream	From	To	Classification
Lake Jackson	Within Florala and north of Alabama-Florida state line		S/F&W

INTRASTATE WATERS OF THE YELLOW RIVER BASIN

Stream	From	To	Classification
Five Runs Creek	YELLOW RIVER	Its source	F&W
Indian Creek	YELLOW RIVER	Its source	F&W
Lightwood Knot Creek	YELLOW RIVER	Its source	F&W
Cameron Creek	Lightwood Knot Creek	Its source	F&W
Bay Branch	Five Runs Creek	Its source	F&W
Blue Lake	Within Conecuh National Forest		S/F&W
Open Pond	Within Conecuh National Forest		S/F&W
Dowdy Pond	Within Conecuh National Forest		S/F&W

(11) THE TALLAPOOSA RIVER BASIN

INTERSTATE WATERS

Stream	From	To	Classification
TALLAPOOSA RIVER	ALABAMA RIVER	U. S. Highway 231	F&W
TALLAPOOSA RIVER	U. S. Highway 231	Thurlow Dam	PWS/F&W
TALLAPOOSA RIVER (Thurlow Lake)	Thurlow Dam	Yates Dam	PWS/S/F&W
TALLAPOOSA RIVER (Yates Lake)	Yates Dam	Martin Dam	PWS/S/F&W

Stream	From	To	Classification
TALLAPOOSA RIVER (Lake Martin)	Martin Dam	Highway 280	S/F&W
TALLAPOOSA RIVER (Lake Martin)	Highway 280	Hillabee Creek	PWS/S/F&W
TALLAPOOSA RIVER	Hillabee Creek	R.L. Harris Dam	F&W
TALLAPOOSA RIVER (R.L. Harris Lake)	R.L. Harris Dam	Four miles upstream of Randolph County Road 88 (Lee Bridge)	S/F&W
TALLAPOOSA RIVER	Four miles upstream of Randolph County Road 88 (Lee Bridge)	One-half mile upstream of Cleburne County Road 36	F&W
TALLAPOOSA RIVER	One-half mile upstream of Cleburne County Road 36	Cleburne County Road 19	PWS/F&W
TALLAPOOSA RIVER	Cleburne County Road 19	Alabama-Georgia state line	F&W
Little Tallapoosa River (R.L. Harris Lake)	TALLAPOOSA RIVER (R.L. Harris Lake)	U.S. Highway 431	S/F&W
Little Tallapoosa River (R.L. Harris Lake)	U.S. Highway 431	Five miles upstream of U.S. Highway 431	PWS/S/F&W
Little Tallapoosa River	Five miles upstream of U.S. Highway 431	Alabama-Georgia state line	F&W

INTRASTATE WATERS

Stream	From	To	Classification
Oakfuskee Creek (Line Creek)	TALLAPOOSA RIVER	Its source	F&W
Old Town Creek	Oakfuskee Creek (Line Creek)	Its source	F&W
Cubahatchee Creek	TALLAPOOSA RIVER	Its source	S/F&W
Calebee Creek	TALLAPOOSA RIVER	Its source	F&W
Uphapee Creek	TALLAPOOSA RIVER	Its source	F&W
Bulger Creek	Uphapee Creek	Its source	PWS/F&W
Parkerson Mill Creek	Chewacla Creek	Its source	F&W
Chewacla Creek	Uphapee Creek	Chewacla State Park Lake (Moore's Mill Creek)	F&W
Chewacla Creek	Chewacla State Park Lake (Moore's Mill Creek)	Its source	PWS/F&W
Moore's Mill Creek	Chewacla Creek (Dam at Chewacla State Park Lake)	Its source	S/F&W
Sougahatchee Creek	TALLAPOOSA RIVER (Yates Lake)	Sougahatchee Lake Dam	F&W
Sougahatchee Creek	Sougahatchee Lake Dam	Its source	PWS/F&W
Pepperell Branch	Sougahatchee Creek	Its source	F&W

Stream	From	To	Classification
Head Creek	Sougahatchee Creek	Its source	F&W
Little Kowaliga Creek (Lake Martin)	Big Kowaliga Creek (Lake Martin)	Reservoir Limits	PWS/S/F&W
Sandy Creek	TALLAPOOSA RIVER (Lake Martin)	Its source	F&W
Chattasofka Creek	Sandy Creek	Its source	F&W
North Fork of Sandy Creek	Sandy Creek	Its source	F&W
Little Sandy Creek	Sandy Creek	Central of Georgia RR	F&W
Little Sandy Creek	Central of Georgia RR	Its source	PWS/F&W
Manoy Creek (Lake Martin)	TALLAPOOSA RIVER (Lake Martin)	Reservoir Limits	PWS/S/F&W
Elkahatchee Creek	TALLAPOOSA RIVER (Lake Martin)	Alabama Highway 63	F&W
Elkahatchee Creek	Alabama Highway 63	Alabama Highway 22	PWS/F&W
Elkahatchee Creek	Alabama Highway 22	Its source	F&W
Harold Creek	Elkahatchee Creek	Its source	F&W
Sugar Creek	Elkahatchee Creek	Its source	F&W
Coley Creek	TALLAPOOSA RIVER (Lake Martin)	Its source	F&W
Hillabee Creek	TALLAPOOSA RIVER	Jct. of Oaktasasi and Town Creeks	F&W
Hillabee Creek	Jct. of Oaktasasi and Town Creeks	County road bridge 3 miles east of Hackneyville	PWS/F&W

Stream	From	To	Classification
Hillabee Creek	County road bridge 3 miles east of Hackneyville	Its source	F&W
Oaktasasi Creek	Hillabee Creek	Its source	F&W
Christian Creek	Oaktasasi Creek	Its source	F&W
Dobbs Creek	Oaktasasi Creek	Its source	F&W
Town Creek	Hillabee Creek	Its source	F&W
Hackney Creek	Town Creek	Its source	PWS/F&W
Chatahospee Creek	TALLAPOOSA RIVER	Its source	F&W
Mill Creek	Chatahospee Creek	Its source	F&W
Finley Creek	Mill Creek	Its source	PWS/F&W
High Pine Creek	TALLAPOOSA RIVER	Highway 431 Crossing	F&W
High Pine Creek	Highway 431 crossing	Its source	PWS
Jones Creek	High Pine Creek	Its source	PWS
Unnamed tributary to Jones Creek northwest of Roanoke	Jones Creek	Its source	PWS
Graves Creek	High Pine Creek	Its source	F&W
Town Creek	High Pine Creek	Its source	F&W
Hutton Creek	TALLAPOOSA RIVER	Its source	F&W
Beaverdam Creek	TALLAPOOSA RIVER	Its source	F&W

Stream	From	To	Classification
Crooked Creek	TALLAPOOSA RIVER	Alabama Highway 9	F&W
Crooked Creek	Alabama Highway 9	Its source	PWS/F&W
Horsetrough Creek	Crooked Creek	Its source	F&W
Wedowee Creek	Little Tallapoosa River	Its source	F&W
Cahulga Creek	TALLAPOOSA RIVER	U. S. Highway 78	F&W
Cahulga Creek	U .S. Highway 78	Its source	PWS/F&W

(12)

THE TENNESSEE RIVER BASIN**INTERSTATE WATERS**

Stream	From	To	Classification
TENNESSEE RIVER Pickwick Lake	Alabama-Tennessee state line	Lower end of Seven Mile Island	PWS/S/F&W
TENNESSEE RIVER Pickwick Lake	Lower end of Seven Mile Island	Sheffield water intake	F&W
TENNESSEE RIVER Pickwick Lake	Sheffield water intake	Wilson Dam	PWS/F&W
TENNESSEE RIVER Wilson Lake	Wilson Dam	Wheeler Dam	PWS/S/F&W
TENNESSEE RIVER Wheeler Lake	Wheeler Dam	Five miles upstream of Elk River (RM 289.3)	PWS/S/F&W
TENNESSEE RIVER Wheeler Lake	Five miles upstream of Elk River (RM 289.3)	U. S. Highway 31 (see Note 1 this basin)	S/F&W
TENNESSEE RIVER Wheeler Lake	U. S. Highway 31	Flint Creek	PWS/S/F&W
TENNESSEE RIVER Wheeler Lake	Flint Creek	Cotaco Creek	S/F&W
TENNESSEE RIVER Wheeler Lake	Cotaco Creek	Indian Creek	PWS/S/F&W
TENNESSEE RIVER Wheeler Lake	Indian Creek	Flint River	PWS/F&W
TENNESSEE RIVER Wheeler Lake	Flint River	Guntersville Dam	S/F&W
TENNESSEE RIVER Guntersville Lake	Guntersville Dam	Upper end of Buck's Island (see Note 2 this basin)	PWS/S/F&W

Stream	From	To	Classification
TENNESSEE RIVER Guntersville Lake	Upper end of Buck's Island	Roseberry Creek	S/F&W
TENNESSEE RIVER Guntersville Lake	Roseberry Creek	Alabama-Tennessee state line (see Note 3 this basin)	PWS/S/F&W
Bear Creek	Alabama-Mississippi state line	Bear Creek Lake Dam	F&W
Bear Creek (Bear Creek Lake)	Bear Creek Lake Dam	Alabama Highway 187	PWS/S/F&W
Bear Creek	Alabama Highway 187	Upper Bear Creek Lake Dam	S/F&W
Bear Creek (Upper Bear Creek Lake)	Upper Bear Creek Lake Dam	Alabama Highway 243	PWS/S/F&W
Bear Creek	Alabama Highway 243	Its source	F&W
Cedar Creek	Bear Creek	Alabama-Mississippi state line	F&W
Cedar Creek	Alabama-Mississippi state line	Cedar Creek Lake Dam	F&W
Cedar Creek (Cedar Creek Lake)	Cedar Creek Lake Dam	Alabama Highway 24	PWS/S/F&W
Cedar Creek	Alabama Highway 24	Its source	F&W
Bear Creek	U. S. Highway 72	Alabama-Mississippi state line	F&W
Bear Creek	TENNESSEE RIVER (Pickwick Lake)	U. S. Highway 72	S/F&W
Second Creek	TENNESSEE RIVER (Pickwick Lake)	Alabama-Tennessee state line	F&W

Stream	From	To	Classification
Cypress Creek	TENNESSEE RIVER (Pickwick Lake)	City of Florence Water Treatment Plant	F&W
Cypress Creek	City of Florence Water Treatment Plant	Little Cypress Creek	PWS/F&W
Cypress Creek	Little Cypress Creek	Alabama-Tennessee state line	F&W
Little Cypress Creek	Cypress Creek	Alabama-Tennessee state line	F&W
Shoal Creek	TENNESSEE RIVER (Wilson Lake)	Indian Camp Creek	S/F&W
Shoal Creek	Indian Camp Creek	Alabama-Tennessee state line	F&W
Bluewater Creek	TENNESSEE RIVER (Wilson Lake)	U. S. Highway 72	S/F&W
Bluewater Creek	U. S. Highway 72	Alabama-Tennessee state line	F&W
Second Creek	TENNESSEE RIVER (Wheeler Lake)	First bridge upstream from U. S. Highway 72	S/F&W
Second Creek	First bridge upstream from U. S. Highway 72	Alabama-Tennessee state line	F&W
Elk River	TENNESSEE RIVER (Wheeler Lake)	Alabama Highway 99	S/F&W
Elk River	Alabama Highway 99	Alabama-Tennessee state line	PWS/F&W
Piney Creek	TENNESSEE RIVER (Wheeler Lake)	Alabama-Tennessee state line	F&W
Limestone Creek	TENNESSEE RIVER (Wheeler Lake)	Alabama-Tennessee state line	F&W

Stream	From	To	Classification
Flint River	TENNESSEE RIVER (Wheeler Lake)	Big Cove Creek	F&W
Flint River	Big Cove Creek	Hurricane Creek	PWS/F&W
Flint River	Hurricane Creek	Alabama-Tennessee state line	F&W
Paint Rock River (including Estill and Larkin Forks)	TENNESSEE RIVER (Wheeler Lake)	Alabama-Tennessee state line	F&W
Crow Creek	TENNESSEE RIVER (Guntersville Lake)	Alabama-Tennessee state line	F&W
Lookout Creek	Alabama-Georgia state line	Junction of East Fork Lookout Creek and West Fork Lookout Creek	S/F&W

NOTE 1. That portion of Wheeler Lake in the immediate vicinity of the discharge from the City of Decatur's sewage treatment plant is not considered suitable for SWIMMING AND OTHER WHOLE BODY WATER-CONTACT SPORTS.

NOTE 2. Those portions of Guntersville Lake in the immediate vicinity of discharges from the City of Guntersville's sewage treatment plants are not considered suitable for SWIMMING and OTHER WHOLE BODY WATER-CONTACT SPORTS nor for sources of PUBLIC WATER SUPPLY.

NOTE 3. That portion of Guntersville Lake in the immediate vicinity of the discharge of sewage from the City of Bridgeport is not considered suitable for use as a source of PUBLIC WATER SUPPLY nor for SWIMMING AND OTHER WHOLE BODY WATER-CONTACT SPORTS.

INTRASTATE WATERS

Stream	From	To	Classification
Little Bear Creek (Franklin County)	Cedar Creek	Little Bear Creek Lake Dam	S/F&W

Stream	From	To	Classification
Little Bear Creek (Little Bear Creek Lake, Franklin County)	Little Bear Creek Lake Dam	Alabama Highway 187	PWS/S/F&W
Little Bear Creek (Franklin County)	Alabama Highway 187	Its source	S/F&W
Dunkin Creek	Cedar Creek	Its source	PWS
Little Bear Creek	Bear Creek	Its source	PWS/S/F&W
Mud Creek	Cedar Creek	Its source	F&W
Flat Creek	Bear Creek	Its source	F&W
Cane Creek	TENNESSEE RIVER	Its source	S/F&W
Little Bear Creek (Colbert County)	TENNESSEE RIVER	Its source	S/F&W
Stinking Bear Creek	Little Bear Creek (Colbert County)	Its source	F&W
Spring Creek (Colbert County)	TENNESSEE RIVER	Its source	F&W
Cox Creek	Cypress Creek	Its source	F&W
Pond Creek	TENNESSEE RIVER	Its source	A&I
Town Creek	TENNESSEE RIVER	Its source	F&W
Big Nance Creek	TENNESSEE RIVER	Its source	F&W
Muddy Fork	Big Nance Creek	Crow Branch	A&I
Crow Branch	Muddy Fork	Its source	A&I
Clear Fork	Big Nance Creek	Its source	F&W

Stream	From	To	Classification
Sinking Creek	Clear Fork	Its source	PWS/F&W
First Creek	TENNESSEE RIVER	Its source	S/F&W
Spring Creek (Lawrence County)	TENNESSEE RIVER	Its source	F&W
Swan Creek	TENNESSEE RIVER	Highway 24 crossing	F&W
Swan Creek	Highway 24 crossing	Town Creek	A&I
Swan Creek	Town Creek	Its source	F&W
Town Creek (Athens)	Swan Creek	Its source	F&W
Flint Creek	TENNESSEE RIVER	L & N Railroad	F&W
Flint Creek	L & N Railroad	Alabama Highway 36	PWS/F&W
Flint Creek	Alabama Highway 36	Shoal Creek	LWF ⁴
Flint Creek	Shoal Creek	Its source	F&W
Shoal Creek	Flint Creek	Its source	F&W
Cotaco Creek	TENNESSEE RIVER	Its source	S/F&W
Mill Pond Creek	Cotaco Creek	Junction with Gilliam Creek	F&W
Gilliam Creek	Mill Pond Creek	Its source	F&W
Bradford Creek	Barren Fork Creek	Its source	F&W
Indian Creek	TENNESSEE RIVER	Its source	F&W
Huntsville Spring Branch	Indian Creek	Its source	F&W

⁴ For the purpose of establishing effluent limitations pursuant to Chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years (7Q₁₀) shall be the basis for applying the chronic aquatic life criteria.

Stream	From	To	Classification
Aldridge Creek	TENNESSEE RIVER	Its source	F&W
Hurricane Creek	Flint River	Its source	F&W
Sand Branch	Hurricane Creek	Its source	F&W
Short Creek	TENNESSEE RIVER	Scarham Creek	PWS/F&W
Short Creek	Scarham Creek	Its source	F&W
Drum Creek	Short Creek	Its source	F&W
East Fork of Drum Creek	Drum Creek	Its source	F&W
Turkey Creek	Short Creek	Its source	F&W
Town Creek (DeKalb County)	TENNESSEE RIVER	Its source	F&W
South Sauty Creek	TENNESSEE RIVER	Its source	S/F&W
North Sauty Creek	TENNESSEE RIVER	Its source	PWS
Roseberry Creek	TENNESSEE RIVER	Its source	F&W
Coon-Flat Rock Creek	TENNESSEE RIVER	Its source	S/F&W
Widow's Creek	TENNESSEE RIVER	Its source	S/F&W
Long Island Creek	TENNESSEE RIVER	Long Creek	PWS/S/F&W
Long Island Creek	Long Creek	Its source	S/F&W
Turkey Creek	Clear Fork	Its source	PWS/F&W
Bengis Creek	Town Creek	Its source	F&W

(13) **THE UPPER TOMBIGBEE RIVER BASIN**

INTERSTATE WATERS

Stream	From	To	Classification
TOMBIGBEE RIVER	Junction with WARRIOR RIVER	Cobb Creek	S/F&W
TOMBIGBEE RIVER	Cobb Creek	Gainesville Lock and Dam	F&W
TOMBIGBEE RIVER (Gainesville and Aliceville Lakes)	Gainesville Lock and Dam	Alabama-Mississippi state line	S/F&W
Noxubee River	TOMBIGBEE RIVER	Alabama-Mississippi state line	F&W
Bodka Creek	Noxubee River	Alabama-Mississippi state line	F&W
Yellow Creek	At Alabama- Mississippi state line		PWS
Yellow Creek	Alabama-Mississippi state line	Its source	F&W
Buttahatchee River	Alabama-Mississippi state line	U.S. Hwy. 278 one mile east of junction of U.S. Highways 43 and 78 in Hamilton	F&W
Buttahatchee River	U.S. Hwy. 278 one mile east of junction of U.S Highways 43 and 78 in Hamilton	U.S. Hwy. 278 seven miles east of junction of U.S. Highways 43 and 78 in Hamilton	PWS/F&W
Buttahatchee River	U.S. Hwy. 278 seven miles east of junction of U.S. Highways 43 and 78 in Hamilton	Lake Buttahatchee Dam	F&W
Buttahatchee River	Lake Buttahatchee Dam	Head of backwaters of Lake Buttahatchee	S

Stream	From	To	Classification
Buttahatchee River	Head of backwaters of Lake Buttahatchee	Its source	F&W
Bull Mountain Creek	Alabama-Mississippi state line	Its source	F&W
Sipsey Creek	Alabama-Mississippi state line	Its source	F&W
Luxapallila Creek	At Alabama-Mississippi state line		PWS
Luxapallila Creek	Alabama-Mississippi state line	County Road 37	F&W
Luxapallila Creek	County Road 37	County road crossing approximately 6 miles upstream from Alabama Highway 18	PWS/F&W
Luxapallila Creek	County road crossing approximately 6 miles upstream from Alabama Highway 18	U .S. Highway 78	F&W
Luxapallila Creek	U. S. Highway 78	Its source	PWS/F&W

INTRASTATE WATERS

Stream	From	To	Classification
Sipsey River	TOMBIGBEE RIVER	U. S. Highway 43	F&W
Sipsey River	U. S. Highway 43	Alabama Highway 102	PWS/F&W
Sipsey River	Alabama Highway 102	Its source	F&W
New River	Sipsey River	Its source	F&W
Little New River	Sipsey River	Its source	F&W
Lubbub Creek	TOMBIGBEE RIVER	Its source	F&W
Bear Creek	Lubbub Creek	Its source	F&W
Little Bear Creek	Bear Creek	Its source	F&W
Coal Fire Creek	TOMBIGBEE RIVER	Its source	S/F&W
Bogue Creek	Buttahatchee River	Its source	F&W
Beaver Creek	Buttahatchee River	U. S. Highway 78	F&W
Beaver Creek	U. S. Highway 78	Its source	PWS/F&W
Purgatory Creek	Beaver Creek	U. S. Highway 278	F&W
Purgatory Creek	U. S. Highway 278	Its source	PWS/F&W
Camp Creek	Buttahatchee River	Its source	F&W
East Branch Luxapallila Creek	Luxapallila Creek At Winfield	Its source	PWS/F&W
Moore Creek	Buttahatchee River	Its source	F&W

(14)

THE WARRIOR RIVER BASIN**INTRASTATE WATERS**

<u>Stream</u>	<u>From</u>	<u>To</u>	<u>Classification</u>
WARRIOR RIVER	TOMBIGBEE RIVER	Five miles upstream from Big Prairie Creek	S/F&W
WARRIOR RIVER	Five miles upstream from Big Prairie Creek	Eight miles upstream from Big Prairie Creek	PWS/S/F&W
WARRIOR RIVER	Eight miles upstream from Big Prairie Creek	Warrior Lock and Dam	S/F&W
WARRIOR RIVER	Warrior Lock and Dam	Oliver Lock and Dam	F&W
WARRIOR RIVER	Oliver Lock and Dam	Hurricane Creek	F&W ¹
WARRIOR RIVER	Hurricane Creek	Bankhead Lock and Dam	S/F&W ¹
WARRIOR RIVER	Bankhead Lock and Dam	Junction of Locust and Mulberry Forks	PWS/S/F&W
Locust Fork	Junction of Locust and Mulberry Forks	Jefferson County Highway 61 (Maxine)	PWS/S/F&W
Locust Fork	Jefferson County Highway 61 (Maxine)	U. S. Highway 31	F&W
Locust Fork	U. S. Highway 31	County road between Hayden and County Line	PWS/F&W
Locust Fork	County road between Hayden and County Line	Its source	F&W
Mulberry Fork	Junction of Locust and Mulberry Forks	Burnt Cane Creek (9 miles below Cordova)	PWS/S/F&W

¹Applicable dissolved oxygen level below existing impoundments is 4.0 mg/l.

Stream	From	To	Classification
Mulberry Fork	Burnt Cane Creek (9 miles below Cordova)	Frog Ague Creek (Cordova)	PWS/F&W
Mulberry Fork	Frog Ague Creek (Cordova)	Junction of Mulberry and Sipsy Forks	PWS/F&W
Mulberry Fork	Junction of Mulberry and Sipsy Forks	Its source	F&W
Sipsy Fork	Junction of Mulberry and Sipsy Forks	Lewis Smith Dam	PWS/F&W
Lake Lewis Smith on Sipsy Fork	Lewis Smith Dam	Three miles upstream from Lewis Smith Dam	PWS/S/F&W
Lake Lewis Smith on Sipsy Fork	Three miles upstream from Lewis Smith Dam	Reservoir limits	S/F&W
Sipsy Fork	Lake Lewis Smith	Sandy Creek	F&W
Sipsy Fork and tributaries	Sandy Creek	Its source	F&W ³
Big Prairie Creek	Head of backwater above Demopolis Lock and Dam on WARRIOR RIVER	Its source	F&W
Cottonwood Creek	Big Prairie Creek	Its source	F&W
White Creek	WARRIOR RIVER	Its source	F&W
Big Brush Creek	WARRIOR RIVER	Its source	F&W
Colwell Creek	Big Brush Creek	Its source	F&W
Minter Creek	WARRIOR RIVER	Its source	F&W

³ The special designation of Outstanding National Resource Water applies to this segment.

Stream	From	To	Classification
Five Mile Creek	WARRIOR RIVER	Payne Lake in Talladega National Forest	F&W
Payne Lake in Talladega National Forest			S
Elliotts Creek	WARRIOR RIVER	Its source	F&W
Cypress Creek	WARRIOR RIVER	Its source	F&W
North River	WARRIOR RIVER	City of Tuscaloosa's water supply reservoir dam	F&W
North River	City of Tuscaloosa's water supply reservoir dam	Binnion Creek	PWS/S
North River	Binnion Creek	Its source	F&W
Binnion Creek	North River	Its source	F&W
Cedar Creek	North River	Its source	F&W
Clear Creek	North River	Bugs Lake Dam	F&W
Clear Creek	Bugs Lake Dam	Its source	PWS
Hurricane Creek	WARRIOR RIVER	Its source	F&W
Yellow Creek	WARRIOR RIVER	City of Tuscaloosa's water supply reservoir dam	F&W
Yellow Creek	City of Tuscaloosa's water supply reservoir dam	Its source	PWS
Davis Creek	WARRIOR RIVER	Its source	F&W
Blue Creek	WARRIOR RIVER	Its source	F&W

Stream	From	To	Classification
Big Yellow Creek	WARRIOR RIVER	Its source	S/F&W
Valley Creek	WARRIOR RIVER	Blue Creek	F&W
Valley Creek	Blue Creek	Its source	LWF
Opossum Creek	Valley Creek	Its source	A&I
Village Creek	Locust Fork	Bayview Lake Dam	F&W
Village Creek	Bayview Lake Dam	Its source	LWF
Fivemile Creek	Locust Fork	Its source	F&W
Turkey Creek	Locust Fork	Its source	F&W
Cunningham Branch	Turkey Creek	Its source	F&W
Self Creek	Locust Fork	Town of Bradford's water supply intake	F&W
Self Creek	Town of Bradford's water supply intake	Its source	PWS
Gurley Creek	Self Creek	Its source	F&W
Little Warrior River	Locust Fork	Junction of Blackburn Fork and Calvert Prong	F&W
Calvert Prong	Little Warrior River	City of Oneonta's water supply intake	F&W
Calvert Prong	City of Oneonta's water supply intake	Its source	PWS
Blackburn Fork	Little Warrior River	Inland Lake Dam	F&W
Blackburn Fork	Inland Lake Dam	Its source	PWS/S
Chitwood Creek	Calvert Prong	Its source (junction with Mill and Cheney Branch)	F&W

Stream	From	To	Classification
Mill Creek	Chitwood Creek	Its source	F&W
Graves Creek	Locust Fork	Its source	F&W
Whippoorwill Creek	Locust Fork	Its source	F&W
Clear Creek	Locust Fork	Its source	F&W
Slab Creek	Locust Fork	Its source	F&W
Lost Creek	Mulberry Fork	Two miles upstream from Wolf Creek	F&W
Lost Creek	Two miles upstream from Wolf Creek	Cane Creek	PWS/F&W
Lost Creek	Cane Creek	Its source	F&W
Cane Creek (Oakman)	Lost Creek	Dixie Springs Road	F&W
Cane Creek (Oakman)	Dixie Springs Road	Alabama Highway 69	LWF
Cane Creek (Oakman)	Alabama Highway 69	Its source	F&W
Indian Creek	Lost Creek	Its source	F&W
Wolf Creek	Lost Creek	Its source	F&W
Burnt Cane Creek	Mulberry Fork	Its source	F&W
Cane Creek (Jasper)	Mulberry Fork	Town Creek	LWF
Cane Creek (Jasper)	Town Creek	Its source	F&W
Town Creek	Cane Creek	100 yards upstream of Southern Railway crossing (1.1 miles upstream of Cane Creek)	LWF

Stream	From	To	Classification
Town Creek	100 yards upstream of Southern Railway crossing (1.1 miles upstream of Cane Creek)	Its source	F&W
Blackwater Creek	Mulberry Fork	Its source	F&W
Mud Creek	Mulberry Fork	Its source	F&W
Broglen River	Mulberry Fork	Junction of Eightmile and Brindley Creeks	F&W
Brindley Creek	Broglen River	Its source	PWS
Eightmile Creek	Broglen River	Cullman water supply reservoir dam	F&W
Eightmile Creek	Cullman water supply reservoir dam	Its source	PWS
Pope Creek	Cullman water supply dam	Its source	PWS
Blue Springs Creek	Mulberry Fork	Its source	F&W
Warrior Creek	Mulberry Fork	Its source	F&W
Tibb Creek	Warrior Creek	Its source	F&W
Riley Maze Creek	Tibb Creek	Its source	F&W
Ryan Creek	Lake Lewis Smith	Its source	F&W
Crooked Creek	Lake Lewis Smith	Its source	F&W
Brushy Creek	Lake Lewis Smith (Sipsey Fork)	U.S. Highway 278	PWS/F&W
Brushy Creek	U.S. Highway 278	Its source	F&W

Stream	From	To	Classification
Clear Creek	Lake Lewis Smith	City of Haleyville water supply reservoir dam	F&W
Clear Creek	City of Haleyville water supply reservoir dam	Its source	PWS
Rock Creek	Lake Lewis Smith	Its source	F&W
Sandy Creek	Sipsey Fork	Its source	F&W
Curtis Mill Creek	Sandy Creek	Town of Double Springs water supply reservoir dam	F&W
Curtis Mill Creek	Town of Double Springs water supply reservoir dam	Its source	PWS

Author: James E. McIndoe

Statutory Authority: Code of Alabama 1975, §§22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.

History: Adopted: May 5, 1967. **Amended:** June 19, 1967; April 1, 1970; October 16, 1972; September 17, 1973; May 30, 1977; August 29, 1977; December 19, 1977; February 4, 1981; April 5, 1982; December 11, 1985; March 26, 1986; August 26, 1988; March 2, 1990; April 3, 1991; August 1, 1991; April 2, 1992; May 28, 1992; February 1, 1993; September 23, 1993; August 29, 1994; May 30, 1997; July 14, 1999; September 7, 2000; January 12, 2001; October 6, 2003; April 3, 2003; January 28, 2004; May 27, 2004; September 21, 2005.

Appendix B

Categorization of Alabama Waters

Categorization of Alabama Waters

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03150201-0104-301	Three Mile Branch	Alabama	F&W	Galbraith Mill Creek	Lower Wetumpka Rd	1	0.24 miles		
AL03150201-0603-100	Swift Creek	Alabama	S/F&W	Alabama River	Its source	1	41.03 miles		
AL03150201-1004-100	Buck Creek	Alabama	F&W	Mulberry Creek	Its source	1	21.39 miles		
AL03150201-1005-102	Mulberry Creek	Alabama	F&W	Harris Branch	Its source	1	23.95 miles		
AL03150201-1101-103	Valley Creek	Alabama	S/F&W	Valley Creek Lake	Its source	1	6.07 miles		
AL03150201-1102-101	Valley Creek	Alabama	F&W	Alabama River	Selma-Summerfield Road	1	7.27 miles		
AL03150201-1102-102	Valley Creek	Alabama	S/F&W	Selma-Summerfield Road	Valley Creek Lake	1	15.22 miles		
AL03150201-1203-100	Soapstone Creek	Alabama	F&W	Alabama River	Its source	1	17.52 miles		
AL03150201-1207-101	Alabama River	Alabama	S/F&W	Cahaba River	Six Mile Creek	1	5.36 miles		
AL03150201-1207-102	Alabama River	Alabama	F&W	Six Mile Creek	Robert F. Henry Lock and Dam	1	42.43 miles		
AL03150203-0304-100	Chaney Creek	Alabama	F&W	Bogue Chitto Creek	Its source	1	15.35 miles		
AL03150203-0402-102	Alabama River	Alabama	S/F&W	Chilatchee Creek	Cahaba River	1	30.05 miles		
AL03150203-0506-100	Pine Barren Creek	Alabama	S/F&W	Alabama River	Its source	1	65.06 miles		
AL03150203-0603-200	Cub Creek	Alabama	F&W	Beaver Creek	Its source	1	11.61 miles		
AL03150203-0805-101	Alabama River	Alabama	S/F&W	McCallis Creek	Bear Creek	1	9.12 miles		
AL03150204-0104-100	Silver Creek	Alabama	F&W	Alabama River	Its source	1	12.65 miles		
AL03150204-0105-100	Alabama River	Alabama	S/F&W	Claiborne Lock and Dam	McCallis Creek	1	18.56 miles		
AL03150204-0701-100	Alabama River	Alabama	F&W	Mobile River	Claiborne Lock and Dam	1	81.16 miles		
AL03160109-0203-100	Marticot Creek	Black Warrior	F&W	Mulberry Fork	Its source	1	14.10 miles		
AL03160109-0206-500	Rice Creek	Black Warrior	F&W	Mulberry Fork	Its source	1	8.60 miles		
AL03160109-0401-100	Mill Creek	Black Warrior	F&W	Lost Creek	Its source	1	11.44 miles		
AL03160109-0602-101	Cane Creek	Black Warrior	LWF	Mulberry Fork	Town Creek	1	10.58 miles		
AL03160109-0602-801	Town Creek	Black Warrior	LWF	Lost Creek	100 yards upstream of Southern Railway crossing	1	1.10 miles		
AL03160110-0101-105	unnamed tributaries to Sipsey Fork	Black Warrior	F&W	Sipsey Fork	Their source	1	9.69 miles	ONRW	
AL03160110-0101-110	Parker Branch	Black Warrior	F&W	Hubbard Creek	Its source	1	3.82 miles	ONRW	
AL03160110-0101-115	unnamed tributaries to Parker Branch	Black Warrior	F&W	Parker Branch	Their source	1	3.35 miles	ONRW	
AL03160110-0101-120	Whitman Creek	Black Warrior	F&W	Hubbard Creek	Its source	1	3.73 miles	ONRW	
AL03160110-0101-125	unnamed tributaries to Whitman Creek	Black Warrior	F&W	Whitman Creek	Their source	1	4.53 miles	ONRW	
AL03160110-0101-130	Maxwell Creek	Black Warrior	F&W	Hubbard Creek	Its source	1	2.02 miles	ONRW	
AL03160110-0101-135	unnamed tributaries to Maxwell Creek	Black Warrior	F&W	Maxwell Creek	Their source	1	1.55 miles	ONRW	
AL03160110-0101-140	Basin Creek	Black Warrior	F&W	Hubbard Creek	Its source	1	2.81 miles	ONRW	
AL03160110-0101-145	unnamed tributaries to Basin Creek	Black Warrior	F&W	Basin Creek	Their source	1	4.39 miles	ONRW	

Categorization of Alabama Waters

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03160110-0101-150	Dunn Branch	Black Warrior	F&W	Maxwell Creek	Its source	1	1.33 miles	ONRW	
AL03160110-0101-160	Natural Well Branch	Black Warrior	F&W	Maxwell Creek	Its source	1	1.45 miles	ONRW	
AL03160110-0101-165	unnamed tributary to Natural Well Branch	Black Warrior	F&W	Natural Well Branch	Its source	1	0.60 miles	ONRW	
AL03160110-0101-170	White Oak Branch	Black Warrior	F&W	Thompson Creek	Its source	1	1.69 miles	ONRW	
AL03160110-0101-175	unnamed tributaries to White Oak Branch	Black Warrior	F&W	White Oak Branch	Their source	1	0.61 miles	ONRW	
AL03160110-0101-180	Wolf Pen Branch	Black Warrior	F&W	Sipsey Fork	Its source	1	1.00 miles	ONRW	
AL03160110-0101-190	Ugly Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	3.05 miles	ONRW	
AL03160110-0101-195	unnamed tributaries to Ugly Creek	Black Warrior	F&W	Ugly Creek	Their source	1	4.46 miles	ONRW	
AL03160110-0101-200	Fall Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	2.06 miles	ONRW	
AL03160110-0101-205	unnamed tributaries to Fall Creek	Black Warrior	F&W	Fall Creek	Their source	1	0.70 miles	ONRW	
AL03160110-0101-300	Bee Branch	Black Warrior	F&W	Sipsey Fork	Its source	1	2.09 miles	ONRW	
AL03160110-0101-305	unnamed tributaries to Bee Branch	Black Warrior	F&W	Bee Branch	Their source	1	2.95 miles	ONRW	
AL03160110-0101-400	Thompson Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	8.59 miles	ONRW	
AL03160110-0101-405	unnamed tributaries to Thompson Creek	Black Warrior	F&W	Thompson Creek	Their source	1	15.29 miles	ONRW	
AL03160110-0101-500	Hubbard Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	6.59 miles	ONRW	
AL03160110-0101-505	unnamed tributaries to Hubbard Creek	Black Warrior	F&W	Hubbard Creek	Their source	1	5.30 miles	ONRW	
AL03160110-0101-600	Tedford Creek	Black Warrior	F&W	Thompson Creek	Its source	1	3.68 miles	ONRW	
AL03160110-0101-605	unnamed tributaries to Tedford Creek	Black Warrior	F&W	Tedford Creek	Their source	1	10.40 miles	ONRW	
AL03160110-0101-700	Mattox Creek	Black Warrior	F&W	Thompson Creek	Its source	1	3.26 miles	ONRW	
AL03160110-0101-705	unnamed tributaries to Mattox Creek	Black Warrior	F&W	Mattox Creek	Their source	1	7.73 miles	ONRW	
AL03160110-0101-800	Ross Branch	Black Warrior	F&W	Tedford Creek	Its source	1	2.06 miles	ONRW	
AL03160110-0101-805	unnamed tributaries to Ross Branch	Black Warrior	F&W	Ross Branch	Their source	1	2.07 miles	ONRW	
AL03160110-0101-900	Quillian Creek	Black Warrior	F&W	Hubbard Creek	Its source	1	3.77 miles	ONRW	
AL03160110-0101-905	unnamed tributaries to Quillian Creek	Black Warrior	F&W	Quillian Creek	Their source	1	6.68 miles	ONRW	
AL03160110-0102-100	Borden Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	16.61 miles	ONRW	
AL03160110-0102-105	unnamed tributaries to Borden Creek	Black Warrior	F&W	Borden Creek	Their source	1	23.35 miles	ONRW	
AL03160110-0102-200	Brazil Creek	Black Warrior	F&W	Borden Creek	Its source	1	5.69 miles	ONRW	

Categorization of Alabama Waters

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03160110-0102-205	unnamed tributaries to Brazil Creek	Black Warrior	F&W	Brazil Creek	Their source	1	13.77 miles	ONRW	
AL03160110-0102-300	Flannagin Creek	Black Warrior	F&W	Borden Creek	Its source	1	9.99 miles	ONRW	
AL03160110-0102-305	unnamed tributaries to Flannagin Creek	Black Warrior	F&W	Flannagin Creek	Their source	1	15.49 miles	ONRW	
AL03160110-0102-400	Horse Creek	Black Warrior	F&W	Borden Creek	Its source	1	1.76 miles	ONRW	
AL03160110-0102-405	unnamed tributaries to Horse Creek	Black Warrior	F&W	Horse Creek	Their source	1	2.30 miles	ONRW	
AL03160110-0102-500	Montgomery Creek	Black Warrior	F&W	Borden Creek	Its source	1	3.99 miles	ONRW	
AL03160110-0102-505	unnamed tributaries to Montgomery Creek	Black Warrior	F&W	Montgomery Creek	Their source	1	8.99 miles	ONRW	
AL03160110-0102-600	Hagood Creek	Black Warrior	F&W	Brazil Creek	Its source	1	4.23 miles	ONRW	
AL03160110-0102-605	unnamed tributaries to Hagood Creek	Black Warrior	F&W	Hagood Creek	Their source	1	7.57 miles	ONRW	
AL03160110-0102-700	Dry Creek	Black Warrior	F&W	Flannagin Creek	Its source	1	2.17 miles	ONRW	
AL03160110-0102-705	unnamed tributaries to Dry Creek	Black Warrior	F&W	Dry Creek	Their source	1	2.80 miles	ONRW	
AL03160110-0103-105	unnamed tributaries to Sipsey Fork	Black Warrior	F&W	Sipsey Fork	Their source	1	28.32 miles	ONRW	
AL03160110-0103-135	unnamed tributaries to Sweetwater Creek	Black Warrior	F&W	Sweetwater Creek	Their source	1	0.70 miles	ONRW	
AL03160110-0103-200	Payne Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	3.89 miles	ONRW	
AL03160110-0103-205	unnamed tributaries to Payne Creek	Black Warrior	F&W	Payne Creek	Their source	1	6.11 miles	ONRW	
AL03160110-0103-300	Caney Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	4.66 miles	ONRW	
AL03160110-0103-305	unnamed tributaries to Caney Creek	Black Warrior	F&W	Caney Creek	Their source	1	10.21 miles	ONRW	
AL03160110-0103-400	Hurricane Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	2.29 miles	ONRW	
AL03160110-0103-405	unnamed tributaries to Hurricane Creek	Black Warrior	F&W	Hurricane Creek	Their source	1	2.56 miles	ONRW	
AL03160110-0103-500	Davis Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	2.83 miles	ONRW	
AL03160110-0103-505	unnamed tributaries to Davis Creek	Black Warrior	F&W	Davis Creek	Their source	1	8.94 miles	ONRW	
AL03160110-0103-600	North Fork Caney Creek	Black Warrior	F&W	Caney Creek	Its source	1	6.38 miles	ONRW	
AL03160110-0103-605	unnamed tributaries to North Fork Caney Creek	Black Warrior	F&W	North Fork Caney Creek	Their source	1	19.65 miles	ONRW	
AL03160110-0103-700	South Fork Caney Creek	Black Warrior	F&W	Caney Creek	Its source	1	5.04 miles	ONRW	

Categorization of Alabama Waters

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego	Size	Type	Comment
AL03160110-0103-705	unnamed tributaries to South Fork Caney Creek	Black Warrior	F&W	South Fork Caney Creek	Their source	1	8.69 miles	ONRW	
AL03160110-0103-800	Lloyds Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	1.11 miles	ONRW	
AL03160110-0103-805	unnamed tributaries to Lloyds Creek	Black Warrior	F&W	Lloyds Creek	Their source	1	0.62 miles	ONRW	
AL03160110-0103-900	Sweetwater Creek	Black Warrior	F&W	Caney Creek	Its source	1	1.23 miles	ONRW	
AL03160110-0104-102	Sipsey Fork	Black Warrior	F&W	Grindstone Creek	Sandy Creek	1	0.89 miles		
AL03160110-0104-103	Sipsey Fork	Black Warrior	F&W	Sandy Creek	Its source	1	21.23 miles	ONRW	
AL03160110-0104-500	Sandy Creek	Black Warrior	F&W	Sipsey Fork	Its source	1	10.83 miles		
AL03160110-0201-200	Rush Creek	Black Warrior	F&W	Brushy Creek	Its source	1	9.06 miles		
AL03160110-0202-200	Capsey Creek	Black Warrior	F&W	Brushy Creek	Its source	1	13.47 miles		
AL03160110-0203-102	Brushy Creek	Black Warrior	PWS/F&W	Lake Lewis Smith	Highway 278	1	1.13 miles		
AL03160110-0203-110	Imman Creek	Black Warrior	F&W	Brushy Creek	Its source	1	5.79 miles		
AL03160110-0402-100	Rock Creek	Black Warrior	F&W	Blevens Creek	Its source	1	14.43 miles		
AL03160110-0407-100	Crooked Creek	Black Warrior	F&W	Rock Creek	end of embayment	1	7.35 miles		
AL03160110-0407-201	White Oak Creek	Black Warrior	F&W	Rock Creek	end of embayment	1	3.21 miles		
AL03160110-0407-202	White Oak Creek	Black Warrior	F&W	Lake Lewis Smith	Its source	1	7.72 miles		
AL03160110-0408-100	Rock Creek	Black Warrior	F&W	Sipsey Fork	end of embayment	1	17.36 miles		
AL03160110-0507-100	Sipsey Fork	Black Warrior	PWS/F&W	Mulberry Fork	Lewis Smith Dam	1	13.92 miles		
AL03160111-0202-102	Locust Fork	Black Warrior	F&W	Bount County Road 30	Its source	1	42.64 miles		
AL03160111-0206-101	Calvert Prong	Black Warrior	F&W	Little Warrior River	Whited Creek	1	13.05 miles		
AL03160111-0206-102	Calvert Prong	Black Warrior	PWS	Whited Creek	Its source	1	14.30 miles		
AL03160111-0207-102	Blackburn Fork	Black Warrior	PWS	Inland Lake	Highland Lake Dam	1	3.33 miles		
AL03160111-0207-104	Blackburn Fork	Black Warrior	PWS	Highland Lake	Its source	1	6.42 miles		
AL03160111-0208-100	Little Warrior River	Black Warrior	F&W	Locust Fork	Its source	1	6.98 miles		
AL03160111-0208-150	Hendrick Mill Branch	Black Warrior	F&W	Blackburn Fork	Its source	1	3.91 miles		
AL03160111-0208-200	Blackburn Fork	Black Warrior	F&W	Little Warrior River	Inland Lake Dam	1	11.63 miles		
AL03160111-0305-100	Gurley Creek	Black Warrior	F&W	Locust Fork	Its source	1	23.07 miles		
AL03160111-0412-100	Short Creek	Black Warrior	F&W	Locust Fork	Its source	1	9.34 miles		
AL03160112-0403-100	Binion Creek	Black Warrior	F&W	North River	Its source	1	18.07 miles		
AL03160112-0403-500	Barbee Creek	Black Warrior	F&W	Binion Creek	Its source	1	10.29 miles		
AL03160112-0404-600	Bear Creek	Black Warrior	F&W	North River	Its source	1	11.12 miles		
AL03160112-0404-800	Tyro Creek	Black Warrior	F&W	North River	Its source	1	12.67 miles		
AL03160113-0202-100	South Sandy Creek	Black Warrior	F&W	Big Sandy Creek	Its source	1	14.86 miles		
AL03160113-0401-103	Fivemile Creek	Black Warrior	F&W	Payne Lake	Its source	1	5.04 miles		
AL03150202-0102-100	Big Black Creek	Cahaba	F&W	Cahaba River	Its source	1	16.45 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03150202-0103-101	Little Cahaba River	Cahaba	PWS	Cahaba River	Lake Purdy dam	1	4.82 miles		
AL03150202-0103-103	Little Cahaba River	Cahaba	F&W	Head of Lake Purdy	Its source	1	13.75 miles		
AL03150202-0201-500	Little Shades Creek	Cahaba	F&W	Cahaba River	Its source	1	7.40 miles		
AL03150202-0202-102	Buck Creek	Cahaba	LWF	Cahaba Valley Creek	Shelby County Road 44	1	6.02 miles		
AL03150202-0302-201	Mud Creek	Cahaba	F&W	Shades Creek	Tannehill Iron Works	1	3.68 miles		
AL03150202-0401-200	Mayberry Creek	Cahaba	F&W	Shoal Creek	Its source	1	8.51 miles		
AL03150202-0404-100	Little Cahaba River	Cahaba	OA W/F&W	Cahaba River	Its source	1	16.54 miles		
AL03150202-0404-300	Fourmile Creek	Cahaba	F&W	Little Cahaba River	Its source	1	5.64 miles		
AL03150202-0603-200	Goose Creek	Cahaba	F&W	Cahaba River	Its source	1	7.67 miles		
AL03150202-0702-400	Silver Creek	Cahaba	F&W	Cahaba River	Its source	1	3.76 miles		
AL03150202-0802-700	Holsombeck Creek	Cahaba	F&W	Oakmulgee Creek	Its source	1	5.55 miles		
AL03150202-0804-100	Little Oakmulgee Creek	Cahaba	S	Oakmulgee Creek	Its source	1	18.69 miles		
AL03150202-0902-100	Cahaba River	Cahaba	OA W/S	Alabama River	Alabama Highway 82	1	89.50 miles		
AL03130002-0806-102	Wehadkee Creek	Chattahoochee	F&W	Alabama-Georgia state line	Its source	1	24.66 miles		
AL03130002-0901-200	Finley Creek	Chattahoochee	F&W	Oselige Creek	Its source	1	4.72 miles		
AL03130002-0902-100	Wells Creek	Chattahoochee	F&W	Oselige Creek	Its source	1	12.60 miles		
AL03130002-0903-400	Barrow Creek	Chattahoochee	F&W	Oselige Creek	Its source	1	7.54 miles		
AL03130002-0908-101	Chattahoochee River	Chattahoochee	F&W	Johnson Island	West Point Manufacturing Company water supply intake at Lanett	1	12.56 miles		
AL03130002-0908-102	Chattahoochee River	Chattahoochee	PWS	West Point Manufacturing Company water supply intake at Lanett	West Point Dam	1	4.20 miles		
AL03130002-1104-100	Wildcat Creek	Chattahoochee	F&W	Osanippa Creek	Its source	1	7.15 miles		
AL03130002-1104-200	Snapper Creek	Chattahoochee	F&W	Wildcat Creek	Its source	1	13.10 miles		
AL03130002-1106-100	Halawakee Creek	Chattahoochee	F&W	Three miles upstream of County Road 79	Its source	1	16.57 miles		
AL03130002-1107-100	Osanippa Creek	Chattahoochee	F&W	Chattahoochee River	Its source	1	29.20 miles		
AL03130002-1108-100	Halawakee Creek	Chattahoochee	PWS/F&W	Chattahoochee River	Three miles upstream of County Road 79	1	8.53 miles		
AL03130003-0502-600	Adams Branch	Chattahoochee	F&W	Uchee Creek	Its source	1	6.55 miles		
AL03130003-0605-100	Ihagee Creek	Chattahoochee	S/F&W	Chattahoochee River	Its source	1	15.18 miles		
AL03130003-0802-102	Hatchechubbee Creek	Chattahoochee	F&W	Russell County Highway 4	Its source	1	16.47 miles		
AL03130003-0804-100	Hatchechubbee Creek	Chattahoochee	S/F&W	Chattahoochee River	Russell County Highway 4	1	13.95 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03130003-1103-100	Middle Fork of Cowikee Creek	Chattahoochee	S/F&W	North Fork of Cowikee Creek	Its source	1	44.57 miles		
AL03130003-1204-100	South Fork of Cowikee Creek	Chattahoochee	S/F&W	Cowikee Creek	Its source	1	31.03 miles		
AL03130003-1205-200	North Fork of Cowikee Creek	Chattahoochee	F&W	Cowikee Creek	Its source	1	42.65 miles		
AL03130004-0104-100	McRae Mill Creek	Chattahoochee	F&W	Chattahoochee River	Its source	1	7.62 miles		
AL03130004-0206-100	Bennett Mill Creek	Chattahoochee	F&W	Chattahoochee River	Its source	1	5.88 miles		
AL03130004-0701-100	Cedar Creek	Chattahoochee	F&W	Chattahoochee River	Its source	1	11.51 miles		
AL03140201-0205-100	East Fork Chocatawhatchee River	Chocatawhatchee	S/F&W	Blackwood Creek	Its source	1	44.47 miles		
AL03140201-0208-100	East Fork Chocatawhatchee River	Chocatawhatchee	F&W	Chocatawhatchee River	Blackwood Creek	1	7.60 miles		
AL03140201-0208-300	Seabes Creek	Chocatawhatchee	F&W	East Fork Chocatawhatchee River	Its source	1	7.08 miles		
AL03140201-0603-100	Bear Creek	Chocatawhatchee	F&W	Little Chocatawhatchee River	Its source	1	10.28 miles		
AL03140202-0106-100	Dry Creek	Chocatawhatchee	F&W	Pea River	Its source	1	6.29 miles		
AL03140202-0404-100	Clearwater Creek	Chocatawhatchee	F&W	Pea River	Its source	1	10.07 miles		
AL03140202-0502-101	Walnut Creek	Chocatawhatchee	F&W	Whitewater Creek	Pike County Road 59	1	3.58 miles		
AL03140202-0502-103	Walnut Creek	Chocatawhatchee	F&W	Walters Branch	Its source	1	6.50 miles		
AL03140202-0509-100	Whitewater Creek	Chocatawhatchee	F&W	Pea River	Its source	1	41.95 miles		
AL03140202-0905-100	Pea River	Chocatawhatchee	F&W	Chocatawhatchee River	Its source	1	157.23 miles		
AL03150105-0702-101	Middle Fork Little River	Coosa	PWS/S/F&W	East Fork Little River	Alabama-Georgia state line	1	2.44 miles	ONRW	
AL03150105-0702-200	Brush Creek	Coosa	PWS/S/F&W	Middle Fork Little River	Its source	1	3.03 miles	ONRW	
AL03150105-0702-300	Anna Branch	Coosa	PWS/S/F&W	Middle Fork Little River	Its source	1	2.18 miles	ONRW	
AL03150105-0702-400	Balock Branch	Coosa	PWS/S/F&W	Anna Branch	Its source	1	3.46 miles	ONRW	
AL03150105-0702-500	Sillhouse Branch	Coosa	PWS/S/F&W	Balock Branch	Its source	1	1.09 miles	ONRW	
AL03150105-0703-100	East Fork Little River	Coosa	PWS/S/F&W	Little River	Its source	1	9.55 miles	ONRW	
AL03150105-0703-200	Laurel Creek	Coosa	PWS/S/F&W	East Fork Little River	Its source	1	3.97 miles	ONRW	
AL03150105-0703-300	Gilbert Branch	Coosa	PWS/S/F&W	East Fork Little River	Its source	1	1.83 miles	ONRW	
AL03150105-0703-400	Shrader Branch	Coosa	PWS/S/F&W	Laurel Creek	Its source	1	1.95 miles	ONRW	
AL03150105-0703-500	Armstrong Branch	Coosa	PWS/S/F&W	Laurel Creek	Its source	1	1.75 miles	ONRW	
AL03150105-0704-201	East Fork West Fork Little River	Coosa	PWS/S/F&W	West Fork Little River	Alabama-Georgia state line	1	0.47 miles	ONRW	
AL03150105-0705-100	West Fork Little River	Coosa	PWS/S/F&W	Little River	Alabama-Georgia state line	1	18.87 miles	ONRW	
AL03150105-0705-200	Straight Creek	Coosa	PWS/S/F&W	West Fork Little River	Its source	1	4.45 miles	ONRW	

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03150105-0705-300	Sharp Branch	Coosa	PWS/S/F&W	West Fork Little River	Its source	1	1.39	miles	ONRW
AL03150105-0705-400	Seymour Branch	Coosa	PWS/S/F&W	West Fork Little River	Its source	1	2.48	miles	ONRW
AL03150105-0801-200	Hurricane Creek	Coosa	PWS/S/F&W	Little River	Its source	1	6.67	miles	ONRW
AL03150105-0802-100	Yellow Creek	Coosa	PWS/S/F&W	Little River	Its source	1	7.06	miles	ONRW
AL03150105-0802-200	Straight Creek	Coosa	PWS/S/F&W	Yellow Creek	Its source	1	3.03	miles	ONRW
AL03150105-0803-100	Bear Creek	Coosa	PWS/S/F&W	Little River	Its source	1	8.67	miles	ONRW
AL03150105-0803-200	Falls Branch	Coosa	PWS/S/F&W	Bear Creek	Its source	1	2.47	miles	ONRW
AL03150105-0803-300	Hicks Creek	Coosa	PWS/S/F&W	Bear Creek	Its source	1	3.42	miles	ONRW
AL03150105-0804-100	Johnnies Creek	Coosa	PWS/S/F&W	Little River	Its source	1	11.63	miles	ONRW
AL03150105-0804-200	Camprock Creek	Coosa	PWS/S/F&W	Johnnies Creek	Its source	1	3.40	miles	ONRW
AL03150105-0804-300	Dry Creek	Coosa	PWS/S/F&W	Johnnies Creek	Its source	1	2.37	miles	ONRW
AL03150105-0805-100	Wolf Creek	Coosa	PWS/S/F&W	Little River	Its source	1	9.51	miles	ONRW
AL03150105-0806-100	Little River	Coosa	PWS/S/F&W	Coosa River	Its source	1	21.82	miles	ONRW
AL03150105-0806-200	Brooks Branch	Coosa	PWS/S/F&W	Little River	Its source	1	1.68	miles	ONRW
AL03150106-0305-100	Little Canoe Creek	Coosa	F&W	Big Canoe Creek	Its source	1	19.88	miles	
AL03150106-0601-600	Dry Creek	Coosa	F&W	Choccolocco Creek	Its source	1	4.03	miles	
AL03150106-0602-101	Shoal Creek	Coosa	S/F&W	Choccolocco Creek	Whitesides Mill Lake	1	1.55	miles	
AL03150106-0602-103	Shoal Creek	Coosa	S/F&W	Whitesides Mill Lake	Sweetwater Lake	1	10.15	miles	
AL03150106-0602-106	Shoal Creek	Coosa	F&W	Sweetwater Lake	Its source	1	5.71	miles	
AL03150106-0603-100	Choccolocco Creek	Coosa	F&W	Hillabee Creek	Its source	1	38.14	miles	
AL03150106-0608-103	Cheaha Creek	Coosa	F&W	Lake Chinnabee	Its source	1	4.86	miles	
AL03150106-0610-100	Cheaha Creek	Coosa	S/F&W	Choccolocco Creek	Lake Chinnabee	1	17.67	miles	
AL03150106-0701-102	Talladega Creek	Coosa	PWS/F&W	Mump Creek	Its source	1	23.21	miles	
AL03150106-0702-102	Talladega Creek	Coosa	PWS/F&W	Drivers Branch	Mump Creek	1	6.67	miles	
AL03150106-0703-100	Talladega Creek	Coosa	F&W	Coosa River	Drivers Branch	1	30.62	miles	
AL03150106-0805-100	Wolf Creek	Coosa	F&W	Kelly Creek	Its source	1	16.70	miles	
AL03150107-0305-200	Fourmile Creek	Coosa	F&W	Yellowleaf Creek	Its source	1	10.90	miles	
AL03150107-0403-100	Paint Creek	Coosa	F&W	Coosa River	Its source	1	19.31	miles	
AL03150107-0703-100	Weogufka Creek	Coosa	S/F&W	Hatchet Creek	Its source	1	49.05	miles	
AL03150107-0801-300	East Fork Hatchet Creek	Coosa	OAW/F&W	Hatchet Creek	Its source	1	5.30	miles	
AL03150107-0801-400	West Fork Hatchet Creek	Coosa	OAW/F&W	Hatchet Creek	Its source	1	7.71	miles	
AL03150107-0802-100	Hatchet Creek	Coosa	OAW/PWS/S/F&W	Wildcat Creek	Its source	1	18.87	miles	
AL03150107-0806-300	Jones Creek	Coosa	F&W	Hatchet Creek	Its source	1	5.22	miles	
AL03150107-0807-100	Hatchet Creek	Coosa	OAW/S/F&W	Coosa River	Wildcat Creek	1	43.20	miles	
AL03170008-0401-100	Big Creek	Escatawpa	PWS/F&W	Collins Creek	Its source	1	13.33	miles	

Categorization of Alabama Waters

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03170008-0402-200	Hamilton Creek	Escatawpa	F&W	Big Creek	Its source	1	7.78 miles		
AL03170008-0501-200	Pasture Creek	Escatawpa	F&W	Big Creek	Its source	1	8.47 miles		
AL03170008-0502-400	Deakle Creek	Escatawpa	F&W	Miller Creek	Its source	1	6.37 miles		
AL03170008-0503-100	Big Creek	Escatawpa	F&W	Alabama-Mississippi state line	Big Creek Reservoir	1	14.55 miles		
AL03170008-0601-100	Jackson Creek	Escatawpa	F&W	Alabama-Mississippi state line	Its source	1	14.03 miles		
AL03160204-0101-100	Mobile River	Mobile	F&W	Tensaw River	Its source	1	5.72 miles		
AL03160204-0102-100	Halls Creek	Mobile	F&W	Tensaw Lake	Its source	1	11.93 miles		
AL03140103-0204-100	Clear Creek	Perdido-Escambia	F&W	Yellow River	Its source	1	13.99 miles		
AL03140104-0102-100	Bear Creek	Perdido-Escambia	F&W	Panther Creek	Its source	1	10.70 miles		
AL03140107-0204-100	Intracoastal Waterway	Perdido-Escambia	F&W	Alabama Highway 59	Wolf Bay	1	5.08 miles		
AL03140302-0502-100	Piney Woods Creek	Perdido-Escambia	F&W	Patsaliga Creek	Its source	1	13.59 miles		
AL03150109-0104-100	Cornhouse Creek	Tallahpoosa	F&W	Tallahpoosa River	Its source	1	19.53 miles		
AL03150109-0106-400	Hurricane Creek	Tallahpoosa	F&W	Tallahpoosa River	Its source	1	11.67 miles		
AL03150109-0208-100	Emuckfaw Creek	Tallahpoosa	F&W	Tallahpoosa River	Its source	1	23.66 miles		
AL03150109-0301-200	Little Chatahoopee Creek	Tallahpoosa	F&W	Chatahoopee Creek	Its source	1	14.20 miles		
AL03150109-0503-400	Sugar Creek	Tallahpoosa	F&W	Elkahatchee Creek	Its source	1	5.88 miles		
AL03150110-0102-100	Channahatchee Creek	Tallahpoosa	F&W	Tallahpoosa River	Its source	1	19.38 miles		
AL03150110-0302-200	Long Branch	Tallahpoosa	F&W	Chewacla Creek	Its source	1	12.26 miles		
AL03150110-0504-102	Calebee Creek	Tallahpoosa	F&W	Macon County Road 9	Its source	1	36.95 miles		
AL03150110-0901-100	Line Creek	Tallahpoosa	F&W	Panther Creek	Its source	1	34.78 miles		
AL06030001-0405-100	Bryant Creek	Tennessee	F&W	Jones Creek	Its source	1	12.96 miles		
AL06030002-0303-102	Flint River	Tennessee	F&W	Mountain Fork	Alabama-Tennessee state line	1	16.99 miles		
AL06030002-0401-101	Flint River	Tennessee	F&W	Hurricane Creek	Alabama Highway 72 line	1	7.14 miles		
AL06030002-0403-102	Hurricane Creek	Tennessee	F&W	Gurley Pike Road	Its source	1	18.11 miles		
AL06030002-0404-102	Flint River	Tennessee	PWS/F&W	Big Cove Creek	Hurricane Creek	1	8.04 miles		
AL06030002-0405-100	Flint River	Tennessee	F&W	Tennessee River	Big Cove Creek	1	21.53 miles		
AL06030002-0906-300	Limestone Creek	Tennessee	F&W	Tennessee River	Alabama-Tennessee state line	1	49.15 miles		
AL06030002-1204-101	Second Creek	Tennessee	S/F&W	Tennessee River	First bridge upstream from US Highway 72	1	5.71 miles		
AL06030002-1204-102	Second Creek	Tennessee	F&W	First bridge upstream from US Highway 72	Lauderdale County Road 76	1	2.34 miles		
AL06030005-0410-800	Indiancamp Creek	Tennessee	F&W	Shoal Creek	Its source	1	5.98 miles		
AL03160203-0201-100	Uicanush Creek	Tombigbee (Lower)	F&W	Tombigbee River	Its source	1	8.02 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03160103-0202-200	Cantrell Mill Creek	Tombigbee (Upper)	F&W	Buttahatchee River	Its source	1	7.11 miles		
AL03160103-0204-201	Purgatory Creek	Tombigbee (Upper)	F&W	Beaver Creek	Wickett Creek	1	0.44 miles		
AL03160106-0504-200	Little Bear Creek	Tombigbee (Upper)	F&W	Bear Creek	Its source	1	7.67 miles		
AL03160106-0506-100	Bear Creek	Tombigbee (Upper)	F&W	Lubbub Creek	Its source	1	31.08 miles		
AL03160106-0507-100	Blubber Creek	Tombigbee (Upper)	F&W	Lubbub Creek	Its source	1	18.23 miles		
AL03160106-0608-600	Jones Creek	Tombigbee (Upper)	F&W	Tombigbee River	Its source	1	14.18 miles		
AL03160201-0102-400	Poplar Creek	Tombigbee (Upper)	F&W	Chickasaw Bogue	Its source	1	8.12 miles		
AL03160201-0108-100	Chickasaw Bogue	Tombigbee (Upper)	F&W	Tombigbee River	Its source	1	40.24 miles		

Category 1 Lakes and Reservoirs

AL03150201-0501-100	Alabama River	Alabama	F&W	Pintalla Creek	Autauga Creek	1	1702.40 acres		
AL03150201-0706-100	Alabama River	Alabama	S/F&W	Robert F. Henry Lock and Dam	Pintalla Creek	1	6156.78 acres		
AL03150201-1101-102	Valley Creek Lake	Alabama	S/F&W	Within Paul M. Grist State Park		1	64.00 acres		
AL03150203-0701-100	Alabama River	Alabama	S/F&W	Millers Ferry Lock and Dam	Chilatchee Creek	1	11180.76 acres		
AL03160110-0301-102	Clear Creek	Black Warrior	PWS	City of Haleyville water supply reservoir dam	Its source	1	21.30 acres		
AL03160110-0506-101	Sipsey Fork	Black Warrior	PWS/S/S/F&W	Lewis Smith Dam	Three miles upstream from Lewis Smith Dam	1	1269.96 acres		
AL03160110-0506-102	Sipsey Fork	Black Warrior	S/F&W	Three miles upstream from Lewis Smith Dam	Grindstone Creek	1	18392.26 acres		
AL03160111-0207-101	Blackburn Fork	Black Warrior	PWS	Inland Lake Dam	end of embayment	1	1676.79 acres		Inland Lake
AL03160111-0207-103	Blackburn Fork	Black Warrior	PWS	Highland Lake Dam	end of embayment	1	377.60 acres		Highland Lake
AL03160112-0203-100	Black Warrior River	Black Warrior	PWS/S/S/F&W	Bankhead Lock and Dam	Its source	1	4934.38 acres		
AL03160112-0305-100	Black Warrior River	Black Warrior	S/F&W	Holt Lock and Dam	Bankhead Lock and Dam	1	3769.58 acres		
AL03160112-0504-101	Black Warrior River	Black Warrior	F&W	Oliver Lock and Dam	Hurricane Creek	1	665.60 acres		
AL03160112-0504-102	Black Warrior River	Black Warrior	S/F&W	Hurricane Creek	Holt Lock and Dam	1	70.40 acres		
AL03160113-0401-102	Fivemile Creek	Black Warrior	S	Payne Lake		1	134.40 acres		Payne Lake
AL03150202-0103-102	Little Cahaba River	Cahaba	PWS	Lake Purdy dam	Head of Lake Purdy	1	961.95 acres		
AL03150202-0202-110	Oak Mountain State Park Lakes	Cahaba	PWS	Within Oak Mountain State Park		1	166.73 acres		
AL03130002-0808-101	Chattahoochee River	Chattahoochee	PWS	West Point Dam	West Point Lake Limits in Alabama	1	2201.43 acres		West Point Lake
AL03130002-1109-101	Chattahoochee River	Chattahoochee	PWS/S/F&W	Bartlett's Ferry Dam	Osanippa Creek	1	2327.29 acres		Harding Lake
AL03130002-1109-102	Chattahoochee River	Chattahoochee	F&W	Osanippa Creek	Johnson Island	1	200.89 acres		Harding Lake

Categorization of Alabama Waters

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03130002-1306-101	Chattahoochee River	Chattahoochee	PWS/S/F&W	Oliver Dam	Goat Rock Dam	1	334.30	acres	Oliver Lake
AL03130002-1306-102	Chattahoochee River	Chattahoochee	PWS/S/F&W	Goat Rock Dam	Bartlett's Ferry Dam	1	131.20	acres	Goat Rock Lake
AL03150106-0602-102	Shoal Creek	Coosa	PWS/S/F&W	Whitesides Mill Lake		1	251.75	acres	Whitesides Mill Lake
AL03150106-0602-104	Shoal Creek	Coosa	PWS/S/F&W	Sweetwater Lake		1	54.97	acres	Sweetwater Lake
AL03150106-0608-102	Cheaha Creek	Coosa	S/F&W	Lake Chinnabee		1	13.94	acres	Chinnabee Lake
AL03150107-0901-100	Coosa River	Coosa	S/F&W	Jordan Dam	Mitchell Dam	1	6043.89	acres	Jordan Lake
AL03170008-0402-100	Big Creek	Escatawpa	PWS/F&W	Big Creek Reservoir	Collins Creek	1	3309.31	acres	Big Creek Lake

Category 2 Rivers and Streams

AL03150201-0407-100	Pintalla Creek	Alabama	S/F&W	Alabama River	Pinchony Creek	2A	24.91	miles	
AL03150201-0802-200	Lake Creek	Alabama	F&W	Fort Deposit Creek	Its source	2A	8.79	miles	
AL03150203-0302-100	Washington Creek	Alabama	F&W	Bogue Chitto Creek	Its source	2A	16.20	miles	
AL03160109-0101-700	Warrior Creek	Black Warrior	F&W	Mulberry Fork	Its source	2A	4.28	miles	
AL03160109-0102-900	Pan Creek	Black Warrior	F&W	Mulberry Fork	Its source	2A	10.67	miles	
AL03160109-0104-100	Duck River	Black Warrior	F&W	Mulberry Fork	Its source	2A	19.28	miles	
AL03160109-0108-100	Blue Springs Creek	Black Warrior	F&W	Mulberry Fork	Its source	2A	13.97	miles	
AL03160109-0205-100	Dorsey Creek	Black Warrior	F&W	Mulberry Fork	Its source	2A	18.04	miles	
AL03160109-0207-500	Sloan Creek	Black Warrior	F&W	Mulberry Fork	Its source	2A	5.62	miles	
AL03160109-0309-100	Blackwater Creek	Black Warrior	F&W	Mulberry Fork	Its source	2A	70.05	miles	
AL03160110-0203-103	Brushy Creek	Black Warrior	F&W	Highway 278	Its source	2A	29.85	miles	
AL03160110-0301-200	Little Clear Creek	Black Warrior	F&W	Clear Creek	Its source	2A	11.53	miles	
AL03160110-0302-100	Right Fork Clear Creek	Black Warrior	F&W	Clear Creek	Its source	2A	15.61	miles	
AL03160110-0303-100	Widows Creek	Black Warrior	F&W	Clear Creek	Its source	2A	7.35	miles	
AL03160110-0305-200	Clear Creek	Black Warrior	F&W	Lake Lewis Smith	City of Haleyville water supply reservoir dam	2A	44.98	miles	
AL03160110-0401-100	Blevens Creek	Black Warrior	F&W	Rock Creek	Its source	2A	19.14	miles	
AL03160111-0302-100	Longs Branch	Black Warrior	F&W	Locust Fork	Its source	2A	7.87	miles	
AL03160111-0308-100	Turkey Creek	Black Warrior	F&W	Locust Fork	Its source	2A	25.34	miles	
AL03160112-0102-100	Valley Creek	Black Warrior	LWF	Blue Creek	19th Street North (Bessmer)	2A	10.80	miles	
AL03160112-0105-102	Mud Creek	Black Warrior	F&W	Big Branch	Its source	2A	7.70	miles	
AL03160112-0201-500	Little Yellow Creek	Black Warrior	F&W	Big Yellow Creek	Its source	2A	10.65	miles	
AL03160112-0301-400	Jock Creek	Black Warrior	F&W	Blue Creek	Its source	2A	2.21	miles	
AL03160113-0502-100	Polecat Creek	Black Warrior	F&W	Big Brush Creek	Its source	2A	14.02	miles	

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03160113-0707-100	Big Prarie Creek	Black Warrior	F&W	Black Warrior River	Its source	2A	44.16	miles	
AL03160113-0802-200	Needham Creek	Black Warrior	F&W	Dollarthide Creek	Its source	2A	8.96	miles	
AL03150202-0202-800	Dry Brook	Cahaba	F&W	Cahaba Valley Creek	Its source	2A	3.49	miles	
AL03150202-0203-500	Piney Woods Creek	Cahaba	F&W	Cahaba River	Its source	2A	7.64	miles	
AL03150202-0405-300	Caffee Creek	Cahaba	F&W	Cahaba River	Its source	2A	17.88	miles	
AL03150202-0405-800	Cane Creek	Cahaba	F&W	Cahaba River	Its source	2A	10.38	miles	
AL03130003-1002-100	Hurstboro Creek	Chattahoochee	A&I	North Fork of Cowikee Creek	Its source	2A	17.51	miles	
AL03130004-0601-500	Cedar Creek	Chattahoochee	F&W	Omusee Creek	Its source	2A	4.04	miles	
AL03140201-0204-200	Deal Creek	Choctawhatchee	F&W	East Fork Choctawhatchee River	Its source	2A	6.58	miles	
AL03140201-0207-300	Dunham Creek	Choctawhatchee	F&W	Blackwood Creek	Its source	2A	3.81	miles	
AL03140202-0601-200	Patrick Creek	Choctawhatchee	F&W	Beaverdam Creek	Its source	2A	5.18	miles	
AL03150106-0306-100	Big Canoe Creek	Coosa	F&W	Coosa River	Its source	2A	57.29	miles	
AL03150106-0307-100	Beaver Creek	Coosa	F&W	Coosa River	Its source	2A	29.37	miles	
AL03150106-0405-100	Ohatchee Creek	Coosa	S/F&W	Coosa River	Its source	2A	27.22	miles	
AL03150106-0407-100	Cane Creek	Coosa	F&W	Coosa River	Its source	2A	31.82	miles	
AL03150107-0907-500	Fourmile Creek	Coosa	F&W	Taylor Creek	Its source	2A	5.67	miles	
AL03160205-0307-400	Turkey Branch	Mobile	F&W	Fish River	Its source	2A	6.69	miles	
AL03160205-0307-500	Waterhole Branch	Mobile	F&W	Fish River	Its source	2A	7.22	miles	
AL03160205-0308-400	Weeks Creek	Mobile	F&W	Magnolia River	Its source	2A	3.58	miles	
AL03160205-0308-500	Schoolhouse Branch	Mobile	F&W	Magnolia River	Its source	2A	3.83	miles	
AL03140304-0101-200	Folley Creek	Perdido-Escambia	F&W	Conecuh River	Its source	2A	3.68	miles	
AL06030002-0302-100	West Fork Flint River	Tennessee	F&W	Flint River	Its source	2A	1.76	miles	
AL06030002-1202-200	Neeley Branch	Tennessee	F&W	First Creek	Its source	2A	3.61	miles	
AL06030006-0103-104	Bear Creek	Tennessee	PW/S/S/F&W	Upper Bear Creek Dam	Alabama Highway 243	2A	15.44	miles	
AL03160201-0903-102	Wahalak Creek	Tombigbee (Lower)	F&W	Spear Creek	Its source	2A	10.69	miles	
AL03160103-0202-400	Clark Creek	Tombigbee (Upper)	F&W	Buttahatchee River	Its source	2A	3.86	miles	
AL03150201-0103-100	Mortar Creek	Alabama	F&W	Alabama River	Its source	2B	23.99	miles	
AL03150201-0105-500	Pierce Creek	Alabama	F&W	Mill Creek	Its source	2B	3.42	miles	
AL03150201-0203-101	Autauga Creek	Alabama	F&W	Alabama River	Matthews Branch	2B	7.28	miles	
AL03150201-0303-100	Little Catoma Creek	Alabama	F&W	Catoma Creek	Its source	2B	28.99	miles	
AL03150201-0304-100	Catoma Creek	Alabama	F&W	Ramner Creek	Its source	2B	21.50	miles	
AL03150201-0305-100	Waller Creek	Alabama	F&W	Ramner Creek	Its source	2B	12.16	miles	
AL03150201-0306-100	Ramner Creek	Alabama	F&W	Catoma Creek	Its source	2B	22.37	miles	

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03150201-0501-200	Noland Creek	Alabama	F&W	Alabama River	Its source	2B	9.99 miles		
AL03150201-0502-100	Tallawassee Creek	Alabama	F&W	Alabama River	Its source	2B	16.93 miles		
AL03150201-0601-400	Indian Creek	Alabama	F&W	Swift Creek	Its source	2B	4.77 miles		
AL03150201-0704-100	Beaver Creek	Alabama	F&W	Alabama River	Its source	2B	10.19 miles		
AL03150201-0705-100	Ivy Creek	Alabama	F&W	Alabama River	Its source	2B	15.51 miles		
AL03150201-0801-500	Cherry Creek	Alabama	F&W	Big Swamp Creek	Its source	2B	7.71 miles		
AL03150201-0802-100	Fort Deposit Creek	Alabama	F&W	Big Swamp Creek	Its source	2B	13.52 miles		
AL03150201-0807-100	Big Swamp Creek	Alabama	S/F&W	Alabama River	Its source	2B	56.45 miles		
AL03150201-1002-100	Little Mulberry Creek	Alabama	F&W	Mulberry Creek	Its source	2B	4.92 miles		
AL03150201-1002-300	Morgan Creek	Alabama	F&W	Little Mulberry Creek	Its source	2B	6.66 miles		
AL03150201-1005-101	Mulberry Creek	Alabama	S/F&W	Alabama River	Harris Branch	2B	22.07 miles		
AL03150203-0106-100	Dry Cedar Creek	Alabama	F&W	Cedar Creek	Its source	2B	26.40 miles		
AL03150203-0106-300	Sullivan Branch	Alabama	F&W	Dry Cedar Creek	Its source	2B	7.73 miles		
AL03150203-0107-100	Mush Creek	Alabama	F&W	Cedar Creek	Its source	2B	22.23 miles		
AL03150203-0305-100	Mud Creek	Alabama	F&W	Bogue Chitto Creek	Its source	2B	19.03 miles		
AL03150203-0306-200	Tatum Creek	Alabama	F&W	Bogue Chitto Creek	Its source	2B	10.55 miles		
AL03150203-0307-100	Bear Creek	Alabama	F&W	Bogue Chitto Creek	Its source	2B	15.23 miles		
AL03150203-0308-100	Bogue Chitto Creek	Alabama	F&W	Alabama River	Its source	2B	55.56 miles		
AL03150203-0401-200	Rogers Creek	Alabama	F&W	Chilatchee Creek	Its source	2B	12.82 miles		
AL03150203-0401-300	Sand Creek	Alabama	F&W	Chilatchee Creek	Its source	2B	12.71 miles		
AL03150203-0401-500	Glover Creek	Alabama	F&W	Sand Creek	Its source	2B	4.48 miles		
AL03150203-0402-200	Chilatchee Creek	Alabama	S/F&W	Alabama River	Its source	2B	38.25 miles		
AL03150203-0402-500	Little Chilatchee Creek	Alabama	F&W	Chilatchee Creek	Its source	2B	11.39 miles		
AL03150203-0503-100	Bear Creek	Alabama	F&W	Pine Barren Creek	Its source	2B	24.36 miles		
AL03150203-0604-100	Beaver Creek	Alabama	F&W	Alabama River	Its source	2B	31.03 miles		
AL03150203-0703-102	Alabama River	Alabama	PWS	Rockwest Creek	Millers Ferry Lock and Dam	2B	4.40 miles		
AL03150204-0101-100	Tallatchee Creek	Alabama	F&W	Alabama River	Its source	2B	20.89 miles		
AL03150204-0403-100	Lovett's Creek	Alabama	F&W	Randons Creek	Its source	2B	14.93 miles		
AL03150204-0404-100	Randons Creek	Alabama	F&W	Alabama River	Its source	2B	16.50 miles		
AL03150204-0404-300	Bear Creek	Alabama	F&W	Randons Creek	Its source	2B	9.67 miles		
AL03150204-0501-400	Baileys Creek	Alabama	F&W	Alabama River	Its source	2B	9.12 miles		
AL03150204-0502-100	Wallers Creek	Alabama	F&W	Alabama River	Its source	2B	15.10 miles		
AL03150204-0504-500	Shomo Creek	Alabama	F&W	Alabama River	Its source	2B	10.93 miles		
AL03150204-0601-300	Butterfork Creek	Alabama	F&W	Little River	Its source	2B	7.50 miles		
AL03150204-0601-501	Chitterling Creek	Alabama	F&W	Little River	Little River Lake	2B	0.35 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03150204-0601-503	Chitterling Creek	Alabama	F&W	Little River Lake	Its source	2B	4.34 miles		
AL03150204-0603-100	Little River	Alabama	S/F&W	Alabama River	Its source	2B	31.63 miles		
AL03160109-0102-102	Mulberry Fork	Black Warrior	F&W	Blount County Road 6	Its source	2B	14.74 miles		
AL03160109-0201-101	Mud Creek	Black Warrior	F&W	Mulberry Fork	Alabama Highway 31	2B	4.34 miles		
AL03160109-0206-200	Sullivan Creek	Black Warrior	F&W	Mulberry Fork	Its source	2B	8.20 miles		
AL03160109-0301-100	Spring Creek	Black Warrior	F&W	Blackwater Creek	Its source	2B	7.90 miles		
AL03160109-0302-100	Splunge Creek	Black Warrior	F&W	Blackwater Creek	Its source	2B	20.11 miles		
AL03160109-0402-102	Lost Creek	Black Warrior	F&W	US Highway 78 north of Cedrum	Its source	2B	8.99 miles		
AL03160109-0403-102	Lost Creek	Black Warrior	F&W	Alabama Highway 69 at Oakman Hill	US Highway 78 at Carbon Hill	2B	1.23 miles		
AL03160109-0405-103	Lost Creek	Black Warrior	F&W	Cane Creek	Mill dam at Cedrum	2B	14.52 miles		
AL03160109-0501-102	Wolf Creek	Black Warrior	F&W	Alabama Highway 102	Its source	2B	5.28 miles		
AL03160110-0507-110	Little Mill Creek	Black Warrior	F&W	Mill Creek	Its source	2B	6.01 miles		
AL03160110-0507-700	Mill Creek	Black Warrior	F&W	Sipsey Fork	Its source	2B	12.99 miles		
AL03160111-0102-100	Bristow Creek	Black Warrior	F&W	Locust Fork	Its source	2B	9.51 miles		
AL03160111-0103-100	Clear Creek	Black Warrior	F&W	Locust Fork	Its source	2B	16.40 miles		
AL03160111-0107-100	Slab Creek	Black Warrior	F&W	Locust Fork	Its source	2B	24.98 miles		
AL03160111-0107-800	Little Reedbrake Creek	Black Warrior	F&W	Slab Creek	Its source	2B	2.92 miles		
AL03160111-0201-100	Wynnvile Creek	Black Warrior	F&W	Locust Fork	Its source	2B	5.98 miles		
AL03160111-0304-200	Sand Valley Creek	Black Warrior	F&W	Gurley Creek	Its source	2B	5.55 miles		
AL03160111-0305-201	Self Creek	Black Warrior	F&W	Gurley Creek	Alabama Highway 79	2B	8.55 miles		
AL03160111-0305-202	Self Creek	Black Warrior	PWS	Alabama Highway 79	Its source	2B	4.14 miles		
AL03160111-0402-100	Crooked Creek	Black Warrior	F&W	Locust Fork	Its source	2B	10.03 miles		
AL03160111-0404-500	Ward Creek	Black Warrior	F&W	Locust Fork	Its source	2B	6.65 miles		
AL03160111-0409-100	Village Creek	Black Warrior	F&W	Locust Fork	Bayview Lake Dam	2B	17.90 miles		
AL03160111-0413-101	Locust Fork	Black Warrior	PWS/S/F&W	Junction of Locust and Mulberry Forks	Jefferson County Highway 61	2B	6.88 miles		
AL03160111-0413-102	Locust Fork	Black Warrior	F&W	Jefferson County Highway 61	Jefferson County Road 77	2B	36.32 miles		
AL03160112-0101-102	Valley Creek	Black Warrior	LWF	Opossum Creek	Its source	2B	13.53 miles		
AL03160112-0103-300	Lick Creek	Black Warrior	F&W	Valley Creek	Its source	2B	8.13 miles		
AL03160112-0202-200	Clifty Creek	Black Warrior	F&W	Big Yellow Creek	Its source	2B	4.91 miles		
AL03160112-0301-300	Little Bear Creek	Black Warrior	F&W	Blue Creek	Its source	2B	3.48 miles		
AL03160112-0302-100	Davis Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	39.00 miles		
AL03160112-0302-300	Prudes Creek	Black Warrior	F&W	Davis Creek	Its source	2B	3.78 miles		
AL03160112-0302-800	Hanna Mill Creek	Black Warrior	F&W	Davis Creek	Its source	2B	4.62 miles		
AL03160112-0401-102	North River	Black Warrior	F&W	Ellis Creek	Its source	2B	16.39 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03160112-0401-201	Clear Creek	Black Warrior	F&W	North River	Bugs Lake dam	2B	3.82	miles	
AL03160112-0401-203	Clear Creek	Black Warrior	PWS	end of embayment		2B	7.66	miles	
AL03160112-0402-200	Cedar Creek	Black Warrior	F&W	North River		2B	13.97	miles	
AL03160112-0404-500	Cripple Creek	Black Warrior	F&W	North River		2B	10.45	miles	
AL03160112-0405-100	Carroll Creek	Black Warrior	F&W	North River	Its source	2B	15.12	miles	
AL03160112-0406-101	North River	Black Warrior	F&W	Black Warrior River	City of Tuscaloosa's water supply reservoir dam	2B	1.60	miles	
AL03160112-0501-101	Yellow Creek	Black Warrior	F&W	Black Warrior River	City of Tuscaloosa's water supply reservoir dam	2B	2.88	miles	
AL03160112-0501-103	Yellow Creek	Black Warrior	PWS	Little Yellow Creek	Its source	2B	10.47	miles	
AL03160113-0102-200	Big Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	12.12	miles	
AL03160113-0203-100	Big Sandy Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	37.36	miles	
AL03160113-0301-100	Elliotts Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	23.83	miles	
AL03160113-0302-100	Millians Creek	Black Warrior	F&W	Gabriel Creek	Its source	2B	16.91	miles	
AL03160113-0402-100	Fivemile Creek	Black Warrior	F&W	Black Warrior River	Payne Lake	2B	34.00	miles	
AL03160113-0501-200	Sparks Creek	Black Warrior	F&W	Big Brush Creek	Its source	2B	10.06	miles	
AL03160113-0501-300	Brush Creek	Black Warrior	F&W	Big Brush Creek	Its source	2B	17.35	miles	
AL03160113-0505-100	Big Brush Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	29.65	miles	
AL03160113-0601-100	Grant Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	11.18	miles	
AL03160113-0602-200	Gabriel Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	17.00	miles	
AL03160113-0602-400	Buck Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	12.97	miles	
AL03160113-0606-100	Minter Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	16.82	miles	
AL03160113-0702-100	Dry Creek	Black Warrior	F&W	Big Prairie Creek	Its source	2B	15.28	miles	
AL03160113-0706-100	Big German Creek	Black Warrior	F&W	Big Prairie Creek	Its source	2B	15.21	miles	
AL03160113-0803-100	Hines Creek	Black Warrior	F&W	Black Warrior River	Its source	2B	9.87	miles	
AL03150202-0202-103	Buck Creek	Cahaba	F&W	Shelby County Road 44	Its source	2B	8.35	miles	
AL03150202-0202-402	Cahaba Valley Creek	Cahaba	F&W	US Highway 31	Its source	2B	10.31	miles	
AL03150202-0401-500	Spring Creek	Cahaba	F&W	Shoal Creek	Its source	2B	9.38	miles	
AL03150202-0503-200	Sandy Creek	Cahaba	F&W	Cahaba River	Its source	2B	16.29	miles	
AL03150202-0504-100	Haystop Creek	Cahaba	F&W	Cahaba River	Its source	2B	26.81	miles	
AL03150202-0505-100	Affonee Creek	Cahaba	S	Cahaba River	Its source	2B	18.51	miles	
AL03150202-0506-100	Blue Girth Creek	Cahaba	S	Cahaba River	Its source	2B	15.08	miles	
AL03150202-0507-200	Walton Creek	Cahaba	F&W	Cahaba River	Its source	2B	5.45	miles	
AL03150202-0507-300	Gully Creek	Cahaba	F&W	Cahaba River	Its source	2B	7.72	miles	
AL03150202-0601-200	Wallace Creek	Cahaba	F&W	Cahaba River	Its source	2B	8.94	miles	

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03150202-0601-300	Potato Patch Creek	Cahaba	F&W	Cahaba River	Its source	2B	7.54 miles		
AL03150202-0601-400	Taylor Creek	Cahaba	F&W	Cahaba River	Its source	2B	8.77 miles		
AL03150202-0602-200	Old Town Creek	Cahaba	S	Cahaba River	Its source	2B	12.66 miles		
AL03150202-0603-300	Mill Creek	Cahaba	F&W	Cahaba River	Its source	2B	11.35 miles		
AL03150202-0701-200	Rice Creek	Cahaba	F&W	Cahaba River	Its source	2B	14.87 miles		
AL03150202-0701-300	Waters Creek	Cahaba	S	Cahaba River	Its source	2B	9.93 miles		
AL03150202-0701-400	Wells Creek	Cahaba	F&W	Cahaba River	Its source	2B	5.36 miles		
AL03150202-0702-200	Possum Creek	Cahaba	F&W	Cahaba River	Its source	2B	8.97 miles		
AL03150202-0801-100	Beaverdam Creek	Cahaba	F&W	Oakmulgee Creek	Its source	2B	13.49 miles		
AL03150202-0805-100	Oakmulgee Creek	Cahaba	S	Cahaba River	Its source	2B	56.67 miles		
AL03150202-0902-501	Dry Creek	Cahaba	F&W	Cahaba River	Dallas County Road 201	2B	4.50 miles		
AL03130003-0104-102	Chattahoochee River	Chattahoochee	PWS/S/F&W	14th Street Bridge between Columbus and Phenix City	Oliver Dam	2B	3.14 miles		
AL03130003-0403-100	Little Uchee Creek	Chattahoochee	F&W	Uchee Creek	Its source	2B	36.41 miles		
AL03130003-0501-200	Snake Creek	Chattahoochee	F&W	Uchee Creek	Its source	2B	11.21 miles		
AL03130003-0502-100	Uchee Creek	Chattahoochee	S/F&W	Island Creek	Its source	2B	20.86 miles		
AL03130003-0504-101	Uchee Creek	Chattahoochee	S/F&W	Chattahoochee River	County Road 39	2B	9.89 miles		
AL03130003-0504-102	Uchee Creek	Chattahoochee	PWS/S/F&W	County Road 39	Island Creek	2B	11.33 miles		
AL03130003-0903-102	Chattahoochee River	Chattahoochee	F&W	Clatt Branch	14th Street Bridge between Columbus and Phenix City	2B	42.66 miles		
AL03130003-1304-100	Leak Creek	Chattahoochee	F&W	Barbour Creek	Its source	2B	10.07 miles		
AL03130004-0404-100	Peterman Creek	Chattahoochee	F&W	Abbie Creek	Its source	2B	12.43 miles		
AL03130004-0601-202	Poplar Spring Branch	Chattahoochee	F&W	Ross Clark Circle	Its source	2B	3.46 miles		
AL03130004-0604-100	Spivey Mill Creek	Chattahoochee	F&W	Omussee Creek	Its source	2B	8.07 miles		
AL03130004-0607-100	Omussee Creek	Chattahoochee	F&W	Chattahoochee River	Its source	2B	28.05 miles		
AL03130012-0205-100	Buck Creek	Chipola	F&W	Alabama-Florida state line	Its source	2B	11.11 miles		
AL03130012-0205-202	Boggy Creek	Chipola	F&W	Cottondale WTP	Its source	2B	6.72 miles		
AL03140201-0201-200	Jack Creek	Choctawhatchee	F&W	East Fork Choctawhatchee River	Its source	2B	5.69 miles		
AL03140201-0202-200	Panther Creek	Choctawhatchee	F&W	East Fork Choctawhatchee River	Its source	2B	7.62 miles		
AL03140201-0308-100	West Fork Choctawhatchee River	Choctawhatchee	F&W	Choctawhatchee River	Its source	2B	35.99 miles		
AL03140201-0402-300	Blacks Creek	Choctawhatchee	F&W	Judy Creek	Its source	2B	5.56 miles		
AL03140201-0602-202	Beaver Creek	Choctawhatchee	F&W	Dothan WTP	Its source	2B	5.37 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03140201-0704-500	Cox Mill Creek	Choctawhatchee	F&W	Hurricane Creek	Its source	2B	2.46 miles		
AL03140201-0704-700	Sandy Branch	Choctawhatchee	F&W	Hurricane Creek	Its source	2B	2.36 miles		
AL03140201-1104-200	Providence Creek	Choctawhatchee	F&W	Choctawhatchee River	Its source	2B	1.62 miles		
AL03140201-1105-110	Adams Creek	Choctawhatchee	F&W	Rocky Creek	Its source	2B	3.43 miles		
AL03140201-1204-100	Tight Eye Creek	Choctawhatchee	F&W	Double Bridges Creek	Its source	2B	14.80 miles		
AL03140202-0101-200	Johnson Creek	Choctawhatchee	F&W	Pea River	Its source	2B	4.51 miles		
AL03140202-0104-200	Big Sandy Creek	Choctawhatchee	F&W	Pea River	Its source	2B	11.32 miles		
AL03140202-0108-200	Double Creek	Choctawhatchee	F&W	Mill Creek	Its source	2B	9.30 miles		
AL03140202-0507-200	Cowpen Creek	Choctawhatchee	F&W	Big Creek	Its source	2B	4.19 miles		
AL03140202-0507-300	Sweetwater Creek	Choctawhatchee	F&W	Big Creek	Its source	2B	6.82 miles		
AL03140202-0508-100	Big Creek	Choctawhatchee	F&W	Whitewater Creek	Its source	2B	26.05 miles		
AL03140202-0702-100	Panther Creek	Choctawhatchee	F&W	Flat Creek	Its source	2B	10.81 miles		
AL03140202-0703-100	Flat Creek	Choctawhatchee	S/F&W	Eightmile Creek	Its source	2B	24.26 miles		
AL03140202-0802-100	Flat Creek	Choctawhatchee	F&W	Pea River	Eightmile Creek	2B	4.72 miles		
AL03140202-0904-100	Sandy Creek	Choctawhatchee	F&W	Pea River	Its source	2B	10.91 miles		
AL03140203-0701-100	Holmes Creek	Choctawhatchee	F&W	Alabama-Florida state line	Its source	2B	6.72 miles		
AL03170002-0304-100	Red Creek	Escatawpa	F&W	Alabama-Mississippi state line	Its source	2B	15.31 miles		
AL03170008-0201-600	Long Branch	Escatawpa	F&W	Pond Creek	Its source	2B	3.45 miles		
AL03170008-0203-300	Bennett Creek	Escatawpa	F&W	Escatawpa River	Its source	2B	11.79 miles		
AL03170008-0501-400	Pierce Creek	Escatawpa	F&W	Big Creek	Its source	2B	10.23 miles		
AL03160204-0403-104	Eightmile Creek	Mobile	F&W	Hightpoint Boulevard	Its source	2B	2.56 miles		
AL03160205-0202-102	Dog River	Mobile	F&W	Moore Creek	Its source	2B	5.50 miles		
AL03160205-0204-302	Rabbit Creek	Mobile	F&W	Alabama Highway 163	Its source	2B	8.20 miles		
AL03160205-0310-701	UT to Bon Secour River	Mobile	F&W	Bon Secour River	Baldwin County Road 65	2B	0.61 miles		
AL03140103-0205-102	Yellow River	Perdido-Escambia	F&W	North Creek	Its source	2B	35.05 miles		
AL03140106-0302-102	Brushy Creek	Perdido-Escambia	F&W	Boggy Branch	Its source	2B	9.12 miles		
AL03140106-0302-203	Boggy Branch	Perdido-Escambia	F&W	Masland Carpets WWTP	Its source	2B	0.95 miles		
AL03140106-0603-102	Blackwater River	Perdido-Escambia	F&W	Narrow Gap Creek	Its source	2B	27.30 miles		
AL03140303-0302-102	Rocky Creek	Perdido-Escambia	F&W	County road north of Chapman	Its source	2B	11.58 miles		
AL03140304-0103-100	Silas Creek	Perdido-Escambia	F&W	Concuh River	Its source	2B	1.57 miles		
AL03140304-0601-100	Little Escambia Creek	Perdido-Escambia	F&W	Wild Fork Creek	Its source	2B	15.31 miles		
AL03140305-0106-102	Big Escambia Creek	Perdido-Escambia	F&W	Big Spring Creek	Its source	2B	27.55 miles		
AL03150110-0605-101	Tallapoosa River	Tallapoosa	F&W	Alabama River	US Highway 231	2B	6.47 miles		
AL03150110-0605-102	Tallapoosa River	Tallapoosa	PWS/F&W	US Highway 231	Thurflow dam	2B	40.07 miles		

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL06030002-0602-103	West Fork Cotoaco Creek	Tennessee	F&W	Frost Creek	Its source	2B	2.93 miles		
AL06030002-0605-100	Cotaco Creek	Tennessee	S/F&W	Tennessee River	Guyer Branch	2B	14.12 miles		
AL06030005-0807-100	Sinking Creek	Tennessee	F&W	Tennessee River	Its source	2B	16.38 miles		
AL06030006-0101-102	Bear Creek	Tennessee	F&W	Alabama Highway 243	Its source	2B	10.97 miles		
AL03160103-0101-600	Moore Creek	Tombigbee (Upper)	F&W	West Branch Buttahatchee River	Its source	2B	3.56 miles		
AL03160106-0607-102	Factory Creek	Tombigbee (Upper)	F&W	End of embayment	Its source	2B	18.81 miles		
AL03160107-0201-102	Sipsey River	Tombigbee (Upper)	PWS/F&W	US Highway 43	Alabama Highway 102	2B	12.48 miles		
AL03160107-0201-103	Sipsey River	Tombigbee (Upper)	F&W	Alabama Highway 102	Its source	2B	19.91 miles		
AL03160107-0303-102	Sipsey River	Tombigbee (Upper)	F&W	Tuscaloosa county line	US Highway 43	2B	72.33 miles		

Category 2 Lakes and Reservoirs

AL03150204-0601-502	Little River Lake	Alabama	S/F&W	within Little River State Forest		2B	38.40 acres		
AL03160112-0401-202	Clear Creek	Black Warrior	PWS	Bugs Lake dam	end of embayment	2B	63.96 acres		
AL03160112-0404-101	North River	Black Warrior	F&W	Binion Creek	Lake Tuscaloosa	2B	1235.32 acres		
AL03160112-0406-102	North River	Black Warrior	PWS/S	City of Tuscaloosa's water supply reservoir dam	Binion Creek	2B	3840.14 acres		
AL03160112-0501-102	Yellow Creek	Black Warrior	PWS	City of Tuscaloosa's water supply reservoir dam	Little Yellow Creek	2B	537.60 acres		
AL03130003-0905-100	Chattahoochee River	Chattahoochee	F&W	Cowikee Creek	Clatt Branch	2B	5696.07 acres	Walter F. George Reservoir	
AL03150110-0103-102	Tallapoosa River	Tallapoosa	PWS/S/F&W	Thurflow dam	Yates dam	2B	538.60 acres	Thurflow Lake	
AL03150110-0103-103	Tallapoosa River	Tallapoosa	PWS/S/F&W	Yates dam	Martin Dam	2B	1595.89 acres	Yates Lake	

Category 2 Estuaries

AL03140107-0204-300	Perdido Bay	Perdido-Escambia	SH/S/F&W	Gulf of Mexico	Lillian Bridge	2B	4.21 square miles		
AL03140107-0204-400	Arnica Bay	Perdido-Escambia	SH/S/F&W	Perdido Bay	Bay la Launch	2B	1.21 square miles		
AL03140107-0204-500	Bay la Launch	Perdido-Escambia	SH/S/F&W	Arnica Bay	Wolf Bay	2B	1.48 square miles		
AL03140107-0204-600	Wolf Bay	Perdido-Escambia	SH/S/F&W	Bay la Launch	Its source	2B	3.41 square miles		

Category 3 Rivers and Streams

AL03150201-1001-150	Charlotte Creek	Alabama	F&W	Gale Creek	Its source	3	4.14 miles		
AL03150201-1001-600	Gale Creek	Alabama	F&W	Mulberry Creek	Its source	3	7.39 miles		
AL03150203-0108-100	Cedar Creek	Alabama	S/F&W	Alabama River	Its source	3	61.85 miles		
AL03150203-0201-100	Big Swamp Creek	Alabama	F&W	Alabama River	Its source	3	18.76 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego	Size	Type	Comment
AL03150203-0301-200	Sand Creek	Alabama	F&W	Bogue Chitto Creek	Its source	3	7.61	miles	
AL03150203-0601-100	Turkey Creek	Alabama	F&W	Beaver Creek	Its source	3	25.07	miles	
AL03150203-0703-200	Rockwest Creek	Alabama	F&W	Alabama River	Its source	3	11.98	miles	
AL03150203-0703-900	UT to Rockwest Creek	Alabama	F&W	Rockwest Creek	Its source	3	3.46	miles	
AL03150204-0205-200	Big Flat Creek	Alabama	S/F&W	Alabama River	Its source	3	59.14	miles	
AL03150204-0303-100	Limestone Creek	Alabama	F&W	Alabama River	Its source	3	26.19	miles	
AL03150204-0303-200	Double Branch Creek	Alabama	F&W	Limestone Creek	Its source	3	7.26	miles	Local Name
AL03150204-0303-500	Hudson Branch	Alabama	F&W	Limestone Creek	Its source	3	3.48	miles	Local Name
AL03160103-0501-400	Little Brush Creek	Black Warrior	F&W	Big Brush Creek	Its source	3	10.76	miles	
AL03160109-0103-800	Wolf Creek	Black Warrior	F&W	Duck River	Its source	3	4.31	miles	
AL03160109-0106-201	Bridge Creek	Black Warrior	F&W	Eightmile Creek	Cullman water supply reservoir dam	3	4.41	miles	
AL03160109-0106-800	Adams Branch	Black Warrior	PWS	Bridge Creek	Its source	3	1.96	miles	
AL03160109-0106-900	Pope Creek	Black Warrior	PWS	Bridge Creek	Its source	3	2.84	miles	
AL03160109-0207-100	Mulberry Fork	Black Warrior	F&W	Sipsey Fork	Marriott Creek	3	23.34	miles	
AL03160109-0405-102	Lost Creek	Black Warrior	PWS/F&W	Two miles upstream from Wolf Creek	Cane Creek	3	4.92	miles	
AL03160109-0405-400	Indian Creek	Black Warrior	F&W	Lost Creek	Its source	3	7.10	miles	
AL03160109-0503-200	Indian Creek	Black Warrior	F&W	Wolf Creek	Its source	3	11.50	miles	
AL03160109-0602-102	Cane Creek	Black Warrior	F&W	Town Creek	Its source	3	10.34	miles	
AL03160109-0602-802	Town Creek	Black Warrior	F&W	100 yards upstream of Southern Railway crossing	Its source	3	6.27	miles	
AL03160109-0603-101	Mulberry Fork	Black Warrior	PWS/F&W	Burnt Cane Creek	Frog Ague Creek	3	8.60	miles	
AL03160109-0603-102	Mulberry Fork	Black Warrior	PWS/F&W	Frog Ague Creek	Sipsey Fork	3	13.54	miles	
AL03160109-0603-200	Burnt Cane Creek	Black Warrior	F&W	Mulberry Fork	Its source	3	10.31	miles	
AL03160109-0603-600	Frog Ague Creek	Black Warrior	F&W	Mulberry Fork	Its source	3	4.46	miles	
AL03160109-0604-102	Mulberry Fork	Black Warrior	PWS/S/F&W	Baker Creek	Burnt Cane Creek	3	8.60	miles	
AL03160109-0604-700	Lost Creek	Black Warrior	F&W	Mulberry Fork	Two miles upstream from Wolf Creek	3	5.92	miles	
AL03160110-0104-701	Curtis Mill Creek	Black Warrior	F&W	Sandy Creek	Town of Double Springs water supply reservoir dam	3	3.67	miles	
AL03160110-0503-100	Rock Creek	Black Warrior	F&W	Ryan Creek	Its source	3	12.39	miles	
AL03160111-0201-600	Whippoorwill Creek	Black Warrior	F&W	Wynnvillle Creek	Its source	3	6.98	miles	
AL03160111-0206-500	Chitwood Creek	Black Warrior	F&W	Calvert Prong	Its source	3	2.78	miles	
AL03160111-0206-700	Whited Creek	Black Warrior	F&W	Calvert Prong	Its source	3	4.19	miles	

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03160111-0206-800	Mill Creek	Black Warrior	F&W	Chitwood Creek	Its source	3	6.39 miles		
AL03160111-0308-200	Cunningham Creek	Black Warrior	F&W	Turkey Creek	Its source	3	11.60 miles		
AL03160112-0106-100	Valley Creek	Black Warrior	F&W	Black Warrior River	Blue Creek	3	30.75 miles		
AL03160112-0202-100	Big Yellow Creek	Black Warrior	S/F&W	Black Warrior River	end of embayment	3	7.48 miles		
AL03160112-0301-100	Blue Creek	Black Warrior	F&W	Black Warrior River	Its source	3	18.49 miles		
AL03160112-0301-200	Lick Creek	Black Warrior	F&W	Blue Creek	Its source	3	2.99 miles		
AL03160113-0104-100	Cypress Creek	Black Warrior	F&W	Black Warrior River	Its source	3	14.63 miles		
AL03160113-0503-100	Colwell Creek	Black Warrior	F&W	Big Brush Creek	Its source	3	11.79 miles		
AL03160113-0505-200	Pole Bridge Branch	Black Warrior	F&W	Big Brush Creek	Its source	3	8.39 miles		
AL03160113-0605-900	Martin Creek	Black Warrior	F&W	Gabriel Creek	Its source	3	1.20 miles		
AL03160113-0607-100	Black Warrior River	Black Warrior	F&W	Warrior Lock and Dam	Oliver Lock and Dam	3	76.18 miles		
AL03160113-0801-700	White Creek	Black Warrior	F&W	Black Warrior River	Its source	3	8.38 miles		
AL03160113-0802-100	Dollarhide Creek	Black Warrior	F&W	Black Warrior River	Its source	3	8.59 miles		
AL03160113-0803-103	Black Warrior River	Black Warrior	S/F&W	Eight miles upstream of Big Prairie Creek	Warrior Lock and Dam	3	28.09 miles		
AL03160113-0804-102	Black Warrior River	Black Warrior	PW/S/S/F&W	Five miles upstream of Big Prairie Creek	Eight miles upstream of Big Prairie Creek	3	3.05 miles		
AL03160113-0806-100	Black Warrior River	Black Warrior	S/F&W	Tombigbee River	Five miles upstream of Big Prairie Creek	3	19.81 miles		
AL03150202-0101-103	Cahaba River	Cahaba	OAW/F&W	I-59	Its source	3	2.22 miles		
AL03150202-0202-500	Peavine Creek	Cahaba	F&W	Buck Creek	Its source	3	10.01 miles		
AL03150202-0202-900	UT to Cahaba Valley Creek	Cahaba	F&W	Cahaba Valley Creek	Its source	3	2.31 miles		
AL03150202-0302-110	Little Shades Creek	Cahaba	F&W	Shades Creek	Its source	3	8.99 miles		
AL03150202-0401-100	Shoal Creek	Cahaba	F&W	Little Cahaba River	Its source	3	19.09 miles		
AL03150202-0402-100	Mahan Creek	Cahaba	F&W	Little Cahaba River	Its source	3	15.47 miles		
AL03150202-0403-100	Sixmile Creek	Cahaba	S	Little Cahaba River	Its source	3	27.27 miles		
AL03150202-0502-100	Schultz Creek	Cahaba	S	Cahaba River	Its source	3	16.39 miles		
AL03130002-0804-100	Guss Creek	Chattahoochee	F&W	Wehadkee Creek	Its source	3	6.63 miles		
AL03130002-0804-400	Gladney Mill Branch	Chattahoochee	F&W	Guss Creek	Its source	3	3.17 miles		
AL03130002-0805-102	Veasey Creek	Chattahoochee	F&W	Alabama-Georgia state line	Its source	3	10.51 miles		
AL03130002-0805-400	Finley Creek	Chattahoochee	F&W	Stroud Creek	Its source	3	4.98 miles		
AL03130002-0901-300	Allen Creek	Chattahoochee	F&W	Oselige Creek	Its source	3	4.89 miles		
AL03130002-0901-400	Kellem Hill Creek	Chattahoochee	F&W	Oselige Creek	Its source	3	4.69 miles		
AL03130002-0903-200	Oselige Creek	Chattahoochee	F&W	Alabama-Georgia state line	Its source	3	18.71 miles		

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03130002-0903-300	Hardley Creek	Chattahoochee	F&W	Alabama-Georgia state line	Its source	3	10.22 miles		
AL03130003-1205-100	Moore's Creek	Chattahoochee	F&W	Chattahoochee River	Its source	3	11.40 miles		
AL03130003-1301-100	Chewalla Creek	Chattahoochee	S/F&W	Chattahoochee River	Its source	3	13.77 miles		
AL03130004-0304-200	Vann Mill Creek	Chattahoochee	F&W	Abbie Creek	Its source	3	3.04 miles		
AL03130004-0403-100	Skippers Creek	Chattahoochee	F&W	Abbie Creek	Its source	3	6.71 miles		
AL03130004-0405-100	Abbie Creek	Chattahoochee	F&W	Chattahoochee River	Its source	3	42.53 miles		
AL03130004-0703-102	Chattahoochee River	Chattahoochee	S/F&W	Woods Branch	Walter F. George Lock and Dam	3	36.04 miles		
AL03130004-0801-100	Chattahoochee River	Chattahoochee	F&W	Alabama-Florida state line	Woods Branch	3	14.14 miles		
AL03130012-0101-200	Mill Creek	Chipola	F&W	Cowarts Creek	Its source	3	9.43 miles		
AL03130012-0101-300	Webb Creek	Chipola	F&W	Cowarts Creek	Its source	3	10.22 miles		
AL03130012-0101-400	Cooper Creek	Chipola	F&W	Cowarts Creek	Its source	3	3.13 miles		
AL03130012-0102-100	Rocky Creek	Chipola	F&W	Cowarts Creek	Its source	3	11.70 miles		
AL03130012-0102-200	Bruners Gin Creek	Chipola	F&W	Rocky Creek	Its source	3	5.43 miles		
AL03130012-0102-300	Little Rocky Creek	Chipola	F&W	Rocky Creek	Its source	3	5.14 miles		
AL03130012-0103-100	Cowarts Creek	Chipola	F&W	Alabama-Florida state line	Its source	3	21.72 miles		
AL03130012-0103-200	Gunn Slough	Chipola	F&W	Alabama-Florida state line	Its source	3	6.74 miles		
AL03130012-0103-300	Guy Branch	Chipola	F&W	Cowarts Creek	Its source	3	4.48 miles		
AL03130012-0103-400	Bazemores Mill Branch	Chipola	F&W	Cowarts Creek	Its source	3	1.38 miles		
AL03130012-0201-100	Limestone Creek	Chipola	F&W	Big Creek	Its source	3	10.80 miles		
AL03130012-0201-200	Harkin Branch	Chipola	F&W	Limestone Creek	Its source	3	3.31 miles		
AL03130012-0201-300	Chipola Creek	Chipola	F&W	Limestone Creek	Its source	3	6.41 miles		
AL03130012-0202-200	Coopers Bay Creek	Chipola	F&W	Big Creek	Its source	3	3.17 miles		
AL03130012-0202-300	Chestnut Branch	Chipola	F&W	Big Creek	Its source	3	2.36 miles		
AL03130012-0202-400	Big Branch	Chipola	F&W	Coopers Bay Creek	Its source	3	3.22 miles		
AL03130012-0203-100	Double Bridges Creek	Chipola	F&W	Big Creek	Its source	3	9.22 miles		
AL03130012-0204-100	Big Creek	Chipola	F&W	Alabama-Florida state line	Its source	3	18.56 miles		
AL03130012-0206-100	Spring Creek	Chipola	F&W	Big Creek	Its source	3	13.68 miles		
AL03130012-0207-200	Freeman Branch	Chipola	F&W	Alabama-Florida state line	Its source	3	3.83 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03140201-0103-100	Piney Woods Creek	Choctawhatchee	F&W	East Fork Choctawhatchee River	Its source	3	9.08 miles		
AL03140201-0103-200	Little Piney Woods Creek	Choctawhatchee	F&W	Piney Woods Creek	Its source	3	3.67 miles		
AL03140201-0203-100	Poor Creek	Choctawhatchee	F&W	East Fork Choctawhatchee River	Its source	3	10.72 miles		
AL03140201-0207-100	Blackwood Creek	Choctawhatchee	F&W	East Fork Choctawhatchee River	Its source	3	10.76 miles		
AL03140201-0302-100	Lindsey Creek	Choctawhatchee	F&W	West Fork Choctawhatchee River	Its source	3	12.44 miles		
AL03140201-0304-100	Sikes Creek	Choctawhatchee	F&W	West Fork Choctawhatchee River	Its source	3	12.82 miles		
AL03140201-0403-100	Little Judy Creek	Choctawhatchee	F&W	Judy Creek	Its source	3	14.56 miles		
AL03140201-0602-100	Newton Creek	Choctawhatchee	F&W	Little Choctawhatchee River	Its source	3	8.96 miles		
AL03140201-0604-100	Little Choctawhatchee River	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	22.04 miles		
AL03140201-0701-100	Pates Creek	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	8.05 miles		
AL03140201-0704-200	Spann Branch	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	2.05 miles		
AL03140201-0704-300	Hurricane Creek	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	14.80 miles		
AL03140201-0704-800	Caney Creek	Choctawhatchee	F&W	Hurricane Creek	Its source	3	2.47 miles		
AL03140201-0801-100	Claybank Creek	Choctawhatchee	F&W	Lake Tholocco	Its source	3	11.38 miles		
AL03140201-1006-100	Claybank Creek	Choctawhatchee	F&W	Choctawhatchee River	Lake Tholocco dam	3	20.52 miles		
AL03140201-1105-100	Choctawhatchee River	Choctawhatchee	F&W	Pea River	Its source	3	45.12 miles		
AL03140201-1201-400	Blanket Creek	Choctawhatchee	F&W	Double Bridges Creek	Its source	3	5.71 miles		
AL03140201-1205-100	Beaverdam Creek	Choctawhatchee	F&W	Double Bridges Creek	Its source	3	12.04 miles		
AL03140201-1205-200	Brushy Branch	Choctawhatchee	F&W	Beaverdam Creek	Its source	3	3.08 miles		
AL03140201-1206-100	Double Bridges Creek	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	37.15 miles		
AL03140202-0102-200	Spring Creek	Choctawhatchee	F&W	Pea River	Its source	3	11.13 miles		
AL03140202-0103-200	Little Indian Creek	Choctawhatchee	F&W	Pea River	Its source	3	12.56 miles		
AL03140202-0105-200	Bogue Chitta Creek	Choctawhatchee	F&W	Pea River	Its source	3	7.19 miles		
AL03140202-0108-100	Mill Creek	Choctawhatchee	F&W	Pea River	Its source	3	5.01 miles		
AL03140202-0109-200	Connors Creek	Choctawhatchee	F&W	Pea River	Its source	3	4.35 miles		
AL03140202-0202-100	Stinking Creek	Choctawhatchee	F&W	Pea Creek	Its source	3	9.89 miles		
AL03140202-0203-100	Hurricane Creek	Choctawhatchee	F&W	Pea Creek	Its source	3	10.34 miles		
AL03140202-0204-100	Pea Creek	Choctawhatchee	F&W	Pea River	Its source	3	22.85 miles		
AL03140202-0301-200	Buckhorn Creek	Choctawhatchee	F&W	Pea River	Its source	3	15.97 miles		
AL03140202-0302-200	Richland Creek	Choctawhatchee	F&W	Pea River	Its source	3	15.90 miles		

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03140202-0303-100	Big Creek	Choctawhatchee	F&W	Pea River	Its source	3	8.29 miles		
AL03140202-0402-200	Bowden Mill Creek	Choctawhatchee	F&W	Pea River	Its source	3	8.78 miles		
AL03140202-0406-100	Halls Creek	Choctawhatchee	F&W	Pea River	Its source	3	5.54 miles		
AL03140202-0503-200	Mims Creek	Choctawhatchee	F&W	Whitewater Creek	Its source	3	7.82 miles		
AL03140202-0508-200	Bluff Creek	Choctawhatchee	F&W	Big Creek	Its source	3	10.13 miles		
AL03140202-0509-200	Pea Creek	Choctawhatchee	F&W	Whitewater Creek	Its source	3	10.84 miles		
AL03140202-0601-100	Beaverdam Creek	Choctawhatchee	F&W	Pea River	Its source	3	11.33 miles		
AL03140202-0602-200	Helms Mill Creek	Choctawhatchee	F&W	Pea River	Its source	3	4.46 miles		
AL03140202-0603-100	Bucks Mill Creek	Choctawhatchee	F&W	Pea River	Its source	3	10.35 miles		
AL03140202-0605-100	Hays Creek	Choctawhatchee	F&W	Pea River	Its source	3	8.10 miles		
AL03140202-0607-100	Cripple Creek	Choctawhatchee	F&W	Pea River	Its source	3	8.75 miles		
AL03140202-0609-100	Holley Mill Creek	Choctawhatchee	F&W	Pea River	Its source	3	4.66 miles		
AL03140202-0610-200	Samson Branch	Choctawhatchee	F&W	Pea River	Its source	3	6.06 miles		
AL03140202-0801-100	Conner Creek	Choctawhatchee	F&W	Eightmile Creek	Its source	3	16.35 miles		
AL03140202-0802-400	Eightmile Creek	Choctawhatchee	F&W	Flat Creek	Alabama-Florida state line	3	8.61 miles		
AL03140203-0102-100	Justice Mill Creek	Choctawhatchee	F&W	Spring Creek	Its source	3	7.51 miles		
AL03140203-0103-200	Spring Creek	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	13.72 miles		
AL03140203-0103-300	Ice Factory Branch	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	1.45 miles		
AL03140203-0103-400	Wheeler Mill Branch	Choctawhatchee	F&W	Spring Creek	Its source	3	2.73 miles		
AL03140203-0103-500	Blue Branch	Choctawhatchee	F&W	Spring Creek	Its source	3	2.31 miles		
AL03140203-0103-600	Negro Church Branch	Choctawhatchee	F&W	Spring Creek	Its source	3	3.15 miles		
AL03140203-0103-700	Hathaway Branch	Choctawhatchee	F&W	Spring Creek	Its source	3	2.79 miles		
AL03140203-0104-100	Choctawhatchee River	Choctawhatchee	F&W	Alabama-Florida state line	Pea River	3	4.45 miles		
AL03140203-0104-200	Wide Branch	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	3.65 miles		
AL03140203-0104-300	Flowers Branch	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	2.40 miles		
AL03140203-0104-400	Smith Branch	Choctawhatchee	F&W	Choctawhatchee River	Its source	3	1.77 miles		
AL03140203-0104-500	Whitewater Branch	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	0.70 miles		
AL03140203-0104-600	John Branch	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	1.21 miles		
AL03140203-0104-700	Boggy Branch	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	1.57 miles		
AL03140203-0105-200	Hand Branch	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	0.55 miles		
AL03140203-0301-100	Wrights Creek	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	8.96 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego	Size	Type	Comment
AL03140203-0301-200	Gully Branch	Choctawhatchee	F&W	Wrights Creek	Its source	3	3.58	miles	
AL03140203-0301-300	Grant Branch	Choctawhatchee	F&W	Wrights Creek	Its source	3	3.57	miles	
AL03140203-0301-400	Davis Mill Creek	Choctawhatchee	F&W	Wrights Creek	Its source	3	3.43	miles	
AL03140203-0301-500	Lighter Snag Creek	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	4.50	miles	
AL03140203-0301-600	Mill Branch	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	2.27	miles	
AL03140203-0301-700	Tindil Branch	Choctawhatchee	F&W	Davis Mill Creek	Its source	3	3.55	miles	
AL03140203-0303-100	Tennile Creek	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	3.18	miles	
AL03140203-0303-200	Poplar Creek	Choctawhatchee	F&W	Tennile Creek	Its source	3	2.03	miles	
AL03140203-0303-300	Cannon Branch	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	2.46	miles	
AL03140203-0701-200	Kirkland Branch	Choctawhatchee	F&W	Holmes Creek	Its source	3	3.19	miles	
AL03140203-0701-300	Boggy Branch	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	2.31	miles	
AL03140203-0701-400	Big Branch	Choctawhatchee	F&W	Alabama-Florida state line	Its source	3	1.78	miles	
AL03150107-0907-100	Coosa River	Coosa	F&W	Tallapoosa River	Jordan Dam	3	12.96	miles	
AL03170002-0302-100	Turkey Creek	Escatawpa	F&W	Alabama-Mississippi state line	Its source	3	5.94	miles	
AL03170002-0302-200	Sandy Creek	Escatawpa	F&W	Turkey Creek	Its source	3	4.54	miles	
AL03170002-0304-200	Whiskey Creek	Escatawpa	F&W	Red Creek	Its source	3	2.13	miles	
AL03170002-0304-300	Buck Creek	Escatawpa	F&W	Red Creek	Its source	3	2.14	miles	
AL03170002-0304-400	Little Red Creek	Escatawpa	F&W	Alabama-Mississippi state line	Its source	3	3.52	miles	
AL03170002-0304-500	Savannah Branch	Escatawpa	F&W	Alabama-Mississippi state line	Its source	3	3.12	miles	
AL03170003-0304-100	Bryd Creek	Escatawpa	F&W	Alabama-Mississippi state line	Its source	3	0.21	miles	
AL03170008-0102-100	Brushy Creek	Escatawpa	F&W	Escatawpa River	Alabama-Mississippi state line	3	8.98	miles	
AL03170008-0104-100	Pine Barren Creek	Escatawpa	F&W	Escatawpa River	Its source	3	5.82	miles	
AL03170008-0104-300	West Pine Barren Creek	Escatawpa	F&W	Pine Barren Creek	Its source	3	8.27	miles	
AL03170008-0104-400	East Pine Barren Creek	Escatawpa	F&W	Pine Barren Creek	Its source	3	3.28	miles	
AL03170008-0201-200	Pond Creek	Escatawpa	F&W	Little Creek	Its source	3	10.84	miles	
AL03170008-0202-200	Little Creek	Escatawpa	F&W	Escatawpa River	Its source	3	12.05	miles	
AL03170008-0205-101	Puppy Creek	Escatawpa	F&W	Escatawpa River	Alabama Highway 217	3	5.68	miles	
AL03170008-0502-100	Miller Creek	Escatawpa	F&W	Big Creek	Its source	3	14.15	miles	
AL03170008-0602-100	Franklin Creek	Escatawpa	F&W	Alabama-Mississippi state line	Its source	3	9.46	miles	

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03170008-0704-100	Flat Creek	Escatawpa	F&W	Alabama-Mississippi state line	Its source	3	5.86 miles		
AL03160204-0105-101	Mobile River	Mobile	F&W	Cold Creek	Barry Steam Plant	3	2.37 miles		
AL03160204-0105-102	Mobile River	Mobile	PWS/F&W	Barry Steam Plant	Tensaw River	3	10.29 miles		
AL03160204-0106-012	Cold Creek	Mobile	PWS/F&W	Dam 1 1/2 miles west of US Highway 43	Its source	3	5.05 miles		
AL03160204-0403-102	Eightmile Creek	Mobile	PWS/F&W	City of Prichard's water supply intake	US Highway 45	3	1.73 miles		
AL03160205-0202-110	Eslava Creek	Mobile	F&W	Bolton Branch	Its source	3	2.93 miles		
AL03160205-0202-200	Moore Creek	Mobile	F&W	Dog River	Its source	3	3.95 miles		
AL03140103-0102-100	Lightwood Knot Creek	Perdido-Escambia	F&W	Yellow River	Its source	3	24.35 miles		
AL03140103-0102-500	Cameron Creek	Perdido-Escambia	F&W	Lightwood Knot Creek	Its source	3	3.57 miles		
AL03140103-0202-100	Indian Creek	Perdido-Escambia	F&W	Yellow River	Its source	3	10.86 miles		
AL03140103-0303-100	Five Runs Creek	Perdido-Escambia	F&W	Yellow River	Its source	3	30.72 miles		
AL03140103-0303-400	Bay Branch	Perdido-Escambia	F&W	Five Runs Creek	Its source	3	7.58 miles		
AL03140103-0402-300	Big Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	3	5.26 miles		
AL03140103-0601-100	Pond Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	3	2.85 miles		
AL03140103-0601-200	Fleming Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	3	3.15 miles		
AL03140103-0602-100	Horsehead Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	3	4.59 miles		
AL03140104-0105-100	Boggy Hollow Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	3	7.45 miles		
AL03140104-0106-100	Rock Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	3	1.98 miles		
AL03140104-0301-200	Sweetwater Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	3	4.23 miles		
AL03140104-0303-100	Big Juniper Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	3	0.49 miles		
AL03140106-0101-100	Perdido Creek	Perdido-Escambia	F&W	Perdido River	Its source	3	9.61 miles		
AL03140106-0203-100	Dyas Creek	Perdido-Escambia	S/F&W	Perdido River	Its source	3	18.34 miles		
AL03140106-0503-100	Hollinger Creek	Perdido-Escambia	F&W	Styx River	Its source	3	23.10 miles		
AL03140106-0601-500	Rock Creek	Perdido-Escambia	F&W	Blackwater River	Its source	3	8.22 miles		
AL03140106-0701-102	Perdido River	Perdido-Escambia	F&W	Jacks Branch	Its source	3	43.48 miles		
AL03140107-0104-200	Palmetto Creek	Perdido-Escambia	S/F&W	Perdido Bay	Its source	3	4.79 miles		
AL03140107-0104-300	Soldier Creek	Perdido-Escambia	S/F&W	Perdido Bay	Its source	3	8.77 miles		
AL03140107-0104-600	Spring Branch	Perdido-Escambia	S/F&W	Palmetto Creek	Its source	3	3.04 miles		
AL03140107-0202-101	Mifflin Creek	Perdido-Escambia	S/F&W	Wolf Bay	limit of tidal effects	3	3.39 miles		
AL03140107-0202-102	Mifflin Creek	Perdido-Escambia	F&W	limit of tidal effects	Its source	3	4.98 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03140107-0203-201	Hammock Creek	Perdido-Escambia	S/F&W	Wolf Bay	limit of tidal effects	3	3.69 miles		
AL03140107-0203-202	Hammock Creek	Perdido-Escambia	F&W	limit of tidal effects	Its source	3	2.50 miles		
AL03160106-0602-100	Negro Creek	Perdido-Escambia	F&W	Blackwater River	Its source	3	9.24 miles		
AL06030002-0501-100	Huntsville Spring Branch	Tennessee	F&W	Broglan Branch	Its source	3	1.85 miles		
AL06030002-0505-102	Indian Creek	Tennessee	F&W	Martin Road (Redstone Arsenal)	US Highway 72	3	10.37 miles		
AL06030002-0601-100	Cotaco Creek	Tennessee	S/F&W	West Fork Cotaco Creek	Its source	3	14.08 miles		
AL06030002-0602-101	West Fork Cotaco Creek	Tennessee	F&W	Cotaco Creek	Alabama Highway 67	3	1.56 miles		
AL06030004-0104-101	Anderson Creek	Tennessee	F&W	Elk River	Snake Road bridge	3	4.69 miles		
AL06030006-0103-102	Bear Creek	Tennessee	S/F&W	Alabama Highway 187	Mill Creek	3	22.31 miles		

Category 3 Lakes and Reservoirs

AL03150201-0107-100	Alabama River	Alabama	F&W	Autauga Creek	Its source	3	6258.78 acres		
AL03160109-0106-202	Bridge Creek	Black Warrior	PWS	Cullman water supply reservoir dam	Its source	3	159.21 acres		
AL03160109-0604-101	Mulberry Fork	Black Warrior	PWS/S/F&W	Black Warrior River	Baker Creek	3	1357.57 acres		
AL03160110-0104-702	Curtis Mill Creek	Black Warrior	PWS	Town of Double Springs water supply reservoir dam	Its source	3	2.20 acres		
AL03130003-1600-100	Chattahoochee River	Chattahoochee	S/F&W	Walter F. George Lock and Dam	Cowkee Creek	3	25308.38 acres	Walter F. George Reservoir	
AL03140201-0803-100	Claybank Creek	Choctawhatchee	S/F&W	Lake Tholocco dam	end of impoundment	3	694.97 acres	Tholocco Lake	
AL03140103-0303-902	Blue Lake	Perdido-Escambia	S/F&W	Within Conecuh National Forest		3	41.37 acres		
AL03140103-0401-180	Open Pond	Perdido-Escambia	S/F&W	Within Conecuh National Forest		3	34.76 acres		
AL03140103-0401-190	Dowdy Pond	Perdido-Escambia	S/F&W	Within Conecuh National Forest		3	12.73 acres		
AL03140103-0601-300	Lake Jackson	Perdido-Escambia	S/F&W	Within Florida and north of AL-FL state line		3	415.46 acres		

Category 4 Rivers and Streams

AL03130012-0205-201	Boggy Creek	Chipola	F&W	Buck Creek	Cottondale WWTP	4A	3.48 miles		
AL03140301-0302-102	Conecuh River	Perdido-Escambia	F&W	Broadhead Creek	Mannings Creek	4A	24.53 miles		
AL03140301-0403-102	Conecuh River	Perdido-Escambia	F&W	Gantt Lake	Hornet Creek	4A	4.55 miles		
AL03140301-0404-102	Conecuh River	Perdido-Escambia	S/F&W	Point A Lake	Gantt Dam	4A	2.26 miles		
AL03150106-0202-300	Little Willis Creek	Coosa	F&W	Big Willis Creek	Its source	4A	6.07 miles		
AL03150108-0504-104	Tallapoosa River	Tallapoosa	PWS/F&W	Dam at Cleburne County Road 36	Cleburne County Road 19	4A	4.35 miles		
AL03150108-1004-300	Wolf Creek	Tallapoosa	F&W	Little Tallapoosa River	Its source	4A	5.53 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL03150202-0201-300	Patton Creek	Cahaba	F&W	Cahaba River	Its source	4A	8.84 miles		
AL03150202-0302-100	Shades Creek	Cahaba	F&W	Cahaba River	Its source	4A	56.38 miles		
AL03150202-0302-202	Mud Creek	Cahaba	F&W	Tannehill Iron Works	Its source	4A	4.08 miles		
AL03150202-0302-800	Mill Creek	Cahaba	F&W	Mud Creek	Its source	4A	6.65 miles		
AL03150202-0302-900	Coolley Creek	Cahaba	F&W	Mill Creek	Its source	4A	2.83 miles		
AL03150202-0902-502	Dry Creek	Cahaba	F&W	Dallas County Road 201	Its source	4A	4.98 miles		
AL03160109-0103-150	Long Branch	Black Warrior	F&W	Wolf Creek	Its source	4A	2.04 miles		
AL03160109-0103-900	Duck Creek	Black Warrior	F&W	Duck River	Its source	4A	5.76 miles		
AL03160109-0106-103	Eightmile Creek	Black Warrior	PWS	Moody Branch	Its source	4A	7.60 miles		
AL03160109-0107-100	Broglie River	Black Warrior	F&W	Mulberry Fork	Its source	4A	12.40 miles		
AL03160109-0107-500	Eightmile Creek	Black Warrior	F&W	Broglie River	Cullman water supply reservoir dam	4A	8.15 miles		
AL03160109-0202-100	Thacker Creek	Black Warrior	F&W	Mulberry Fork	Its source	4A	9.98 miles		
AL03160110-0403-102	Rock Creek	Black Warrior	F&W	Lake Lewis Smith	Blevens Creek	4A	8.82 miles		
AL03160110-0406-100	Crooked Creek	Black Warrior	F&W	Lake Lewis Smith	Its source	4A	30.47 miles		
AL03160111-0202-200	Graves Creek	Black Warrior	F&W	Locust Fork	Its source	4A	9.79 miles		
AL03160111-0408-300	Camp Branch	Black Warrior	F&W	Bayview Lake	Its source	4A	4.93 miles		
AL03160112-0502-200	Little Hurricane Creek	Black Warrior	F&W	Hurricane Creek	Its source	4A	10.19 miles		
AL03160112-0502-300	North Fork of Hurricane Creek	Black Warrior	F&W	Hurricane Creek	Its source	4A	6.53 miles		
AL03160112-0503-100	Hurricane Creek	Black Warrior	F&W	Black Warrior River	Its source	4A	31.50 miles		
AL03160204-0302-102	Bayou Sara/Norton Creek	Mobile	S/F&W	Gunnison Creek	Saratand WWTP	4A	3.77 miles		
AL03160204-0403-103	Eightmile Creek	Mobile	F&W	US Highway 45	Hightpoint Boulevard	4A	3.32 miles		
AL03160204-0403-200	Gum Tree Branch	Mobile	F&W	Eightmile Creek	Its source	4A	2.27 miles		
AL03160205-0204-101	Dog River	Mobile	S/F&W	Mobile Bay	Halls Mill Creek	4A	2.79 miles		
AL03160205-0204-102	Dog River	Mobile	F&W	Halls Mill Creek	Moore Creek	4A	1.38 miles		
AL03160205-0204-301	Rabbit Creek	Mobile	F&W	Dog River	Alabama Highway 163	4A	2.46 miles		
AL03170008-0401-200	Juniper Creek	Escatawpa	F&W	Big Creek	Its source	4A	6.67 miles		
AL06030001-0705-102	Town Creek	Tennessee	F&W	Lake Gunterville	Its source	4A	59.62 miles		
AL06030001-0804-200	Scarham Creek	Tennessee	F&W	Short Creek	Its source	4A	22.80 miles		
AL06030002-0201-202	Cole Spring Branch	Tennessee	F&W	Bridge at Jones Farm	Jeep Trail Crossing	4A	1.80 miles		
AL06030002-0204-202	Little Paint Rock Creek	Tennessee	F&W	Merrill Road Bridge	Jeep Trail Crossing	4A	1.89 miles		
AL06030002-0401-202	Chase Creek	Tennessee	F&W	Acuff Spring	U.S. Highway 72	4A	2.17 miles		
AL06030002-0405-700	Yellow Bank Creek	Tennessee	F&W	Flint River	Its source	4A	5.33 miles		
AL06030002-0504-100	Indian Creek	Tennessee	F&W	US Highway 72	Its source	4A	6.49 miles		
AL06030002-0703-102	Limestone Creek	Tennessee	F&W	U.S. Highway 72	Leslie Creek	4A	9.70 miles		

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Category	Size	Type	Comment
AL06030002-0902-100	Cane Creek	Tennessee	F&W	Tennessee River	Its source	4A	8.65	miles	
AL06030002-0903-100	Aldridge Creek	Tennessee	F&W	Tennessee River	Its source	4A	12.55	miles	
AL06030002-1001-200	Robinson Creek	Tennessee	F&W	Flint Creek	Its source	4A	6.75	miles	
AL06030002-1001-500	Indian Creek	Tennessee	F&W	Flint Creek	Its source	4A	4.22	miles	
AL06030002-1001-800	East Fork Flint Creek	Tennessee	F&W	Flint Creek	Its source	4A	15.31	miles	
AL06030002-1002-100	Crowdabout Creek	Tennessee	F&W	Flint Creek	Its source	4A	16.23	miles	
AL06030002-1003-102	Flint Creek	Tennessee	F&W	Shoal Creek	Its source	4A	13.36	miles	
AL06030002-1003-150	unnamed tributary to Town Branch	Tennessee	F&W	Town Branch	Its source	4A	1.25	miles	
AL06030002-1003-500	Mack Creek	Tennessee	F&W	Flint Creek	Its source	4A	6.29	miles	
AL06030002-1003-600	Shoal Creek	Tennessee	F&W	Flint Creek	Its source	4A	12.57	miles	
AL06030002-1003-700	Cedar Creek	Tennessee	F&W	Flint Creek	Its source	4A	9.56	miles	
AL06030002-1003-900	Town Branch	Tennessee	F&W	Shoal Creek	Its source	4A	1.90	miles	
AL06030002-1004-101	No Business Creek	Tennessee	F&W	Flint Creek	Jones Chapel Creek	4A	7.76	miles	
AL06030002-1005-900	Elam Creek	Tennessee	F&W	Rocky Branch	Its source	4A	12.08	miles	
AL06030002-1006-201	McDaniel Creek	Tennessee	F&W	West Flint Creek	Alabama Highway 36	4A	4.15	miles	
AL06030002-1007-100	Big Shoal Creek	Tennessee	F&W	West Flint Creek	Its source	4A	14.44	miles	
AL06030002-1008-100	West Fork Flint Creek	Tennessee	F&W	Flint Creek	McDaniel Creek	4A	22.24	miles	
AL06030002-1009-102	Flint Creek	Tennessee	F&W	Alabama Highway 67	L&N Railroad	4A	5.06	miles	
AL06030002-1009-103	Flint Creek	Tennessee	PWS/F&W	L&N Railroad	Alabama Highway 36	4A	9.09	miles	
AL06030002-1009-104	Flint Creek	Tennessee	LWF	Alabama Highway 36	Shoal Creek	4A	10.01	miles	
AL06030002-1009-402	Village Branch	Tennessee	F&W	Moss Spring Branch	Its source	4A	6.46	miles	
AL06030002-1101-101	Swan Creek	Tennessee	F&W	Wheeler Lake	Alabama Highway 24	4A	6.01	miles	
AL06030002-1101-102	Swan Creek	Tennessee	A&I	Alabama Highway 24	Town Creek	4A	2.78	miles	
AL06030002-1103-202	Round Island Creek	Tennessee	F&W	Browns Ferry Road	Beauchamp Branch	4A	3.50	miles	
AL06030002-1106-102	Mallard Creek	Tennessee	F&W	Wheeler Lake	Its source	4A	11.23	miles	
AL06030005-0104-100	Big Nance Creek	Tennessee	F&W	Wilson Lake	Its source	4A	26.42	miles	
AL06030006-0201-900	Harris Creek	Tennessee	F&W	Mud Creek	Its source	4A	5.99	miles	
AL03150105-1003-200	Coosa River	Coosa	F&W	Weiss dam powerhouse	Weiss dam	4B	19.62	miles	
AL03160111-0407-100	Fivemile Creek	Black Warrior	F&W	Locust Fork	Its source	4B	44.57	miles	
AL03150109-0107-102	Tallapoosa River	Tallapoosa	F&W	Hutton Creek	R.L. Harris Dam	4C	14.04	miles	
Category 4 Lakes and Reservoirs									
AL03140301-0403-101	Concuh River	Perdido-Escambia	S/F&W	Gantt Dam	Gantt Lake	4A	1,817.43	acres	Gantt Lake
AL03140301-0404-101	Concuh River	Perdido-Escambia	S/F&W	Point A Dam	Point A Lake	4A	610.56	acres	Point A Lake
AL03150105-1001-102	Coosa River	Coosa	S/F&W	Spring Creek	Alabama-Georgia state line	4A	7,689.78	acres	Weiss Lake

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego	Size	Type	Comment
AL03150105-1003-102	Coosa River	Coosa	PWS/S/F&W	Weiss dam powerhouse	Spring Creek	4A	17,829.20	acres	Weiss Lake
AL03160109-0106-102	Eightmile Creek	Black Warrior	PWS	Cullman water supply	Moody Branch	4A	527.25	acres	
AL03160111-0408-101	Village Creek	Black Warrior	LWF	Bayview Lake Dam	Second Creek	4A	492.80	acres	Bayview Lake

Category 5 Rivers and Streams

AL03150201-0104-302	Three Mile Branch	Alabama	F&W	Lower Wetumpka Rd	Its source	5	7.65	miles	
AL03150201-0203-102	Autauga Creek	Alabama	S/F&W	Matthews Branch	Its source	5	26.87	miles	
AL03150201-0309-100	Catooma Creek	Alabama	F&W	Alabama River	Ramer Creek	5	23.19	miles	
AL03150201-0402-100	Pintilla Creek	Alabama	S/F&W	Pinchony Creek	Its source	5	26.45	miles	
AL03150203-0703-101	Alabama River	Alabama	PWS	Beaver Creek	Rockwest Creek	5	5.02	miles	
AL03150203-0802-100	Pursley Creek	Alabama	F&W	Pursley Creek	Its source	5	25.10	miles	
AL03150203-0802-400	Town Branch	Alabama	F&W	Pursley Creek	Its source	5	4.13	miles	Local Name
AL03150203-0805-102	Alabama River	Alabama	S/F&W	Bear Creek	Frisco Railroad Crossing	5	5.05	miles	
AL03150203-0805-103	Alabama River	Alabama	F&W	Frisco Railroad Crossing	Pursley Creek	5	7.55	miles	
AL03150203-0805-104	Alabama River	Alabama	F&W	Pursley Creek	River Mile 131	5	8.72	miles	
AL03150203-0805-105	Alabama River	Alabama	PWS	River Mile 131	Beaver Creek	5	1.52	miles	
AL03160109-0101-150	Riley Maze Creek	Black Warrior	F&W	Tibb Creek	Its source	5	4.13	miles	
AL03160109-0101-600	Tibb Creek	Black Warrior	F&W	Mulberry Fork	Its source	5	5.13	miles	
AL03160109-0102-101	Mulberry Fork	Black Warrior	F&W	Broglie River	Blount County Road 6	5	18.23	miles	
AL03160109-0105-101	Brindley Creek	Black Warrior	PWS	Broglie River	State Highway 69	5	7.17	miles	
AL03160109-0105-102	Brindley Creek	Black Warrior	PWS	State Highway 69	Its source	5	9.89	miles	
AL03160109-0201-102	Mud Creek	Black Warrior	F&W	Alabama Highway 31	Its source	5	4.66	miles	
AL03160109-0204-101	Mulberry Fork	Black Warrior	F&W	Martott Creek	Mill Creek	5	2.52	miles	
AL03160109-0204-102	Mulberry Fork	Black Warrior	F&W	Mill Creek	Broglie River	5	17.27	miles	
AL03160109-0403-103	Lost Creek	Black Warrior	F&W	US Highway 78 at Carbon Hill	US Highway 78 north of Cedrum	5	6.53	miles	
AL03160109-0404-101	Cane Creek	Black Warrior	F&W	Lost Creek	Dixie Springs Road	5	7.15	miles	
AL03160109-0404-102	Cane Creek	Black Warrior	LWF	Dixie Springs Road	Alabama Highway 69	5	3.49	miles	
AL03160109-0404-103	Cane Creek	Black Warrior	F&W	Alabama Highway 69	Its source	5	7.38	miles	
AL03160109-0404-500	Black Branch	Black Warrior	F&W	Cane Creek	Its source	5	3.15	miles	
AL03160109-0405-104	Lost Creek	Black Warrior	F&W	Mill dam at Cedrum	Alabama Highway 69 at Oakman	5	17.33	miles	
AL03160109-0503-100	Wolf Creek	Black Warrior	F&W	Lost Creek	Alabama Highway 102	5	38.40	miles	
AL03160109-0601-601	Old Town Creek	Black Warrior	F&W	Mulberry Fork	Pinhook Creek	5	2.71	miles	
AL03160109-0604-900	Baker Creek	Black Warrior	F&W	Mulberry Fork	Its source	5	7.01	miles	
AL03160110-0502-100	Ryan Creek	Black Warrior	F&W	Lake Lewis Smith	Its source	5	16.12	miles	

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03160111-0203-100	Dry Creek	Black Warrior	F&W	Locust Fork	Its source	5	12.00	miles	
AL03160111-0204-101	Locust Fork	Black Warrior	F&W	Little Warrior River	Blount County Road 30	5	27.18	miles	
AL03160111-0303-102	Locust Fork	Black Warrior	F&W	county road between Hayden and County Line	Little Warrior River	5	18.15	miles	
AL03160111-0306-102	Locust Fork	Black Warrior	PWS/F&W	US Highway 31	county road between Hayden and County Line	5	14.86	miles	
AL03160111-0404-102	Locust Fork	Black Warrior	F&W	Jefferson County Road 77	US Highway 31	5	14.25	miles	
AL03160111-0406-101	Newfound Creek	Black Warrior	F&W	Fivemile Creek	Impoundment	5	2.76	miles	
AL03160111-0408-102	Village Creek	Black Warrior	LWF	Second Creek	Woodlawn Bridge	5	12.60	miles	
AL03160111-0408-103	Village Creek	Black Warrior	LWF	Woodlawn Bridge	Its source	5	4.04	miles	
AL03160112-0101-101	Valley Creek	Black Warrior	LWF	19th Street North	Opossum Creek	5	0.90	miles	
AL03160112-0101-200	Opossum Creek	Black Warrior	A&I	Valley Creek	Its source	5	7.45	miles	
AL03160112-0105-101	Mud Creek	Black Warrior	F&W	Valley Creek	Big Branch	5	14.12	miles	
AL03160112-0201-101	Big Yellow Creek	Black Warrior	S/F&W	Bankhead Lake	Its source	5	14.59	miles	
AL03160112-0303-100	Pegues Creek	Black Warrior	F&W	Black Warrior River	Its source	5	4.23	miles	
AL03160112-0304-100	Daniel Creek	Black Warrior	F&W	Black Warrior River	Its source	5	10.42	miles	
AL03160112-0404-102	North River	Black Warrior	F&W	Lake Tuscaloosa	Ellis Creek	5	43.48	miles	
AL03160113-0703-100	Cottonwood Creek	Black Warrior	F&W	Big Prarie Creek	Its source	5	11.42	miles	
AL03150202-0101-102	Cahaba River	Cahaba	OAW/F&W	US Highway 11	I-59	5	3.13	miles	
AL03150202-0103-300	Lee Branch	Cahaba	F&W	Lake Purdy	Its source	5	2.87	miles	
AL03150202-0104-102	Cahaba River	Cahaba	F&W	Grant's Mill Road	US Highway 11	5	21.11	miles	
AL03150202-0201-101	Cahaba River	Cahaba	F&W	Buck Creek	Dam near US Highway 280	5	17.46	miles	
AL03150202-0201-102	Cahaba River	Cahaba	OAW/PWS	Dam near US Highway 280	Grant's Mill Road	5	13.45	miles	
AL03150202-0202-101	Buck Creek	Cahaba	F&W	Cahaba River	Cahaba Valley Creek	5	2.92	miles	
AL03150202-0202-401	Cahaba Valley Creek	Cahaba	F&W	Buck Creek	US Highway 31	5	4.67	miles	
AL03150202-0203-101	Cahaba River	Cahaba	OAW/F&W	Shades Creek	Shelby County Road 52	5	23.61	miles	
AL03150202-0203-102	Cahaba River	Cahaba	F&W	Shelby County Road 52	Buck Creek	5	3.62	miles	
AL03150202-0405-100	Cahaba River	Cahaba	OAW/F&W	lower Little Cahaba River	Shades Creek	5	13.51	miles	
AL03150202-0503-102	Cahaba River	Cahaba	OAW/S	Alabama Highway 82	lower Little Cahaba River	5	10.58	miles	
AL03150202-0901-100	Childers Creek	Cahaba	F&W	Cahaba River	Its source	5	18.79	miles	
AL03130003-0101-100	Mill Creek	Chattahoochee	F&W	Chattahoochee River	Its source	5	9.51	miles	
AL03130003-1307-100	Barbour Creek	Chattahoochee	F&W	Chattahoochee River	Its source	5	25.04	miles	
AL03130004-0601-201	Poplar Spring Branch	Chattahoochee	F&W	Omussee Creek	Ross Clark Circle	5	2.13	miles	
AL03130012-0201-400	Cypress Creek	Chipola	F&W	Limestone Creek	Its source	5	8.11	miles	

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03140201-0404-100	Judy Creek	Choctawhatchee	F&W	West Fork Choctawhatchee River	Its source	5	21.38 miles		
AL03140201-0502-100	Hurricane Creek	Choctawhatchee	F&W	Choctawhatchee River	Its source	5	8.56 miles		
AL03140201-0602-201	Beaver Creek	Choctawhatchee	F&W	Newton Creek	Dothan WWP	5	2.03 miles		
AL03140201-0704-600	Dowling Branch	Choctawhatchee	F&W	Cox Mill Creek	Its source	5	2.06 miles		
AL03140201-1001-100	Harrand Creek	Choctawhatchee	F&W	Claybank Creek	Its source	5	9.49 miles		
AL03140201-1001-700	UT to Harrand Creek	Choctawhatchee	F&W	Harrand Creek	Its source	5	3.45 miles		
AL03140202-0502-102	Walnut Creek	Choctawhatchee	F&W	Pike County Road 59	Walters Branch	5	2.61 miles		
AL03150105-0807-102	Spring Creek	Coosa	F&W	Weiss Lake	Mud Creek	5	5.39 miles		
AL03150105-0807-103	Spring Creek	Coosa	F&W	Mud Creek	Its source	5	9.88 miles		
AL03150105-0807-200	Mud Creek	Coosa	F&W	Spring Creek	Its source	5	5.24 miles		
AL03150106-0612-100	Choccolocco Creek	Coosa	F&W	Coosa River	Hillabee Creek	5	42.23 miles		
AL03150107-0102-700	unnamed tributary to Dry Branch	Coosa	F&W	Dry Branch	Its source	5	1.58 miles		
AL03150107-0502-100	Buxahatchee Creek	Coosa	F&W	Waxahatchee Creek	Its source	5	14.00 miles		
AL03170008-0205-102	Puppy Creek	Escatawpa	F&W	Alabama Highway 217	Its source	5	11.32 miles		
AL03170008-0302-100	Escatawpa River	Escatawpa	S/F&W	AL-MS state line	Its source	5	70.66 miles		
AL03170008-0402-400	Bogey Branch	Escatawpa	F&W	Big Creek Lake	Its source	5	4.58 miles		
AL03170008-0402-700	Collins Creek	Escatawpa	F&W	Big Creek	Its source	5	5.15 miles		
AL03170009-0102-100	Bayou La Batre	Escatawpa	F&W	Portersville Bay	Its source	5	5.46 miles		
AL03160204-0105-302	Tensaw River	Mobile	OAW/F&W	Junction of Briar Lake	Junction of Tensaw Lake	5	2.93 miles		
AL03160204-0105-303	Tensaw River	Mobile	F&W	Junction of Tensaw Lake	Mobile River	5	10.98 miles		
AL03160204-0106-101	Cold Creek	Mobile	F&W	Mobile River	Dam 1 1/2 miles west of US Highway 43	5	4.21 miles		
AL03160204-0201-200	Middle River	Mobile	F&W	Tensaw River (RM 20.6)	Tensaw River (RM 37.7)	5	9.72 miles		
AL03160204-0303-102	Mobile River	Mobile	F&W	Spanish River	Cold Creek	5	20.90 miles		
AL03160204-0402-100	Chickasaw Creek	Mobile	S/F&W	Mobile College	Its source	5	26.82 miles		
AL03160204-0404-101	Chickasaw Creek	Mobile	LWF	Mobile River	US Highway 43	5	4.43 miles		
AL03160204-0404-102	Chickasaw Creek	Mobile	F&W	US Highway 43	Mobile College	5	6.91 miles		
AL03160204-0503-102	Bay Minette Creek	Mobile	F&W	Bay Minette	Its source	5	18.15 miles		
AL03160204-0504-101	Threemile Creek	Mobile	A&I	Mobile River	Toulmins Spring Branch	5	2.04 miles		
AL03160204-0504-102	Threemile Creek	Mobile	A&I	Toulmins Spring Branch	Mobile Street	5	4.34 miles		
AL03160204-0504-103	Threemile Creek	Mobile	A&I	Mobile Street	Its source	5	8.85 miles		
AL03160204-0504-300	Toulmins Spring Branch	Mobile	F&W	Threemile Creek	Its source	5	3.22 miles		
AL03160204-0504-500	UT to Threemile Creek	Mobile	F&W	Threemile Creek	Its source	5	1.04 miles		
AL03160204-0505-100	Mobile River	Mobile	LWF	Mobile Bay	Spanish River	5	7.61 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03160204-0505-201	Tensaw River	Mobile	F&W	Mobile Bay	Junction of Tensaw and Apalachee Rivers	5	6.51 miles		
AL03160204-0505-202	Tensaw River	Mobile	OA W/S/F&W	Junction of Tensaw and Apalachee Rivers	Junction of Briar Lake	5	21.73 miles		
AL03160205-0202-300	Bolton Branch	Mobile	F&W	Dog River	Its source	5	2.44 miles		
AL03160205-0202-400	Eslava Creek	Mobile	F&W	Dog River	Its source	5	3.17 miles		
AL03160205-0202-700	Bolton Branch	Mobile	F&W	Moore Creek	Its source	5	5.69 miles		
AL03160205-0205-100	Middle Fork Deer River	Mobile	F&W	Mobile Bay	Its source	5	3.51 miles		
AL03160205-0206-100	Fowl River	Mobile	S/F&W	Mobile Bay	Its source	5	20.56 miles		
AL03160205-0306-200	Polecat Creek	Mobile	S/F&W	Fish River	Its source	5	7.89 miles		
AL03160205-0306-500	Baker Branch	Mobile	F&W	Polecat Creek	Its source	5	6.15 miles		
AL03160205-0307-102	Fish River	Mobile	S/F&W	Weeks Bay	Its source	5	30.01 miles		
AL03160205-0310-101	Bon Secour River	Mobile	S/F&W	Bon Secour Bay	One mile upstream from first bridge above its mouth	5	9.12 miles		
AL03160205-0310-102	Bon Secour River	Mobile	S/F&W	One mile upstream from first bridge above its mouth	Its source	5	4.38 miles		
AL03160205-0310-702	UT to Bon Secour River	Mobile	F&W	Baldwin County Road 65	Its source	5	1.64 miles		
AL03140103-0102-700	UT to Jackson Lake	Perdido-Escambia	F&W	W.F. Jackson Lake	Its source	5	1.05 miles		
AL03140103-0102-800	UT to Jackson Lake 3-C	Perdido-Escambia	F&W	W.F. Jackson Lake	Its source	5	1.77 miles		
AL03140103-0402-100	Yellow River	Perdido-Escambia	F&W	Alabama-Florida state line	North Creek	5	14.87 miles		
AL03140104-0104-100	Blackwater River	Perdido-Escambia	F&W	Alabama-Florida state line	Its source	5	2.78 miles		
AL03140106-0302-101	Brushy Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Bogey Branch	5	0.22 miles		
AL03140106-0302-201	Bogey Branch	Perdido-Escambia	F&W	Brushy Creek	Atmore WWTP	5	1.54 miles		
AL03140106-0302-202	Bogey Branch	Perdido-Escambia	F&W	Atmore WWTP	Masland Carpets WWTP	5	0.22 miles		
AL03140106-0502-100	Slyx River	Perdido-Escambia	S/F&W	Hollinger Creek	Its source	5	18.52 miles		
AL03140106-0506-100	Slyx River	Perdido-Escambia	F&W	Perdido River	Hollinger Creek	5	22.72 miles		
AL03140106-0603-101	Blackwater River	Perdido-Escambia	F&W	Perdido River	Narrow Gap Creek	5	3.11 miles		
AL03140106-0703-100	Perdido River	Perdido-Escambia	F&W	Perdido Bay	Jacks Branch	5	21.93 miles		
AL03140303-0302-101	Rocky Creek	Perdido-Escambia	F&W	Persimmon Creek	County road north of Chapman	5	8.01 miles		
AL03140304-0106-100	Concuh River	Perdido-Escambia	F&W	Alabama-Florida state line	Manlie Branch	5	12.70 miles		
AL03140304-0605-100	Little Escambia Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Wild Fork Creek	5	12.21 miles		

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Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL03140305-0301-100	Big Escambia Creek	Perdido-Escambia	F&W	Alabama-Florida state line	Big Spring Creek	5	17.03 miles		
AL03150110-0201-700	Pepperell Branch	Tallapoosa	F&W	Sougalahatchee Creek	Its source	5	6.67 miles		
AL03150110-0301-400	Moores Mill Creek	Tallapoosa	S/F&W	Chewacla Creek	Its source	5	10.51 miles		
AL03150110-0504-101	Calebee Creek	Tallapoosa	F&W	Tallapoosa River	Macon County Road 9	5	10.26 miles		
AL03150110-0702-102	Cubahatchee Creek	Tallapoosa	S/F&W	Coon Hop Creek	Its source	5	22.37 miles		
AL03150110-0703-100	Cubahatchee Creek	Tallapoosa	S/F&W	Tallapoosa River	Coon Hop Creek	5	22.07 miles		
AL03150110-0903-101	Line Creek	Tallapoosa	F&W	Tallapoosa River	Johnsons Creek	5	10.29 miles		
AL03150110-0903-102	Line Creek	Tallapoosa	F&W	Johnsons Creek	Panther Creek	5	5.51 miles		
AL06030001-0402-401	Warren Smith Creek	Tennessee	F&W	Dry Creek	Ross Branch	5	1.96 miles		
AL06030002-0105-101	Guess Creek	Tennessee	F&W	Paint Rock River	Bee Branch	5	11.08 miles		
AL06030002-0304-100	Mountain Fork	Tennessee	F&W	Flint River	Its source	5	14.90 miles		
AL06030002-0304-200	Hester Creek	Tennessee	F&W	Mountain Fork	Alabama-Tennessee state line	5	7.27 miles		
AL06030002-0306-100	Beaverdam Creek	Tennessee	F&W	Brier Fork	Its source	5	22.14 miles		
AL06030002-0307-100	Brier Fork	Tennessee	F&W	Flint River	Alabama-Tennessee state line	5	21.89 miles		
AL06030002-0401-102	Flint River	Tennessee	F&W	Alabama Highway 72	Mountain Fork	5	15.32 miles		
AL06030002-0403-101	Hurricane Creek	Tennessee	F&W	Flint River	Gurley Pike Road	5	7.31 miles		
AL06030002-0404-200	Goose Creek	Tennessee	F&W	Flint River	Its source	5	8.89 miles		
AL06030002-0502-101	Huntsville Spring Branch	Tennessee	F&W	Indian Creek	Johnson Road (Huntsville Field)	5	11.08 miles		
AL06030002-0502-102	Huntsville Spring Branch	Tennessee	F&W	Johnson Road (Huntsville Field)	Brogan Branch	5	1.98 miles		
AL06030002-0505-101	Indian Creek	Tennessee	F&W	Tennessee River	Martin Road (Redstone Arsenal)	5	7.69 miles		
AL06030002-0601-300	Hughes Creek	Tennessee	F&W	Cotaco Creek	Its source	5	3.02 miles		
AL06030002-0601-700	Mill Pond Creek	Tennessee	F&W	Hog Jaw Creek	Its source	5	1.29 miles		
AL06030002-0602-102	West Fork Cotaco Creek	Tennessee	F&W	Alabama Highway 67	Frost Creek	5	8.12 miles		
AL06030002-0602-200	Mud Creek	Tennessee	F&W	West Fork Cotaco Creek	Its source	5	3.42 miles		
AL06030002-0603-102	Cotaco Creek	Tennessee	S/F&W	Guyer Branch	West Fork Cotaco Creek	5	5.38 miles		
AL06030002-0604-100	Town Creek	Tennessee	F&W	Cotaco Creek	Its source	5	8.66 miles		
AL06030002-0802-201	French Mill Creek	Tennessee	F&W	Piney Creek	Unnamed tributary in Pine Swamp	5	5.21 miles		
AL06030002-1002-300	Herrin Creek	Tennessee	F&W	Crowdabout Creek	Its source	5	6.21 miles		
AL06030002-1008-200	Flat Creek	Tennessee	F&W	West Flint Creek	Its source	5	7.78 miles		
AL06030002-1204-103	Second Creek	Tennessee	F&W	Lauderdale County Road 76	Alabama-Tennessee state line	5	13.00 miles		

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL06030004-0102-100	Shoal Creek	Tennessee	F&W	Elk River	Alabama-Tennessee state line	5	7.47 miles		
AL06030004-0104-102	Anderson Creek	Tennessee	F&W	Snake Road bridge	Its source	5	9.31 miles		
AL06030005-0701-201	McKiernan Creek	Tennessee	PWS/S/F&W	Tennessee River	Shogog Creek	5	2.71 miles		
AL06030005-0702-100	Pond Creek	Tennessee	A&I	Tennessee River	Its source	5	12.43 miles		
AL06030006-0101-700	Little Dice Branch	Tennessee	F&W	Bear Creek	Its source	5	3.83 miles		
AL06030006-0103-103	Bear Creek	Tennessee	S/F&W	Mill Creek	Upper Bear Creek Dam	5	3.00 miles		
AL03160201-0903-101	Wahalak Creek	Tombigbee (Lower)	F&W	Tombigbee River	Spear Creek	5	14.08 miles		
AL03160203-0601-100	Bassett Creek	Tombigbee (Lower)	F&W	Little Bassett Creek	Its source	5	12.81 miles		
AL03160203-1103-102	Tombigbee River	Tombigbee (Lower)	F&W	Upper end of Bilbo Island	Olin Basin	5	3.80 miles		
AL03160203-1103-700	Bilbo Creek	Tombigbee (Lower)	S/F&W	Tombigbee River	Its source	5	29.27 miles		
AL03160103-0204-202	Purgatory Creek	Tombigbee (Upper)	F&W	Wickett Creek	US Highway 278	5	1.77 miles		
AL03160103-0204-203	Purgatory Creek	Tombigbee (Upper)	PWS/F&W	US Highway 278	Its source	5	1.21 miles		
AL03160105-0101-200	East Branch Luxapallila Creek	Tombigbee (Upper)	PWS/F&W	Luxapallila Creek	Its source	5	10.81 miles		
AL03160106-0607-101	Factory Creek	Tombigbee (Upper)	F&W	Tombigbee River	End of embayment	5	1.80 miles		
AL03160107-0306-100	Sipsey River	Tombigbee (Upper)	F&W	Tombigbee River	Tuscaloosa county line	5	43.49 miles		
AL03150106-0104-101	Coosa River	Coosa	F&W	Big Wills Creek	City of Gadsden water supply intake	5	245.39 acres	Neely Henry Lake	
AL03150106-0104-102	Coosa River	Coosa	PWS/F&W	City of Gadsden water supply intake	Weiss dam powerhouse	5	1897.43 acres	Neely Henry Lake	
AL03150106-0309-101	Coosa River	Coosa	S/F&W	Neely Henry Dam	McCardney's Ferry	5	5487.94 acres	Neely Henry Lake	
AL03150106-0309-102	Coosa River	Coosa	F&W	McCardney's Ferry	Big Wills Creek	5	3502.52 acres	Neely Henry Lake	
AL03150106-0501-101	Coosa River	Coosa	PWS/S/F&W	Broken Arrow Creek	Trout Creek	5	1450.26 acres	Logan Martin Lake	
AL03150106-0501-102	Coosa River	Coosa	S/F&W	Trout Creek	Neely Henry Dam	5	820.38 acres	Logan Martin Lake	
AL03150106-0801-100	Coosa River	Coosa	S/F&W	Logan Martin Dam	Broken Arrow Creek	5	14415.67 acres	Logan Martin Lake	
AL03150106-0808-102	Coosa River	Coosa	PWS/S/F&W	River Mile 89	Logan Martin Dam	5	698.25 acres	Lay Lake	
AL03150107-0101-102	Coosa River	Coosa	S/F&W	Southern RR Bridge	River Mile 89	5	862.40 acres	Lay Lake	
AL03150107-0401-100	Coosa River	Coosa	PWS/S/F&W	Lay Dam	Southern RR Bridge	5	11806.34 acres	Lay Lake	
AL03150107-0601-100	Coosa River	Coosa	PWS/S/F&W	Mitchell Dam	Lay Dam	5	5400.33 acres	Mitchell Lake	
AL03150110-0204-101	Sougahtatchee Creek	Tallapoosa	PWS/S/F&W	Tallapoosa River	End of embayment	5	203.78 acres	Yates Lake	
AL06030004-0105-101	Elk River	Tennessee	S/F&W	Tennessee River	Anderson Creek	5	1569.21 acres	Wheeler Lake	

Categorization of Alabama Waters

Categorization of Alabama Waters

Assessment Unit ID	Waterbody Name	River Basin	Classification	From	To	Catego ry	Size	Type	Comment
AL06030006-0103-101	Bear Creek	Tennessee	PW/S/S/F&W	Bear Creek Lake Dam	Alabama Highway 187	5	653.54 acres		Bear Creek Lake
AL03160203-1103-800	Olin Basin	Tombigbee (Lower)	F&W	Olin Basin		5	71.06 acres		
AL03160106-0402-102	Tombigbee River	Tombigbee (Upper)	S/F&W	Beville Dam	Alabama-Mississippi state line	5	2008.15 acres		Aliceville Reservoir

Category 5 Estuaries

AL03170009-0201-100	Mississippi Sound	Escatawpa	SH/S/F&W	Mississippi Sound		5	93.72 square miles		
AL03170009-0201-200	Portersville Bay	Escatawpa	SH/S/F&W	1000 feet west of outfall	Bayou la Batre Utilities outfall	5	18.81 square miles		
AL03170009-0201-300	Grand Bay	Escatawpa	SH/S/F&W	Grand Bay		5	30.73 square miles		
AL03160205-0104-100	Mobile Bay	Mobile	SH/F&W	Segment classified for shellfish harvesting		5	170.60 square miles		
AL03160205-0104-200	Bon Secour Bay	Mobile	SH/S/F&W	Segment classified for shellfish harvesting		5	103.84 square miles		
AL03160205-0311-100	Oyster Bay	Mobile	SH/F&W	Oyster Bay		5	0.95 square miles		
AL-Gulf-of-Mexico	Gulf of Mexico	Mobile	SH/S/F&W	Mississippi	Florida	5	201.02 square miles		
AL03140107-0103-100	Perdido Bay	Perdido-Escambia	SH/S/F&W	Lillian Bridge	Its source	5	13.14 square miles		
AL03140107-0205-100	Little Lagoon	Perdido-Escambia	SH/S/F&W	In its entirety		5	3.96 square miles		

Appendix C
Alabama's 2006 §303(d) List Fact Sheet

Alabama's 2006 §303(d) List Fact Sheet

Background

§303(d) of the Clean Water Act requires that each state identify those waters that do not currently support designated uses, and to establish a priority ranking of these waters by taking into account the severity of the pollution and the designated uses of such waters. For each waterbody on the list, the state is required to establish a total maximum daily load (TMDL) for the pollutant or pollutants of concern at a level necessary to implement the applicable water quality standards. Guidance issued in August 1997 by the Environmental Protection Agency (EPA) suggested that states also include a schedule for TMDL development. The TMDL schedule included as part of Alabama's 2006 List provides the expected date the specific TMDL will be drafted and submitted for public notice and comment. TMDL dates range from one to ten years following EPA approval of the 2006 §303(d) List. For some waterbody/pollutant combinations the Draft TMDL date is historical (i.e. 2002), which signifies a Draft TMDL has been established but remains to be finalized and approved for various reasons.

Alabama's 2006 §303(d) List

Alabama's 2006 §303(d) List includes segments of rivers, streams, lakes, reservoirs, and estuaries that do not fully support their currently designated use or uses. Most of the waterbodies on the 2006 §303(d) List also appeared on Alabama's 2004 §303(d) List as submitted to EPA in April 2004. The Department has attempted to obtain and evaluate all existing and readily available water quality-related data and information. The notice soliciting information is included in **Appendix A**. The notice was published in Alabama's four major daily newspapers, appeared on the Department's web page, and was mailed to the Department's general mailing list. Data in the Department's multiple databases, information from §319 nonpoint assessments, special watershed studies, other federal and state agencies, industries, and watershed initiatives were evaluated as the 2006 §303(d) List was compiled. Any individual or organization may submit additional data or information during the advertised comment period relative to water quality impairment in waterbodies in Alabama. Chemical, physical, and biological data collected primarily during the previous six years have been considered in the preparation of the 2006 §303(d) List, consistent with the Department's water quality assessment and listing methodology. Comments on the methodology were solicited in the public notice included in **Appendix A**. The assessment and listing methodology is included as **Appendix B**. Data sources include the Alabama Department of Environmental Management, the Alabama Department of Public Health, the Geological Survey of Alabama, the United States Geological Survey, the Tennessee Valley Authority, other public agencies, universities, county and municipal governments, and industries.

The list contains information such as the waterbody name, county(s) in which the listed segment is located, dates when the data on which the listing is based were collected, cause(s) for the use impairment, the source(s) of the pollutant(s) causing the impairment, the size of the impaired segment, and the location of the listed waterbody. Also included on the list is the segment's priority ranking (high, low, medium), which was developed using the prioritization strategy included in the assessment and listing methodology in **Appendix B**.

Changes Since the 2004 §303(d) List

A number of differences exist between the 2006 §303(d) List and the 2004 §303(d) List. Some of the changes were to correct errors or omissions in the 2004 List and to provide additional or updated information about waterbodies on the list. Other significant changes since 2004 include the addition and deletion of waterbodies. **Table 1** shows the waterbody/pollutant combinations that are proposed for addition to Alabama's §303(d) List and the justification for the additions. **Table 2** provides the waterbody/pollutant combinations that are proposed for removal from the list and the corresponding justification for each removal.

Changes have also been made to the TMDL completion schedule since the 2004 Section 303(d) List. The changes reflect the pace of TMDL development that can reasonably be expected given ADEM's current funding and staffing levels. The TMDL schedule provides the expected date the specific TMDL will be drafted and submitted for public notice and comment. TMDL dates range from one to seven years following EPA approval of the 2006 303(d) List. Where more than one TMDL is required for a segment, TMDLs for specific pollutants may be developed in advance of the expected date shown on the list. A notice of availability will be published on the Department's web page as draft TMDLs are completed and offered for public review and comment.

Table 3 provides a listing of other changes appearing on the 2006 §303(d) List that were not on the 2004 List. Most of these changes result from corrections to the hydrological unit codes for Alabama which are the basis for the assessment unit number assigned to each listed segment. Many previously listed segments have been subdivided to coincide with the new hydrological unit codes and to more closely reflect the designated uses shown in ADEM Administrative Rules 335-6-11-.02.

Table 4 provides revisions made between the draft 2006 List and the final 2006 List. These revisions were made to the list as a result of additional minor errors or omissions identified by ADEM staff since the Draft 2006 §303(d) List was public noticed. Segment lengths for some previously listed segments may be slightly different due to the use of the available high resolution National Hydrography Database (NHD) for delineation of listed segments and the use of the EPA Assessment Database (ADB) for tracking purposes.

Changes Since the Draft 2006 §303(d) List

Three segments of the Cahaba River (AL03150202-0104-102, AL03150202-0201-102, AL03150202-0101-102) were added to the draft 2006 list as impacted by nutrients. The new listing for these segments, which were already on the list for other pollutants, were inadvertently left off the Draft Fact Sheet. They have been included in Table 1 of the final fact sheet.

Table 1
Alabama's 2006 §303(d) List
Waterbody/Pollutant Combinations Added to the 2004 List

The waterbody/pollutant combinations listed in the following table have been added to Alabama's 2006 §303(d) List for the reasons presented in the table.

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
AL03150201-0402-100	Pintlalla Creek	Alabama	Crenshaw Montgomery	Pathogens	United States Geological Survey National Water Information System 2000,2001; site number 02421115.	USGS, 1999-2000
AL03150201-0203-102	Autauga Creek	Alabama	Autauga	Unknown	From Surface Water Quality Screening Assessment of the Alabama River Basin – 2000, page 57. “At AUC-2, Autauga Creek is a low-gradient, sand and gravel bottomed stream located in the Fall Line Hills (65i) subcoregion (Appendix F-3a). Habitat quality was assessed as excellent for this stream type. However, only 4 EPT families were collected at the site, indicating the macroinvertebrate community to be in poor condition (Appendix F-3b).	ADEM, 2000
AL03150203-0802-100	Pursley Creek	Alabama	Wilcox	Pathogens	ADEM 303(d) Monitoring - 2000-2001, Stations PURW-1, PURW-2, PURW-3.	ADEM, 2000-2001

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
AL03150203-0802-400	UT to Pursley Creek	Alabama	Wilcox	Pathogens	ADEM 303(d) Monitoring - 2000-2001, Station TWNW-1.	ADEM, 2000-2001
AL03160109-0601-601	Old Town Creek	Black Warrior	Walker	Nutrients Siltation	From Surface Water Quality Screening Assessments of the Cahaba Black Warrior River Basins – 2002, page 94. “Old Town Creek: In 2002, Old Town Creek at OTC-1 was a relatively wide and open glide-pool stream characterized by sand, silt, and gravel substrates (Appendix J). The macroinvertebrate community was assessed as poor (Appendix K). Filamentous algae was common, suggesting nutrient enrichment as a potential cause of the impairment. Deposits of sand and sludge were noted and sediments were characterized by an anaerobic smell. Conductivity, alkalinity, hardness, total dissolved solids, and nitrogen concentrations (TKN, NO ₃ +NO ₂ -N) were elevated during June of 2002 (Appendix M). Intensive water quality sampling was conducted once on Old Town Creek at OTC-1 and OTC-2 during May of 1999 as part of ADEM’s §303(d) Monitoring Program (Appendix P). Both sites	ADEM, 2002

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					are located within the Shale Hills (68f) subecoregion (Appendix E). Nitrate+nitrite-nitrogen was elevated at OTC-1. Total Kjeldahl nitrogen was above background levels at OTC-2.” Poor macro assessment and comments from field biologist indicate impairment.	
AL03160109-0101-600	Tibb Creek	Black Warrior	Cullman Marshall	Toxicity Siltation	From Water Quality Assessment Riley-Maze Creek Arab, Alabama Cullman County, page 3. “The results of this study indicate that Riley Maze Creek below the Arab WWTP is severely impaired. Degradation to the macroinvertebrate community below the discharge was evidenced by low EPT taxa richness. The impairment is probably due to a combination of effluent toxicity and the presence of sewage solids on the streambed. The data from RMA-4, further downstream from the WWTP, suggest that the stream had not yet recovered from the adverse impacts of the WWTP.” Poor macro (WMB-I) assessment, reported effluent toxicity, sediment from WWTP.	ADEM, 1998

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
AL03160109-0101-150	Riley Maze Creek	Black Warrior	Cullman Marshall	Toxicity Siltation	From Water Quality Assessment Riley-Maze Creek Arab, Alabama Cullman County, page 3 . “The results of this study indicate that Riley Maze Creek below the Arab WWTP is severely impaired. Degradation to the macroinvertebrate community below the discharge was evidenced by low EPT taxa richness. The impairment is probably due to a combination of effluent toxicity and the presence of sewage solids on the streambed. The data from RMA-4, further downstream from the WWTP, suggest that the stream had not yet recovered from the adverse impacts of the WWTP.” Poor macro (WMB-I) assessment, reported effluent toxicity, sediment from WWTP.	ADEM, 1998
AL03160110-0502-100	Ryan Creek	Black Warrior	Cullman	Pathogens	From Surface Water Quality Screening Assessments of the Cahaba Black Warrior River Basins – 2002, page 130 . Geomean = 221 colonies/100 ml.	ADEM, 2002
AL03160109-0604-900	Baker Creek	Black Warrior	Walker	Siltation	From Surface Water Quality Screening Assessments of the Cahaba Black Warrior River Basins – 2002, page 109 . “Located within the Shale Hills	ADEM, 2002

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					(68f) subecoregion, Baker Creek at BAKW-10 is characterized by deep pools and gravel riffles (Appendix J). Substrates were a mixture of sand, organic silt, gravel, and clay. Despite sediment deposition and a lack of instream habitat, habitat quality was rated as good. A bioassessment completed at the site indicated the macroinvertebrate community to be in poor condition (Appendix G). One-time water quality sampling conducted in June of 2002 indicated relatively high alkalinity, hardness, and conductivity (Appendix M). Concentrations of nitrate+nitrite-nitrogen and total dissolved solids were also elevated (Appendix M).” One Level III WMB-EPT. No numeric criteria exceedances. Limited water quality data.	
AL03160111-0408-102	Village Creek	Black Warrior	Jefferson	Pathogens Pesticides (Dieldrin)	From Surface Water Screening Assessment of the Cahaba and Black Warrior River Basins - 2002, ADEM, 2004. Appendix P-3 - Stations VLGJ-4, VLGJ-3, VLGJ-1. United States Geological Survey National Water Information System 2000,2001; site number	ADEM, 2002, 2004 USGS 2000, 2001

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					02458150.	
AL03160111-0408-103	Village Creek	Black Warrior	Jefferson	Pathogens Pesticides (Dieldrin)	From Surface Water Screening Assessment of the Cahaba and Black Warrior River Basins - 2002 , ADEM, 2004. Appendix P-3 - Stations VLGJ-4, VLGJ-3, VLGJ-1. United States Geological Survey National Water Information System 2000,2001; site number 02458150.	ADEM, 2002, 2004 USGS 2000, 2001
AL03160112-0303-100	Pegues Creek	Black Warrior	Tuscaloosa	Metals (Cr, Pb) Siltation	From Surface Water Quality Screening Assessments of the Cahaba Black Warrior River Basins – 2002, page 163 . “Pegues Creek at PGC-1 was a riffle-run stream located in the Shale Hills (68f) subcoregion (Appendix P-1). Substrate was mainly gravel with some cobble and silt. Habitat quality was impacted by embeddedness, sediment deposition, and eroded banks. Six EPT families were collected, indicating the macroinvertebrate community to be in poor condition (Appendix P-2). Intensive water quality data were collected from Pegues Creek at PGC-1 from May through September of 1999 (Appendix P-	ADEM, 2002

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					3). Mean conductivity was 779 μ mhos at 25oC, 7 times greater than values measured at least-impaired ecoregional reference sites. Chromium, iron, and manganese were periodically elevated (Appendix P-4).” Elevated conductivity indicates acid mine drainage.	
AL03160112-0304-100	Daniel Creek	Black Warrior	Tuscaloosa	Metals (Cr, Pb)	From Surface Water Quality Screening Assessments of the Cahaba Black Warrior River Basins – 2002, page 163 . “Daniel Creek at DNC-1 is a cobble-gravel stream located in the Shale Hills (68f) subcoregion (Appendix P-1). Habitat quality was assessed as excellent. Three EPT families were collected, indicating the macroinvertebrate community to be in poor condition (Appendix P-2). Intensive water quality data were collected from Daniel Creek at DNC-1 from May through September of 1999 (Appendix P-3). Total dissolved solids were not measured, but mean conductivity was 1,922 μ mhos at 25oC, approximately 19 times greater than values measured at least-impaired ecoregional reference sites (ADEM 2004d). Chromium,	ADEM, 2002

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					iron, and manganese were periodically elevated (Appendix P-4).” Elevated conductivity indicates acid mine drainage.	
AL03160113-0703-100	Cottonwood Creek	Black Warrior	Hale Marengo Perry	OE/DO Siltation Nutrients	From Surface Water Quality Screening Assessments of the Cahaba Black Warrior River Basins – 2002, page 186 . “At COTH-57c, Cottonwood Creek was a low-gradient, clay, gravel, and sand-bottomed stream located in the Blackland Prairie (65a) subcoregion (Appendix J). Water quality at the site was severely impacted by permitted runoff from land application activities upstream of the sampling reach (ADEM in house memo). One-time water quality sampling was conducted at COTH-57c on May 8 th of 2002 (Appendix M). The dissolved oxygen concentration was measured at 2.2 mg/L. Nutrient concentrations were very high (NH ₃ -N=7.0 mg/L; TKN=7.4 mg/L; TP=2.1 mg/L, DRP=0.5 mg/L). Conductivity, total dissolved solids, alkalinity, and hardness were also elevated. Habitat quality was impaired from heavy sedimentation, poor instream	ADEM, 2002

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					habitat, and eroded banks. Algal mats and decaying algae were common at the site. No EPT families were collected, indicating the macroinvertebrate community to be in very poor condition (Appendix K).” Failure to properly operate the land application waste disposal site is contributing to the water quality impairment at this site. Additional water quality data has been collected during the investigation of the facility.	
AL03150202-0104-102	Cahaba River	Cahaba	Jefferson St. Clair	Nutrients	EPA Region 4 SEDS Cahaba River: Biological and Water Quality Studies 2002 Report- chemical, physical and biological data collected by EPA in 2001 and 2002 document impairment to aquatic life as a result of nutrient over-enrichment within the Upper Cahaba River. In addition, EPA on page 4 of the report recommends the segment from US280 – I-59 of the Cahaba River be reevaluated to include nutrients as a cause of impairment on Alabama’s 303(d) List. GSA’s Hatchet Creek Regional Watershed Study, GSA Open-File Report 0509, 2005- indicates	EPA, 2002 GSA, 2005 ADEM, 2002, 2004-2005 ADEM, 2004

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					<p>fair IBI scores for Cahaba Stations CABJ-6 and C1. The fair IBI score may be a result of “large numbers of stonerollers, as occur in the Cahaba, generally indicate a biologically degraded stream system due to over-nuttrification, over-sedimentation, or both in combination.”</p> <p>ADEM Monitoring Program – 2002, 2004-2005, Station CABJ-9 (same as Station C1). There were a total of 27 Total Phosphorus (TP) samples collected with values ranging from 37 ug/L to 499 ug/L. The growing season median concentration for 2002, 2004 and 2005 was reported at 160 ug/L, 122 ug/L and 112 ug/L respectively. These levels exceed the Cahaba River TP target value of 35 ug/L, which, according to the 2004 Draft Cahaba River Nutrient TMDL is considered necessary to protect designated uses of the Cahaba River.</p>	
AL03150202-0201-102	Cahaba River	Cahaba	Jefferson	Nutrients	<p>EPA Region 4 SESD Cahaba River: Biological and Water Quality Studies 2002 Report- chemical, physical and biological data collected by EPA in 2001 and 2002 document impairment to</p>	<p>EPA, 2002 GSA, 2005 ADEM, 2002, 2004-2005 ADEM, 2004</p>

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					<p>aquatic life as a result of nutrient over-enrichment within the Upper Cahaba River. In addition, EPA on page 4 of the report recommends the segment from US280 – I-59 of the Cahaba River be reevaluated to include nutrients as a cause of impairment on Alabama's 303(d) List.</p> <p>GSA's Hatchet Creek Regional Watershed Study, GSA Open-File Report 0509, 2005- indicates fair IBI scores for Cahaba Stations CABJ-6 and C1. The fair IBI score may be a result of "large numbers of stonerollers, as occur in the Cahaba, generally indicate a biologically degraded stream system due to over-nutrition, over-sedimentation, or both in combination."</p> <p>ADEM Monitoring Program – 2002, 2004-2005, Station CABJ-9 (same as Station C1). There were a total of 27 Total Phosphorus (TP) samples collected with values ranging from 37 ug/L to 499 ug/L. The growing season median concentration for 2002, 2004 and 2005 was reported at 160 ug/L, 122 ug/L and 112 ug/L respectively. These levels exceed</p>	

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					the Cahaba River TP target value of 35 ug/L, which, according to the 2004 Draft Cahaba River Nutrient TMDL is considered necessary to protect designated uses of the Cahaba River.	
AL03150202-0101-102	Cahaba River	Cahaba	Jefferson	Nutrients	<p>EPA Region 4 SEDS Cahaba River: Biological and Water Quality Studies 2002 Report- chemical, physical and biological data collected by EPA in 2001 and 2002 document impairment to aquatic life as a result of nutrient over-enrichment within the Upper Cahaba River. In addition, EPA on page 4 of the report recommends the segment from US280 – I-59 of the Cahaba River be reevaluated to include nutrients as a cause of impairment on Alabama’s 303(d) List.</p> <p>GSA’s Hatchet Creek Regional Watershed Study, GSA Open-File Report 0509, 2005- indicates fair IBI scores for Cahaba Stations CABJ-6 and C1. The fair IBI score may be a result of “large numbers of stonerollers, as occur in the Cahaba, generally indicate a biologically degraded stream system due to over-nuttrification, over-sedimentation, or both in</p>	<p>EPA, 2002 GSA, 2005 ADEM, 2002, 2004-2005 ADEM, 2004</p>

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					combination.” ADEM Monitoring Program – 2002, 2004-2005 , Station CABJ-9 (same as Station C1). There were a total of 27 Total Phosphorus (TP) samples collected with values ranging from 37 ug/L to 499 ug/L. The growing season median concentration for 2002, 2004 and 2005 was reported at 160 ug/L, 122 ug/L and 112 ug/L respectively. These levels exceed the Cahaba River TP target value of 35 ug/L, which, according to the 2004 Draft Cahaba River Nutrient TMDL is considered necessary to protect designated uses of the Cahaba River.	
AL03150202-0901-100	Childers Creek	Cahaba	Dallas	Siltation	From Surface Water Quality Screening Assessments of the Cahaba Black Warrior River Basins – 2002, page 73 . “Sand comprised approximately 90% of the stream bottom of Childers Creek at CHIL-2 (Appendix J). Habitat quality was assessed as fair due to poor bank stability and a lack of instream habitat and riparian buffer. The macroinvertebrate community was assessed as poor (Appendix K). Cattle had direct access to the	ADEM, 2002

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					creek at several points along the reach. Anaerobic sediments and heavy erosion were noted at the site. Total suspended solids, total Kjeldahl nitrogen, and chlorides were elevated (Appendix M).” Poor Macro., comments of field biologist indicate impairment due to sediment from pasture grazing.	
AL03130003-0101-100	Mill Creek	Chattahoochee	Lee Russell	Unknown	From Nonpoint Source Screening Assessment of Southeast Alabama River Basins – 1999, Volume I, Chattahoochee and Chipola Basins, page 43. “Mill Creek at MICR-1 is a riffle-run stream characterized by sand, gravel, and cobble substrates (Table 6a). Habitat quality was estimated as excellent for this stream type and region (Table 6a). However, only 3 EPT families were collected, indicating the station to be in poor condition (Table 7a). A fish IBI assessment found the fish community to be in poor condition (Table 7a).” One Level III WMB-EPT. Excellent habitat. Two of five turbidity measurements elevated at CHA03. (1996 Clean Water Strategy Report)	ADEM, 1999
AL03140201-0404-100	Judy Creek	Choctawhatchee	Barbour Lee	Nutrients	From Nonpoint Source Screening Assessment of Southeast Alabama River Basins – 1999, Volume III, Choctawhatchee Basin, page 16. “Habitat and aquatic	ADEM, 1999

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					macroinvertebrate community assessments were conducted at JDYD-1 in 1998 and 1999. A fish community assessment was conducted in 1999. The habitat was evaluated as good and excellent 1998 and 1999, respectively (Table 6c). The aquatic macroinvertebrate assessments indicated a poor community in both 1998 and 1999. The fish sample collected in 1999 indicated a poor-fair fish community. Water chemistry samples were collected 9 different times from August 1998 through September 1999. Overall water quality data collected from 1998-99 indicated elevated nutrient concentrations compared to reference sites within the region (Appendix F-6C).” One Level III WMB-EPT. No numeric criteria exceedances	
AL03140201-1001-100	Harrand Creek	Choctawhatchee	Coffee Dale	Siltation	From Nonpoint Source Screening Assessment of Southeast Alabama River Basins – 1999, Volume III, Choctawhatchee Basin, page 20. “Habitat and aquatic macroinvertebrate community assessments were conducted at two locations on Harrand Creek in 1999. The sampling reach at HDC-1 was dominated by sand (88%) with lesser amounts of detritus (6%), silt (2%), gravel (2%) and clay (2%). Habitat quality was assessed as excellent	ADEM, 1999

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					using the glide/pool assessment matrix (Table 6c). Seven EPT families were collected indicating a fair aquatic macroinvertebrate community (Table 7c). The sampling reach at HDC-2 was dominated by sand (45%) with lesser amounts of clay (30%), detritus (12%) and silt (12%). Habitat quality was assessed as excellent using the glide/pool assessment matrix (Table 6c). Four EPT families were collected indicating a poor aquatic macroinvertebrate community (Table 7c).” One Level III WMB-EPT. No numeric criteria exceedances	
AL03140201-1001-700	UT to Harrand Creek	Choctawhatchee	Coffee	Pathogens	ADEM 303(d) Monitoring - 1999,2004, Station UTHC-1.	ADEM, 1999,2004
AL03150105-0807-103	Spring Creek	Coosa	Cherokee	Nutrients	ADEM 303(d) Monitoring - 2002; Station SPRC-2.	ADEM, 2002
AL03170009-0201-300	Grand Bay	Escatawpa	Mobile	Pathogens	ADPH Shellfish Harvesting Closure Notices	ADPH, 2003-2005
AL03170008-0402-700	Collins Creek	Escatawpa	Mobile	Metals (As)	ADEM 303(d) Monitoring - 2001, 2002; Station CLNM-1.	ADEM, 2001-2002
AL03160205-0202-700	Bolton Branch	Mobile	Mobile	Pathogens	Mobile Area Water and Sewer Service Water Quality Monitoring Program, Stations MCR-13 and MCR-15.	MAWSS, 2003-2005
AL03160205-0205-100	Middle Fork Deer River	Mobile	Mobile	OE/DO	Mobile Area Water and Sewer Service Water Quality Monitoring Program, Station NFDR-19.	MAWSS, 2003-2005

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
AL03160205-0306-200	Polecat Creek	Mobile	Baldwin	Metals (Hg)	Fish consumption advisory issued by the Alabama Department of Public Health	ADPH, 2005
AL03160205-0310-101	Bon Secour River	Mobile	Baldwin	Metals (Hg)	Fish consumption advisory issued by the Alabama Department of Public Health.	ADPH, 2005
AL03160205-0310-102	Bon Secour River	Mobile	Baldwin	Metals (Hg)	Fish consumption advisory issued by the Alabama Department of Public Health.	ADPH, 2005
AL03160205-0311-100	Oyster Bay	Mobile	Baldwin	Pathogens	ADPH Shellfish Harvesting Closure Notices	ADPH, 2003-2005
AL03160205-0306-500	Baker Branch	Mobile	Baldwin	OE/DO	From Surface Water Quality Screening Assessment of the Escatawpa River, Mobile Bay, and Upper & Lower Tombigbee River Basins – 2001, page 359. “A tributary of Polecat Creek, Baker Branch was monitored at GSA-5a, 1994-1998 (Appendix F-5a). The site is located within the Southern Pine Plains and Hills (65f) subecoregion (Appendix E-1). Based on GSA’s assessment methods, habitat quality was assessed as good (Appendix F-5a; O’Neil et al. 2003). Macroinvertebrate assessment results indicated the community to be in poor condition (Appendix F-	ADEM, 2001

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
					5a; O'Neil et al. 2003). Intensive water quality data collected from May 1995 through September 1998 is provided in Appendix F-5b. The dissolved oxygen concentration was below the Fish & Wildlife water use classification criteria of 5.0 mg/L during 7 (17%) of 41 sampling event events. Fecal coliform concentrations were >2,000 colonies/100mL during 2 (5%) of 41 sampling events. Nitrate/nitrite-nitrogen concentrations were >1.0 mg/L during 28 (68%) of 41 sampling events. Although average nitrate/nitrite-nitrogen concentrations were lower during April-September 1998, dissolved oxygen concentrations were consistently below Fish & Wildlife water use classification criteria.” 18% of the measured DO values were less than the criterion.	
AL03140106-0302-201	Boggy Branch	Perdido-Escambia	Escambia	Pathogens	ADEM 303(d) Monitoring - 2004, Station BOB-4.	ADEM, 2004
AL03140106-0302-201	Boggy Branch	Perdido-Escambia	Escambia	Metals (Pb, Cu)	ADEM 303(d) Monitoring - 2004, Station BOB-4.	ADEM, 2004
AL03140106-0302-202	Boggy Branch	Perdido-Escambia	Escambia	Ammonia	ADEM 303(d) Monitoring - 2004, 2005; Station BOB-3.	ADEM, 2004-2005
AL03140106-0302-101	Brushy Creek	Perdido-Escambia	Escambia	Metals (Pb)	ADEM 303(d) Monitoring - 2004, 2005; Station BOB-4.	ADEM, 2004-2005

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
AL03140106-0703-100	Perdido River	Perdido-Escambia	Baldwin	Metals (Hg)	Fish consumption advisory issued by the Alabama Department of Public Health.	ADPH, 2005
AL03140107-0204-300	Perdido Bay	Perdido-Escambia	Baldwin	Pathogens	2001 - 2002 §303(d) Sampling - Perdido Bay, Stations PB-1, PDBB-2, PDBB-3, PDBB-4.	ADEM, 2001-2002
AL03140107-0205-100	Little Lagoon	Perdido-Escambia	Baldwin	Pathogens	<i>A Survey of Little Lagoon Watershed</i> , ADEM Coastal Program, 2000. Stations LLSS-2 through LLSS-8.	ADEM, 2000
AL03150110-0702-102	Cubahatchee Creek	Tallapoosa	Macon Bullock	Pathogens	ADEM 303(d) Monitoring - 2000, Station CUBM-1.	ADEM, 2000
AL06030002-0304-200	Hester Creek	Tennessee	Madison	Turbidity	United States Geological Survey National Water Information System 1999-2004; site number 0357479650.	USGS, 1999-2004
AL06030002-0401-102	Flint River	Tennessee	Madison	Turbidity	United States Geological Survey National Water Information System 1999-2004; site number 03575100.	USGS 1999-2004
AL06030002-0502-102	Huntsville Spring Branch	Tennessee	Madison	Metals (Hg, As)	Based upon EPA Region 4's review of ADEM's <i>Final Delisting Decision for Huntsville Spring Branch, Metals (ADEM, 2004)</i> , it was determined that insufficient data and information was available to remove Mercury and Arsenic as pollutants of concern.	ADEM, 2004 EPA Correspondence, March 29, 2006
AL06030002-0602-200	Mud Creek	Tennessee	Morgan	OE/DO	ADEM 303(d) Monitoring - 2004, 2005; Station MUDM-1.	ADEM, 2004-2005
AL06030002-0702-100	Pond Creek	Tennessee	Colbert	Metals (Cn, Hg,	Based upon EPA Region 4's review of ADEM's <i>Final Delisting</i>	ADEM, 2004 EPA

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
				As)	<i>Decision for Pond Creek, Metals (ADEM, 2004)</i> , it was determined that insufficient data and information was available to remove Cyanide, Mercury and Arsenic as pollutants of concern.	Correspondence, March 29, 2006
AL06030006-0103-101	Bear Creek (Bear Creek Lake)	Tennessee	Franklin	Metals (Hg)	Fish consumption advisory issued by the Alabama Department of Public Health.	ADPH, 2005
AL03160105-0101-200	East Branch Luxapallila Creek	Upper Tombigbee	Fayette Marion	Pathogens	ADEM 303(d) Monitoring -1999, Station ELBC-1.	ADEM, 1999
AL03160201-0903-101	Wahalak Creek	Lower Tombigbee	Choctaw	Pathogens	ADEM 303(d) Monitoring - 2001, Station WHKC-1.	ADEM, 2001

Table 2
Alabama's 2006 §303(d) List
Waterbody/Pollutants Removed from the 2004 List

The waterbody/pollutant combinations listed in the following table are proposed for removal from Alabama's 2004 §303(d) List and will not be included on Alabama's 2006 §303(d) List for the reasons presented.

Waterbody ID	Waterbody Name	River Basin	County	Pollutant	Good Cause Justification for Removal
AL03150201-0309-100	Catoma Creek	Alabama	Montgomery	OE/DO	TMDL approved by EPA.
AL03160109-0105-101	Brindley Creek	Black Warrior	Cullman	Ammonia	Data collected during 2001-2003 indicated no exceedances of EPA's recommended water quality criteria for ammonia.
AL03160109-0105-102	Brindley Creek	Black Warrior	Cullman	Ammonia	Data collected during 2001-2003 indicated no exceedances of EPA's recommended water quality criteria for ammonia.
AL03160109-0105-102	Brindley Creek	Black Warrior	Cullman	Pathogens	TMDL approved by EPA.
AL03160111-0408-300	Camp Branch	Black Warrior	Jefferson	pH Siltation Other habitat alteration	TMDLs approved by EPA.
AL03160111-0408-102	Village Creek	Black Warrior	Jefferson	Metals pH Siltation	TMDLs approved by EPA.
AL03160111-0408-101	Village Creek (Bayview Lake)	Black Warrior	Jefferson	Siltation	TMDL approved by EPA.

Waterbody ID	Waterbody Name	River Basin	County	Pollutant	Good Cause Justification for Removal
AL03160112-0101-200	Opossum Creek	Black Warrior	Jefferson	OE/DO	A combination of the DO data from the 2002 and 2004 303(d) sampling program yielded a total of 134 samples at five stations. Of these 134 samples collected, no dissolved oxygen values measured less than 3.0 mg/L. Therefore, more recent and accurate data shows that Opossum Creek is fully supporting its use classification with respect to dissolved oxygen.
AL03160112-0503-100	Hurricane Creek	Black Warrior	Tuscaloosa	Metals (Al, Fe) Pathogens Turbidity	TMDLs finalized by EPA.
AL03160112-0502-200	Little Hurricane Creek	Black Warrior	Tuscaloosa	Metals (Al, As, Cu, CrT, Fe) Pathogens	TMDLs finalized by EPA.
AL03160112-0502-300	North Fork of Hurricane Creek	Black Warrior	Tuscaloosa	Metals (Al)	TMDL finalized by EPA.
AL03150202-0201-300	Patton Creek	Cahaba	Jefferson Shelby	OE/DO	TMDL approved by EPA.
AL03150202-0302-100	Shades Creek	Cahaba	Jefferson Bibb Shelby	Siltation Other habitat alteration Turbidity	TMDLs finalized by EPA.
AL03150105-1003-102	Weiss Lake	Coosa	Cherokee	Priority organics Nutrients	TMDLs finalized by EPA.
AL03150105-1001-102	Weiss Lake	Coosa	Cherokee	Priority organics Nutrients	TMDLs finalized by EPA.
AL03170008-0205-102	Puppy Creek	Escatawpa	Mobile	Pathogens	TMDL approved by EPA.

Waterbody ID	Waterbody Name	River Basin	County	Pollutant	Good Cause Justification for Removal
AL03170008-0401-200	Juniper Creek	Escatawpa	Mobile	Pathogens	TMDL approved by EPA.
AL03170009-0102-100	Bayou la Batre	Escatawpa	Mobile	OE/DO	Based on an assessment of all available water quality data, ADEM has determined that a dissolved oxygen impairment for Bayou La Batre does not exist. The low dissolved oxygen concentrations in Bayou La Batre are due to natural conditions. In the summertime, dissolved oxygen concentrations are inversely proportional to salinity at stations BLB-1, BLBM-1, BLBM-2, and BLBM-3. The low dissolved oxygen concentrations are a result of salinity and the tidal influences on Bayou La Batre from Portersville Bay and the Gulf of Mexico.
AL03160204-0403-103	Eightmile Creek	Mobile	Mobile	Pathogens	TMDL approved by EPA.
AL03160204-0403-200	Gum Tree Branch	Mobile	Mobile	Pathogens	TMDL approved by EPA.
AL03160205-0204-301	Rabbit Creek	Mobile	Mobile	OE/DO Pathogens	TMDLs approved by EPA.
AL03160205-0204-101	Dog River	Mobile	Mobile	OE/DO Pathogens	TMDLs approved by EPA.
AL03160205-0204-102	Dog River	Mobile	Mobile	OE/DO Pathogens	TMDLs approved by EPA.
AL03140301-0302-102	Conecuh River	Perdido- Escambia	Pike	Siltation OE/DO	TMDLs approved by EPA.
AL03140301-0404-100	Conecuh River	Perdido- Escambia	Covington	Siltation	TMDL approved by EPA.
AL03140301-0403-102	Conecuh River	Perdido- Escambia	Covington Crenshaw	Siltation	TMDL approved by EPA.
AL03150108-1004-300	Wolf Creek	Tallapoosa	Randolph	Pathogens	TMDL approved by EPA

Waterbody ID	Waterbody Name	River Basin	County	Pollutant	Good Cause Justification for Removal
AL03150109-0503-401	Sugar Creek	Tallapoosa	Tallapoosa	Nutrients	Following relocation of the Sugar Creek WWTP discharge to the Tallapoosa River, 28 monthly nutrient samples collected by ADEM between 2003 and 2005, revealed instream Total Phosphorous values within acceptable range of background conditions established from two comparable eco-regional reference streams.
AL03150109-0503-401	Sugar Creek	Tallapoosa	Tallapoosa	Chloride	Following relocation of the Sugar Creek WWTP discharge to the Tallapoosa River, 13 monthly chloride samples collected by ADEM in 2005 complied with EPA recommended acute and chronic criteria for chloride.
AL06030002-0404-200	Goose Creek	Tennessee	Madison	OE/DO	TMDL approved by EPA
AL06030002-0405-100	Yellow Bank Creek	Tennessee	Madison	OE/DO	TMDL approved by EPA
AL06030002-0405-100	Flint River	Tennessee	Madison	OE/DO	In 2003 and 2005, ADEM collected water column DO measurements at three stations on the listed segment of Flint River, yielding a total of 51 samples. Of the 51 samples collected, only two measurements were slightly less than the criterion. In July 2005, ADEM collected continuous DO data at two of the stations which revealed no exceedances of ADEM's DO criterion. This data demonstrates that Flint River is fully supporting its use classification with respect to OE/DO.
AL06030002-0404-102	Flint River	Tennessee	Madison	OE/DO	In 2003 and 2005, ADEM collected water column DO measurements at three stations on the listed segment of Flint River, yielding a total of 51 samples. Of the 51 samples collected, only two measurements were slightly less than the criterion. In July 2005, ADEM

Waterbody ID	Waterbody Name	River Basin	County	Pollutant	Good Cause Justification for Removal
					collected continuous DO data at two of the stations which revealed no exceedances of ADEM's DO criterion. This data demonstrates that Flint River is fully supporting its use classification with respect to OE/DO.
AL03160106-0504-202	Little Bear Creek	Upper Tombigbee	Pickens	OE/DO	Water quality data collected by ADEM from 2001 and 2002 indicates that depressed dissolved oxygen concentrations in the watershed are due to natural conditions, i.e. beaverdams.

Table 3
List of Other Changes Appearing on the 2006 §303(d) List

Assessment Unit ID	Waterbody Name	River Basin	County	Revision
AL03160109-0405-104	Lost Creek	Black Warrior	Walker	Corrected AU ID number from AL03160109-0405-102
AL03160109-0503-100	Wolf Creek	Black Warrior	Walker	Corrected AU ID number from AL03160109-0503-101
AL03150106-0612-100	Choccolocco Creek	Coosa	Talladega Calhoun	Corrected AU ID number from AL03150106-0612-102
AL03140201-1001-700	UT to Harrand Creek	Choctawhatchee	Coffee	Stream length updated by Assessment Database (ADB)
AL03160204-0106-101	Cold Creek	Mobile	Mobile	Corrected AU ID number from AL03160204-0106-102
AL03160204-0106-101	Cold Creek	Mobile	Mobile	Changed name from Cold Creek Swamp to reflect listing in classified use documents.
AL03140106-0302-202	Boggy Branch	Perdido- Escambia	Escambia	Stream length updated by Assessment Database (ADB)
AL03140106-0302-101	Brushy Creek	Perdido- Escambia	Escambia	Stream length updated by Assessment Database (ADB)
AL06030002-1204-103	Second Creek	Tennessee	Lauderdale	Corrected AU ID number from AL06030002-1204-102
AL03160106-0607-101	Factory Creek	Upper Tombigbee	Sumter	Corrected AU ID number from AL03160106-0606-101
AL03150110-0703-100	Cubahatchee Creek	Tallapoosa	Macon	Changed segment from 'Tallapoosa River to its source' to 'Tallapoosa River to Coon Hop Creek' to create new Cubahatchee Creek segment AL03150110-0702-102.
AL03140201-0502-100	Hurricane Creek	Choctawhatchee	Dale	Based on new data, added as sources 'municipal' and 'urban runoff/storm sewers'

Table 4
Additional Revisions made between the Draft 2006 §303(d) List and the Final 2006 §303(d) List

Assessment Unit ID	Waterbody Name	River Basin	County	Revision
AL03130003-1307-100	Barbour Creek	Chattahoochee	Barbour	Updated waterbody size calculated by ADB
AL03130004-0601-201	Poplar Spring Branch	Chattahoochee	Houston	Updated waterbody size calculated by ADB
AL03130012-0201-400	Cypress Creek	Chipola	Houston	Updated waterbody size calculated by ADB
AL03140103-0102-700	UT to Jackson Lake 2-S	Perdido-Escambia	Covington	Updated waterbody size calculated by ADB
AL03140103-0102-800	UT to Jackson Lake 3-C	Perdido-Escambia	Covington	Updated waterbody size calculated by ADB
AL03140103-0402-100	Yellow River	Perdido-Escambia	Covington	Updated waterbody size calculated by ADB
AL03140104-0104-100	Blackwater River	Perdido-Escambia	Covington	Updated waterbody size calculated by ADB
AL03140106-0302-202	Boggy Branch	Perdido-Escambia	Escambia	Corrected Cause Chlorine to Chlorides
AL03140106-0502-100	Styx River	Perdido-Escambia	Baldwin	Updated waterbody size calculated by ADB
AL03140106-0506-100	Styx River	Perdido-Escambia	Baldwin	Updated waterbody size calculated by ADB
AL03140106-0603-101	Blackwater River	Perdido-Escambia	Baldwin	Updated waterbody size calculated by ADB
AL03140106-0703-100	Perdido River	Perdido-Escambia	Baldwin	Updated waterbody size calculated by ADB
AL03140107-0103-100	Perdido Bay	Perdido-Escambia	Baldwin	Updated waterbody size calculated by ADB
AL03140107-0205-100	Little Lagoon	Perdido-Escambia	Baldwin	Updated waterbody size calculated by ADB
AL03140201-0502-100	Hurricane Creek	Choctawhatchee	Dale	Updated waterbody size calculated by ADB
AL03140201-0602-201	Beaver Creek	Choctawhatchee	Houston	Updated waterbody size calculated by ADB
AL03140201-0704-600	Dowling Branch	Choctawhatchee	Geneva	Updated waterbody size calculated by ADB
AL03140202-0502-102	Walnut Creek	Choctawhatchee	Pike	Corrected upstream location to Walters Branch
AL03140202-0502-102	Walnut Creek	Choctawhatchee	Pike	Updated waterbody size calculated by ADB
AL03140303-0302-101	Rocky Creek	Perdido-Escambia	Butler	Updated waterbody size calculated by ADB
AL03140304-0605-100	Little Escambia Creek	Perdido-Escambia	Escambia	Updated waterbody size calculated by ADB
AL03140305-0301-100	Big Escambia Creek	Perdido-Escambia	Escambia	Updated waterbody size calculated by ADB
AL03150105-0807-102	Spring Creek	Coosa	Cherokee	Updated waterbody size calculated by ADB

Assessment Unit ID	Waterbody Name	River Basin	County	Revision
AL03150105-0807-200	Mud Creek	Coosa	Cherokee	Updated waterbody size calculated by ADB
AL03150106-0104-101	Coosa River (Neely Henry Lake)	Coosa	Etowah	Updated waterbody size calculated by ADB
AL03150106-0104-102	Coosa River (Neely Henry Lake)	Coosa	Etowah Cherokee	Updated waterbody size calculated by ADB
AL03150106-0309-101	Coosa River (Neely Henry Lake)	Coosa	Etowah St. Clair Calhoun	Updated waterbody size calculated by ADB
AL03150106-0309-102	Coosa River (Neely Henry Lake)	Coosa	Etowah	Updated waterbody size calculated by ADB
AL03150106-0501-101	Coosa River (Logan Martin Lake)	Coosa	St. Clair Calhoun Talladega	Updated waterbody size calculated by ADB
AL03150106-0501-102	Coosa River (Logan Martin Lake)	Coosa	St. Clair Calhoun	Updated waterbody size calculated by ADB
AL03150106-0612-100	Choccolocco Creek	Coosa	Talladega Calhoun	Corrected Priority Organics Cause to include PCBs
AL03150106-0612-100	Choccolocco Creek	Coosa	Talladega Calhoun	Updated waterbody size calculated by ADB
AL03150106-0801-100	Coosa River (Logan Martin Lake)	Coosa	St. Clair Talladega	Updated waterbody size calculated by ADB
AL03150106-0808-102	Coosa River (Lay Lake)	Coosa	Talladega Shelby St. Clair	Updated waterbody size calculated by ADB
AL03150107-0101-102	Coosa River (Lay Lake)	Coosa	Talladega Shelby	Updated waterbody size calculated by ADB
AL03150107-0102-700	UT to Dry Branch	Coosa	Shelby	Updated waterbody size calculated by ADB
AL03150107-0401-100	Coosa River (Lay Lake)	Coosa	Coosa Chilton	Updated waterbody size calculated by ADB
AL03150107-0601-100	Coosa River (Mitchell Lake)	Coosa	Coosa Chilton	Updated waterbody size calculated by ADB
AL03150110-0201-700	Pepperell Branch	Tallapoosa	Lee	Updated waterbody size calculated by ADB
AL03150110-0204-101	Sougahatchee Creek (Yates Reservoir	Tallapoosa	Tallapoosa	Updated waterbody size calculated by ADB

Assessment Unit ID	Waterbody Name	River Basin	County	Revision
	Embayment)			
AL03150110-0301-400	Moore's Mill Creek	Tallapoosa	Lee	Updated waterbody size calculated by ADB
AL03150110-0504-101	Calebee Creek	Tallapoosa	Macon	Updated waterbody size calculated by ADB
AL03150201-0309-100	Catoma Creek	Alabama	Montgomery	Updated waterbody size calculated by ADB
AL03150202-0101-102	Cahaba River	Cahaba	Jefferson	Updated waterbody size calculated by ADB
AL03150202-0103-300	Lee Branch	Cahaba	Shelby	Updated waterbody size calculated by ADB
AL03150202-0104-102	Cahaba River	Cahaba	Jefferson St. Clair	Updated waterbody size calculated by ADB
AL03150202-0201-101	Cahaba River	Cahaba	Jefferson St. Clair	Updated waterbody size calculated by ADB
AL03150202-0201-102	Cahaba River	Cahaba	Jefferson	Updated waterbody size calculated by ADB
AL03150202-0202-101	Buck Creek	Cahaba	Shelby	Updated waterbody size calculated by ADB
AL03150202-0202-401	Cahaba Valley Creek	Cahaba	Shelby	Updated waterbody size calculated by ADB
AL03150202-0203-101	Cahaba River	Cahaba	Shelby	Updated waterbody size calculated by ADB
AL03150202-0203-102	Cahaba River	Cahaba	Shelby	Updated waterbody size calculated by ADB
AL03150202-0405-100	Cahaba River	Cahaba	Bibb	Updated waterbody size calculated by ADB
AL03150202-0503-102	Cahaba River	Cahaba	Bibb	Updated waterbody size calculated by ADB
AL03150203-0703-101	Alabama River	Alabama	Wilcox	Updated waterbody size calculated by ADB
AL03150203-0802-400	Town Branch	Alabama	Wilcox	Corrected name from UT to Pursley Creek
AL03160103-0204-202	Purgatory Creek	Upper Tombigbee	Marion	Updated waterbody size calculated by ADB
AL03160103-0204-203	Purgatory Creek	Upper Tombigbee	Marion	Updated waterbody size calculated by ADB
AL03160106-0402-102	Tombigbee River (Aliceville Reservoir)	Upper Tombigbee	Pickens	Updated waterbody size calculated by ADB
AL03160106-0607-101	Factory Creek	Upper Tombigbee	Sumter	Updated waterbody size calculated by ADB
AL03160107-0306-100	Sipsey River	Upper Tombigbee	Pickens Greene	Updated waterbody size calculated by ADB
AL03160109-0102-101	Mulberry Fork	Black Warrior	Blount Cullman	Updated waterbody size calculated by ADB
AL03160109-0105-101	Brindley Creek	Black Warrior	Cullman	Updated waterbody size calculated by ADB
AL03160109-0105-102	Brindley Creek	Black Warrior	Cullman	Updated waterbody size calculated by ADB
AL03160109-0201-102	Mud Creek	Black Warrior	Cullamn	Updated waterbody size calculated by ADB
AL03160109-0204-101	Mulberry Fork	Black Warrior	Blount Cullman	Updated waterbody size calculated by ADB

Assessment Unit ID	Waterbody Name	River Basin	County	Revision
AL03160109-0204-102	Mulberry Fork	Black Warrior	Blount Cullman	Updated waterbody size calculated by ADB
AL03160109-0403-103	Lost Creek	Black Warrior	Walker	Updated waterbody size calculated by ADB
AL03160109-0404-101	Cane Creek (Oakman)	Black Warrior	Walker	Updated waterbody size calculated by ADB
AL03160109-0404-102	Cane Creek (Oakman)	Black Warrior	Cullman	Updated waterbody size calculated by ADB
AL03160109-0404-103	Cane Creek (Oakman)	Black Warrior	Walker	Updated waterbody size calculated by ADB
AL03160109-0404-500	Black Branch	Black Warrior	Walker	Updated waterbody size calculated by ADB
AL03160109-0405-104	Lost Creek	Black Warrior	Walker	Updated waterbody size calculated by ADB
AL03160111-0303-102	Locust Fork	Black Warrior	Blount Jefferson	Updated waterbody size calculated by ADB
AL03160111-0306-102	Locust Fork	Black Warrior	Blount Jefferson	Updated waterbody size calculated by ADB
AL03160111-0404-102	Locust Fork	Black Warrior	Blount Jefferson	Updated waterbody size calculated by ADB
AL03160111-0406-101	Newfound Creek	Black Warrior	Jefferson	Corrected Biology as a cause to Siltation
AL03160111-0406-101	Newfound Creek	Black Warrior	Jefferson	Updated waterbody size calculated by ADB
AL03160111-0406-101	Newfound Creek	Black Warrior	Jefferson	2002 added as a date for assessment data
AL03160112-0101-200	Opossum Creek	Black Warrior	Jefferson	Updated waterbody size calculated by ADB
AL03160112-0105-101	Mud Creek	Black Warrior	Jefferson	Updated waterbody size calculated by ADB
AL03160112-0201-101	Big Yellow Creek	Black Warrior	Tuscaloosa	Updated waterbody size calculated by ADB
AL03160112-0404-102	North River	Black Warrior	Fayette Tuscaloosa	Updated waterbody size calculated by ADB
AL03160201-0903-101	Wahalak Creek	Lower Tombigbee	Choctaw	Updated waterbody size calculated by ADB
AL03160203-0601-100	Bassett Creek	Lower Tombigbee	Clarke	Updated waterbody size calculated by ADB
AL03160203-1103-700	Bilbo Creek	Lower Tombigbee	Washington	Updated waterbody size calculated by ADB
AL03160203-1103-800	Olin Basin	Lower Tombigbee	Washington	Corrected the pesticides listing as by DDT
AL03160203-1103-800	Olin Basin	Lower Tombigbee	Washington	Updated waterbody size calculated by ADB
AL03160204-0105-302	Tensaw River	Mobile	Baldwin	Updated waterbody size calculated by ADB
AL03160204-0105-303	Tensaw River	Mobile	Baldwin Mobile	Updated waterbody size calculated by ADB

Assessment Unit ID	Waterbody Name	River Basin	County	Revision
AL03160204-0106-101	Cold Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0201-200	Middle River	Mobile	Baldwin Mobile	Updated waterbody size calculated by ADB
AL03160204-0303-102	Mobile River	Mobile	Baldwin Mobile	Updated waterbody size calculated by ADB
AL03160204-0402-100	Chickasaw Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0404-101	Chickasaw Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0404-102	Chickasaw Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0503-102	Bay Minette Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0504-101	Threemile Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0504-101	Threemile Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0504-102	Threemile Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0504-103	Threemile Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0504-300	Toulmins Spring Branch	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0504-500	UT to Threemile Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0505-100	Mobile River	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160204-0505-201	Tensaw River	Mobile	Baldwin	Updated waterbody size calculated by ADB
AL03160204-0505-202	Tensaw River	Mobile	Baldwin	Updated waterbody size calculated by ADB
AL03160205-0104-100	Mobile Bay	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160205-0104-200	Bon Secour Bay	Mobile	Baldwin	Updated waterbody size calculated by ADB
AL03160205-0202-300	Bolton Branch	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160205-0202-400	Eslava Creek	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160205-0206-100	Fowl River	Mobile	Mobile	Updated waterbody size calculated by ADB
AL03160205-0307-102	Fish River	Mobile	Baldwin	Updated waterbody size calculated by ADB
AL03160205-0310-702	UT to Bon Secour River	Mobile	Baldwin	Updated waterbody size calculated by ADB
AL03170008-0205-102	Puppy Creek	Escatawpa	Mobile	Updated waterbody size calculated by ADB
AL03170008-0302-100	Escatawpa River	Escatawpa	Mobile	Updated waterbody size calculated by ADB
AL03170008-0402-400	Boggy Branch	Escatawpa	Mobile	Updated waterbody size calculated by ADB
AL03170009-0102-100	Bayou La Batre	Escatawpa	Mobile	Updated waterbody size calculated by ADB
AL03170009-0201-100	Mississippi Sound	Escatawpa	Mobile	Updated waterbody size calculated by ADB
AL03170009-0201-200	Portersville Bay	Escatawpa	Mobile	Updated waterbody size calculated by ADB

Assessment Unit ID	Waterbody Name	River Basin	County	Revision
AL06030001-0402-401	Warren Smith Creek	Tennessee	Jackson	Updated waterbody size calculated by ADB
AL06030002-0105-101	Guess Creek	Tennessee	Jackson	Updated waterbody size calculated by ADB
AL06030002-0304-100	Mountain Fork	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0304-200	Hester Creek	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0304-200	Hester Creek	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0306-100	Beaverdam Creek	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0307-100	Brier Fork	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0401-102	Flint River	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0403-101	Hurricane Creek	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0404-200	Goose Creek	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0502-101	Huntsville Spring Branch	Tennessee	Madison	Corrected the Priority Organics cause to Pesticides (DDT)
AL06030002-0502-101	Huntsville Spring Branch	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0502-102	Huntsville Spring Branch	Tennessee	Madison	Corrected the metals listing to list Hg and As as causes
AL06030002-0502-102	Huntsville Spring Branch	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0505-101	Indian Creek	Tennessee	Madison	Corrected the Priority Organics cause to Pesticides (DDT)
AL06030002-0505-101	Indian Creek	Tennessee	Madison	Updated waterbody size calculated by ADB
AL06030002-0601-300	Hughes Creek	Tennessee	Morgan Marshall	Updated waterbody size calculated by ADB
AL06030002-0601-700	Mill Pond Creek	Tennessee	Marshall	Updated waterbody size calculated by ADB
AL06030002-0602-102	West Fork Cotaco Creek	Tennessee	Morgan	Updated waterbody size calculated by ADB
AL06030002-0603-102	Cotaco Creek	Tennessee	Morgan	Updated waterbody size calculated by ADB
AL06030002-0604-100	Town Creek	Tennessee	Morgan	Updated waterbody size calculated by ADB
AL06030002-0802-201	French Mill Creek	Tennessee	Limestone	Updated waterbody size calculated by ADB
AL06030002-1002-300	Herrin Creek	Tennessee	Morgan	Updated waterbody size calculated by ADB
AL06030002-1008-200	Flat Creek	Tennessee	Lawrence	Updated waterbody size calculated by ADB
AL06030004-0102-100	Shoal Creek	Tennessee	Limestone	Updated waterbody size calculated by ADB
AL06030004-0104-102	Anderson Creek	Tennessee	Lauderdale	Updated waterbody size calculated by ADB
AL06030004-0105-101	Elk River	Tennessee	Limestone	Updated waterbody size calculated by ADB

Assessment Unit ID	Waterbody Name	River Basin	County	Revision
			Lauderdale	
AL06030004-0105-101	Elk River	Tennessee	Limestone Lauderdale	Updated waterbody size calculated by ADB
AL06030005-0701-201	McKiernan Creek	Tennessee	Colbert	Updated waterbody size calculated by ADB
AL06030005-0702-100	Pond Creek	Tennessee	Colbert	Updated waterbody size calculated by ADB
AL06030006-0101-700	Little Dice Branch	Tennessee	Franklin	Updated waterbody size calculated by ADB
AL06030006-0103-101	Bear Creek (Bear Creek Lake)	Tennessee	Franklin	Updated waterbody size calculated by ADB
AL06030006-0103-101	Bear Creek (Bear Creek Lake)	Tennessee	Franklin	Changed source for Metals (Hg) from Atmospheric deposition to Unknown source
AL-Gulf of Mexico	Gulf of Mexico	Mobile	Baldwin Mobile	Updated waterbody size calculated by ADB
AL-Gulf of Mexico	Gulf of Mexico	Mobile	Baldwin Mobile	Corrected affected counties listing to include Baldwin County

Appendix D
2006 §303(d) List

Assessment Unit ID	Waterbody Name	Type	Rank	River Basin	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations	Draft TMDL Date
AL03150201-0104-302	Three Mile Branch	R	M	Alabama	Montgomery	Fish & Wildlife	Pesticides (Dieldrin)	Unknown source	1999	7.65 miles	Lower Wetumpka Road / Mathews Branch / its source	2008
AL03150201-0203-102	Autauga Creek	R	L	Alabama	Autauga	Swimming Fish & Wildlife	Unknown	Unknown source	2000	26.87 miles	its source	2012
AL03150201-0309-100	Caoma Creek	R	M	Alabama	Montgomery	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	1999	23.19 miles	Alabama River / Kamer Creek / its source	2008
AL03150201-0402-100	Pindalla Creek	R	L	Alabama	Crenshaw Montgomery	Swimming Fish & Wildlife	Pathogens	Pasture grazing	1999-2000	26.45 miles	Pinehony Creek / its source	2012
AL03150203-0805-102	Alabama River	R	L	Alabama	Wilcox	Swimming Fish & Wildlife	Organic Enrichment/DO	Industrial	1991	7.55 miles	Bear Creek / its source	2003
AL03150203-0805-103	Alabama River	R	L	Alabama	Wilcox	Fish & Wildlife	Organic Enrichment/DO	Industrial	1991	5.05 miles	Frisco Railroad Crossing / Pursley Creek / its source	2003
AL03150203-0805-104	Alabama River	R	L	Alabama	Wilcox	Fish & Wildlife	Organic Enrichment/DO	Dam construction	1995-99	8.72 miles	Pursley Creek / River Mile 131	2003
AL03150203-0805-105	Alabama River	R	L	Alabama	Wilcox	Public Water Supply	Organic Enrichment/DO	Dam construction	1995-99	1.52 miles	River Mile 131 / Beaver Creek	2003
AL03150203-0703-101	Alabama River	R	L	Alabama	Wilcox	Public Water Supply	Organic Enrichment/DO	Dam construction	1991	5.02 miles	Beaver Creek / Rockwest Creek	2003
AL03150203-0802-100	Pursley Creek	R	L	Alabama	Wilcox	Fish & Wildlife	Pathogens	Municipal	2000 2001	25.10 miles	Alabama River / its source	2012
AL03150203-0802-400	Town Branch	R	L	Alabama	Wilcox	Fish & Wildlife	Pathogens	Municipal	2000 2001	4.13 miles	Pursley Creek / its source	2012
AL03160109-0204-101	Mulberry Fork	R	H	Black Warrior	Blount Cullman	Fish & Wildlife	Nutrients	Agriculture Industrial Municipal	1972-83 1988 1996	2.52 miles	Marriott Creek / Mill Creek	2014
AL03160109-0204-102	Mulberry Fork	R	H	Black Warrior	Blount	Fish & Wildlife	Nutrients	Agriculture Industrial Municipal	1972-83 1988 1996	17.27 miles	Mill Creek / Broglie River	2014
AL03160109-0102-101	Mulberry Fork	R	H	Black Warrior	Blount Cullman	Fish & Wildlife	Siltation Other habitat alterations	Agriculture Municipal	1974-83 1996	18.23 miles	Broglie River / Blount County Road 6	2009
AL03160109-0101-150	Riley Maze Creek	R	L	Black Warrior	Cullman Marshall	Fish & Wildlife	Toxicity Siltation	Municipal	1998	4.13 miles	Tibb Creek / its source	2009
AL03160109-0101-600	Tibb Creek	R	L	Black Warrior	Cullman Marshall	Fish & Wildlife	Toxicity Siltation	Municipal	1998	5.13 miles	Mulberry Fork / its source	2009
AL03160109-0105-101	Brindley Creek	R	H	Black Warrior	Cullman	Public Water Supply	Nutrients	Agriculture	1996	7.17 miles	Broglie River / its source	2006
AL03160109-0105-102	Brindley Creek	R	H	Black Warrior	Cullman	Public Water Supply	Nutrients	Agriculture	1996	9.89 miles	State Highway 69 / its source	2006
AL03160109-0201-102	Mud Creek	R	H	Black Warrior	Cullman	Fish & Wildlife	Organic Enrichment/DO	Urban runoff/storm sewers	1996	4.66 miles	Alabama Highway 31 / its source	2009
AL03160109-0403-103	Lost Creek	R	H	Black Warrior	Walker	Fish & Wildlife	Siltation	Surface mining-abandoned	1987	6.52 miles	US Highway 78 at Carbon Hill / its source	2009
AL03160109-0404-101	Cane Creek (Oakman)	R	M	Black Warrior	Walker	Fish & Wildlife	Metals Nutrients Organic Enrichment/DO	Municipal	1988	7.15 miles	Lost Creek / Dixie Springs Road	2014
AL03160109-0404-102	Cane Creek (Oakman)	R	M	Black Warrior	Walker	Limited Warmwater Fishery	Metals Nutrients Organic Enrichment/DO	Municipal	1988	3.49 miles	Dixie Springs Road / Alabama Highway 69	2014
AL03160109-0404-103	Cane Creek (Oakman)	R	M	Black Warrior	Walker	Fish & Wildlife	Metals Nutrients Organic Enrichment/DO	Municipal	1988	7.38 miles	Alabama Highway 69 / its source	2014

Assessment Unit ID	Waterbody Name	Type	Rank	River Basin	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations	Draft TMDL Date
AL03160109-0404-500	Black Branch	R	H	Black Warrior	Walker	Fish & Wildlife	Metals	Surface mining-abandoned	1996-97	3.15 miles	Cane Creek / Its source	2009
AL03160109-0405-104	Lost Creek	R	H	Black Warrior	Walker	Fish & Wildlife	Situation	Surface mining-abandoned	1987	17.33 miles	Mill dam at Cedrum / Alabama Highway 69 at Oakman	2009
AL03160109-0503-100	Wolf Creek	R	H	Black Warrior	Walker	Fish & Wildlife	Situation	Surface mining-abandoned	1996	38.40 miles	Lost Creek / Alabama Highway 102	2009
AL03160109-0601-601	Old Town Creek	R	L	Black Warrior	Walker	Fish & Wildlife	Nutrients	Surface mining-abandoned	2002	2.71 miles	Mulberry Fork / Pinhook Creek	2009
AL03160109-0604-900	Baker Creek	R	L	Black Warrior	Walker	Fish & Wildlife	Situation	Unknown source	2002	7.01 miles	Mulberry Fork / Its source	2014
AL03160110-0502-100	Ryan Creek	R	L	Black Warrior	Cullman	Fish & Wildlife	Pathogens	Pasture grazing	2002	16.12 miles	Lewis Smith Lake/ Its source	2009
AL03160111-0404-102	Locust Fork	R	H	Black Warrior	Blount	Fish & Wildlife	Nutrients	Surface mining-abandoned	1998	14.25 miles	Jefferson County Road 77 / Its source	2014
AL03160111-0306-102	Locust Fork	R	H	Black Warrior	Blount	Public Water Supply	Nutrients	Surface mining-abandoned	1998	14.86 miles	US Highway 31 / county road between Hayden and County Line	2014
AL03160111-0303-102	Locust Fork	R	H	Black Warrior	Blount	Fish & Wildlife	Nutrients	Surface mining-abandoned	1998	18.15 miles	county road between Hayden and County Line	2014
AL03160111-0204-101	Locust Fork	R	H	Black Warrior	Blount	Fish & Wildlife	Situation	Agriculture	1987	27.18 miles	Little Warrior River / Blount County Road 30	2014
AL03160111-0203-100	Dry Creek	R	M	Black Warrior	Blount	Fish & Wildlife	Nutrients	Pasture grazing	1988	12.00 miles	Locust Fork / Its source	2009
AL03160111-0406-101	Newfound Creek	R	M	Black Warrior	Jefferson	Fish & Wildlife	Situation	Urban runoff/storm sewers	1986	2.76 miles	Firemile Creek / Impoundment	2009
AL03160111-0408-102	Village Creek	R	L	Black Warrior	Jefferson	Limited Warmwater Fishery	Pathogens	Urban runoff/storm sewers	2000 2001	12.60 miles	Second Creek / Woodlawn Bridge	2009
AL03160111-0408-103	Village Creek	R	L	Black Warrior	Jefferson	Limited Warmwater Fishery	Pathogens	Urban runoff/storm sewers	2000 2001	4.04 miles	Woodlawn Bridge / Its source	2009
AL03160112-0101-101	Valley Creek	R	L	Black Warrior	Jefferson	Limited Warmwater Fishery	Metals (Hg)	Unknown source	2003	0.90 miles	19th Street North (Bessemer) / Opossum Creek	2014
AL03160112-0101-200	Opossum Creek	R	H	Black Warrior	Jefferson	Agricultural & Industrial	Metals (Hg)	Unknown source	2003	7.45 miles	Valley Creek / Its source	2014
AL03160112-0105-101	Mud Creek	R	H	Black Warrior	Jefferson	Fish & Wildlife	pH	Unknown source	1974-83	14.12 miles	Valley Creek / Big Branch	2009
AL03160112-0201-101	Big Yellow Creek	R	H	Black Warrior	Tuscaloosa	Swimming	Metals (Cr, Pb)	Surface mining-abandoned	1979-85	14.59 miles	Bankhead Lake / Its source	2009
AL03160112-0303-100	Pegues Creek	R	L	Black Warrior	Tuscaloosa	Fish & Wildlife	Metals (Cr, Pb)	Surface mining-abandoned	2002	4.23 miles	Black Warrior River / Its source	2009
AL03160112-0304-100	Daniel Creek	R	L	Black Warrior	Tuscaloosa	Fish & Wildlife	Metals (Cr, Pb)	Surface mining-abandoned	2002	10.42 miles	Black Warrior River / Its source	2009
AL03160112-0404-102	North River	R	H	Black Warrior	Fayette	Fish & Wildlife	Nutrients	Surface mining-abandoned	1987	43.48 miles	Lake Tuscaloosa / Ellis Creek	2009
AL03160113-0703-100	Cottonwood Creek	R	L	Black Warrior	Hale	Fish & Wildlife	Organic Enrichment/DO	Municipal	2002	11.42 miles	Big Prairie Creek / Its source	2009
AL03150202-0503-102	Cahaba River	R	H	Cahaba	Bibb	Outstanding Alabama	Nutrients	Municipal	1990	10.58 miles	Alabama Highway 82 / lower Little Cahaba River	2004
AL03150202-0503-102	Cahaba River	R	H	Cahaba	Bibb	Outstanding Alabama	Other habitat alterations	Urban runoff/storm sewers	1992			
AL03150202-0503-102	Cahaba River	R	H	Cahaba	Bibb	Outstanding Alabama	Other habitat alterations	Urban runoff/storm sewers	1993			
AL03150202-0503-102	Cahaba River	R	H	Cahaba	Bibb	Outstanding Alabama	Other habitat alterations	Urban runoff/storm sewers	1990			

Assessment Unit ID	Waterbody Name	Type	Rank	River Basin	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations	Draft TMDL Date
AL03150202-0405-100	Cahaba River	R	H	Cahaba	Bibb	Outstanding Alabama Water	Fish & Wildlife	Nutrients	1990 1992 1993	13.51 miles	lower Little Cahaba River / Shades Creek	2004
AL03150202-0405-100	Cahaba River	R	H	Cahaba	Bibb	Outstanding Alabama Water	Fish & Wildlife	Siltation	1990 1992 2002-04	13.51 miles	Shades Creek	2003
AL03150202-0203-101	Cahaba River	R	H	Cahaba	Shelby	Outstanding Alabama Water	Fish & Wildlife	Nutrients	1993-97 2002-04	23.61 miles	Shades Creek / Shelby County Road 52	2004
AL03150202-0203-101	Cahaba River	R	H	Cahaba	Shelby	Outstanding Alabama Water	Fish & Wildlife	Siltation	1993-97 2002-04	23.61 miles	Shades Creek / Shelby County Road 52	2003
AL03150202-0203-102	Cahaba River	R	H	Cahaba	Shelby	Outstanding Alabama Water	Nutrients	Municipal	1993-97 2002-04	3.62 miles	Shelby County Road 52 / Buck Creek	2004
AL03150202-0203-102	Cahaba River	R	H	Cahaba	Shelby	Fish & Wildlife	Siltation	Municipal	1993-97 2002-04	3.62 miles	Shelby County Road 52 / Buck Creek	2003
AL03150202-0201-101	Cahaba River	R	H	Cahaba	Shelby	Fish & Wildlife	Nutrients	Municipal	1993 2002-04	17.46 miles	Dam near US Highway 280 / Buck Creek	2004
AL03150202-0201-101	Cahaba River	R	H	Cahaba	Shelby	Fish & Wildlife	Siltation	Municipal	1993 2002-04	17.46 miles	Dam near US Highway 280 / Buck Creek	2003
AL03150202-0201-102	Cahaba River	R	H	Cahaba	Jefferson	Outstanding Alabama Water	Nutrients	Municipal	2002-04	13.45 miles	Dam near US Highway 280 / Grant's Mill Road	2004
AL03150202-0201-102	Cahaba River	R	H	Cahaba	Jefferson	Outstanding Alabama Water	Siltation	Urban runoff/storm sewers	1993 2002-04	13.45 miles	Dam near US Highway 280 / Grant's Mill Road	2003
AL03150202-0104-102	Cahaba River	R	H	Cahaba	Jefferson	Fish & Wildlife	Nutrients	Municipal	2002-04	21.11 miles	Grant's Mill Road / US Highway 11	2004
AL03150202-0104-102	Cahaba River	R	H	Cahaba	Jefferson	Fish & Wildlife	Siltation	Urban runoff/storm sewers	1993 2002-04	21.11 miles	Grant's Mill Road / US Highway 11	2003
AL03150202-0101-102	Cahaba River	R	H	Cahaba	Jefferson	Outstanding Alabama Water	Nutrients	Municipal	2002-04	3.13 miles	US Highway 11 / I-59	2004
AL03150202-0101-102	Cahaba River	R	H	Cahaba	Jefferson	Outstanding Alabama Water	Fish & Wildlife	Urban runoff/storm sewers	1993 2002-04	3.13 miles	US Highway 11 / I-59	2003
AL03150202-0103-300	Lee Branch	R	H	Cahaba	Shelby	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	1996-99	2.87 miles	Lake Purdy / Its source	2009
AL03150202-0202-101	Buck Creek	R	L	Cahaba	Shelby	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	2003	2.92 miles	Cahaba River / Cahaba Valley Creek	2009
AL03150202-0202-401	Cahaba Valley Creek	R	L	Cahaba	Shelby	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	1999-00	4.67 miles	Buck Creek / US Highway 31	2009
AL03150202-0901-100	Childers Creek	R	L	Cahaba	Dallas	Fish & Wildlife	Siltation	Pasture grazing	2002	18.79 miles	Cahaba River / Its source	2009
AL03130003-0101-100	Mill Creek	R	L	Chatahoochee	Lee Russell	Fish & Wildlife	Unknown	Unknown source	1999	9.51 miles	Chatahoochee River / Its source	2011
AL03130003-1307-100	Barbour Creek	R	H	Chatahoochee	Barbour	Fish & Wildlife	Siltation	Agriculture	1987	25.04 miles	Chatahoochee River / Its source	2008
AL03130004-0601-201	Poplar Spring Branch	R	H	Chatahoochee	Houston	Fish & Wildlife	pH	Industrial	1984	2.13 miles	Omussee Creek / Ross Clark Circle	2007

Assessment Unit ID	Waterbody Name	Type	Rank	River Basin	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations	Draft TMDL Date
AL03130012-0201-400	Cypress Creek	R	M	Chipola	Houston	Fish & Wildlife	Nutrients	Municipal Urban runoff/storm sewers	1984	8.11 miles	Limestone Creek / Its source	2007
AL03140201-0404-100	Judy Creek	R	L	Choctawhatchee	Barbour	Fish & Wildlife	Nutrients	Unknown source	1998, 1999	21.38 miles	West Fork Choctawhatchee River / Its source	2011
AL03140201-0502-100	Hurricane Creek	R	H	Choctawhatchee	Dale	Fish & Wildlife	Pathogens	Agriculture	1991	8.56 miles	Choctawhatchee River / Its source	2007
AL03140201-0602-201	Bever Creek	R	H	Choctawhatchee	Houston	Fish & Wildlife	Nutrients	Municipal Urban runoff/storm sewers	1977-86	2.03 miles	Newton Creek / Dothan WWTP	2007
AL03140201-0704-600	Dowling Branch	R	H	Choctawhatchee	Geneva	Fish & Wildlife	Pathogens	Municipal Urban runoff/storm sewers	1991	2.06 miles	Cox Mill Creek / Its source	2007
AL03140201-1001-100	Harrand Creek	R	L	Choctawhatchee	Dale	Fish & Wildlife	Sitation	Urban runoff/storm sewers	1999	9.49 miles	Claybank Creek / Its source	2011
AL03140201-1001-700	UT to Harrand Creek	R	M	Choctawhatchee	Coffee	Fish & Wildlife	Nutrients	Urban runoff/storm sewers	1985	3.45 miles	Harrand Creek / Its source	2007
AL03140201-1001-700	UT to Harrand Creek	R	M	Choctawhatchee	Coffee	Fish & Wildlife	Sitation	Urban runoff/storm sewers	1999	3.45 miles	Harrand Creek / Its source	2007
AL03140201-1001-700	UT to Harrand Creek	R	L	Choctawhatchee	Coffee	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	1999 2004	3.45 miles	Harrand Creek / Its source	2011
AL03140202-0502-102	Walnut Creek	R	M	Choctawhatchee	Pike	Fish & Wildlife	Unknown toxicity	Municipal	1997	2.61 miles	Pike County Road 59 / Walters Branch	2007
AL03150105-0807-102	Spring Creek	R	H	Coosa	Cherokee	Fish & Wildlife	Pathogens	Unknown source	2002	5.39 miles	Coosa River / Mud Creek	2007
AL03150105-0807-103	Spring Creek	R	L	Coosa	Cherokee	Fish & Wildlife	Nutrients	Agriculture	2002	9.88 miles	Mud Creek / Its source	2012
AL03150105-0807-200	Mud Creek	R	H	Coosa	Cherokee	Fish & Wildlife	Pathogens	Unknown source	2002	5.24 miles	Spring Creek / Its source	2007
AL03150106-0801-100	Coosa River (Logan Martin Lake)	L	L	Coosa	St. Clair	Swimming	Nutrients	Urban runoff/storm sewers	1991-93	14415.67 acres	Logan Martin Dam / Broken Arrow Creek	2003
AL03150106-0801-100	Coosa River (Logan Martin Lake)	L	L	Coosa	Talladega	Swimming	Organic Enrichment/DO	Flow regulation/modification	1994-97	14415.67 acres	Broken Arrow Creek	2003
AL03150106-0801-100	Coosa River (Logan Martin Lake)	L	L	Coosa	St. Clair	Swimming	Priority Organics (PCBs)	Contaminated sediments	1996	14415.67 acres	Logan Martin Dam / Broken Arrow Creek	N/A
AL03150106-0501-101	Coosa River (Logan Martin Lake)	L	L	Coosa	St. Clair	Public Water Supply	Nutrients	Urban runoff/storm sewers	1991-93	1450.26 acres	Broken Arrow Creek / Trout Creek	2003
AL03150106-0501-101	Coosa River (Logan Martin Lake)	L	L	Coosa	Talladega	Swimming	Priority Organics (PCBs)	Contaminated sediments	1996	1450.26 acres	Broken Arrow Creek	N/A
AL03150106-0501-102	Coosa River (Logan Martin Lake)	L	L	Coosa	St. Clair	Swimming	Nutrients	Urban runoff/storm sewers	1991-93	820.38 acres	Trout Creek / Neely Henry Dam	2003
AL03150106-0501-102	Coosa River (Logan Martin Lake)	L	L	Coosa	Calhoun	Swimming	Organic Enrichment/DO	Flow regulation/modification	1994-97	820.38 acres	Trout Creek / Neely Henry Dam	2003
AL03150106-0501-102	Coosa River (Logan Martin Lake)	L	L	Coosa	St. Clair	Swimming	Priority Organics (PCBs)	Contaminated sediments	1996	820.38 acres	Trout Creek / Neely Henry Dam	N/A
AL03150106-0309-101	Coosa River (Neely Henry Lake)	L	M	Coosa	Etowah St. Clair	Swimming	Nutrients	Industrial Municipal	1992-95	5487.94 acres	Neely Henry Dam / McCandney's Ferry	2003
AL03150106-0309-102	Coosa River (Neely Henry Lake)	L	M	Coosa	Etowah	Fish & Wildlife	Organic Enrichment/DO	Flow regulation/modification	1994-97	3502.52 acres	McCandney's Ferry / Big Wills Creek	2003

Assessment Unit ID	Waterbody Name	Type	Rank	River Basin	County	Uses	Causes	Sources	Date of Data	Size	Downstream / Upstream Locations	Draft TMDL Date
AL03150106-0104-101	Coosa River (Neely Henry Lake)	L	M	Coosa	Etowah	Fish & Wildlife	Nutrients	Industrial Municipal Flow regulation/modification	1992-95 1994-97	245.39 acres	Big Wills Creek / City of Gadsden water supply intake	2003
AL03150106-0104-101	Coosa River (Neely Henry Lake)	L	M	Coosa	Etowah	Fish & Wildlife	Priority Organics (PCBs)	Contaminated sediments	2001-02	245.39 acres	Big Wills Creek / City of Gadsden water supply intake	N/A
AL03150106-0104-102	Coosa River (Neely Henry Lake)	L	M	Coosa	Etowah	Public Water Supply	Nutrients	Industrial Municipal Flow regulation/modification	1992-95 1994-97	1897.43 acres	City of Gadsden water supply intake / Weiss Dam powerhouse	2003
AL03150106-0104-102	Coosa River (Neely Henry Lake)	L	M	Coosa	Etowah	Public Water Supply	Priority Organics (PCBs)	Contaminated sediments	2001-02	1897.43 acres	City of Gadsden water supply intake / Weiss Dam powerhouse	N/A
AL03150106-0612-100	Choccolocco Creek	R	L	Coosa	Talladega	Fish & Wildlife	Priority Organics (PCBs)	Contaminated sediments	1994	42.23 miles	Coosa River / Hillabee Creek	N/A
AL03150107-0401-100	Coosa River (Lay Lake)	L	L	Coosa	Talladega	Public Water Supply	Nutrients	Flow regulation/modification	1990-91	11806.34 acres	Southern RR Bridge	2003
AL03150107-0101-102	Coosa River (Lay Lake)	L	L	Coosa	Talladega	Swimming	Nutrients	Flow regulation/modification	1990-91	862.40 acres	Southern RR Bridge / River Mile 89	2003
AL03150106-0808-102	Coosa River (Lay Lake)	L	L	Coosa	Talladega	Public Water Supply	Nutrients	Flow regulation/modification	1990-91	698.25 acres	River Mile 89 / Logan Martin Dam	2003
AL03150107-0601-100	Coosa River (Mitchell Lake)	L	L	Coosa	Chilton	Public Water Supply	Nutrients	Urban runoff/storm sewers	1991-93	5400.33 acres	Mitchell Dam / Lay Dam	2003
AL03150107-0102-700	UT to Dry Branch	R	H	Coosa	Shelby	Fish & Wildlife	Nutrients	Urban runoff/storm sewers	1991	1.58 miles	Dry Branch / Its source	2007
AL03150107-0502-100	Buxahatchee Creek	R	H	Coosa	Chilton	Fish & Wildlife	Nutrients	Municipal Urban runoff/storm sewers	1988 1996	14.00 miles	Waxahatchee Creek / Its source	2003
AL03170008-0302-100	Escatawpa River	R	H	Escatawpa	Mobile	Swimming	Metals (Hg)	Unknown source	2002	70.66 miles	AL-MS state line / Its source	2008
AL03170008-0205-102	Puppy Creek	R	L	Escatawpa	Mobile	Fish & Wildlife	Nutrients	Urban runoff/storm sewers	1991	11.32 miles	Alabama Highway 217 / Its source	2006
AL03170008-0402-400	Boggy Branch	R	M	Escatawpa	Mobile	Fish & Wildlife	Metals (Fe)	Natural	1996-99	4.58 miles	Big Creek Lake / Its source	2008
AL03170008-0402-700	Collins Creek	R	H	Escatawpa	Mobile	Fish & Wildlife	Pathogens	Pasture grazing On-site wastewater systems	1996-99	5.15 miles	Big Creek / Its source	2008
AL03170008-0402-700	Collins Creek	R	L	Escatawpa	Mobile	Fish & Wildlife	Metals (As)	Unknown	2001 2002	5.15 miles	Big Creek / Its source	2013
AL03170009-0102-100	Bayou La Batre	R	L	Escatawpa	Mobile	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	1997	5.46 miles	Portersville Bay / Its source	2008
AL03170009-0201-100	Mississippi Sound	E	M	Escatawpa	Mobile	Shellfish Harvesting	Pathogens	Urban runoff/storm sewers	1994-97	93.72 square miles	Segment classified for shellfish harvesting	2008
AL03170009-0201-200	Portersville Bay	E	L	Escatawpa	Mobile	Shellfish Harvesting	Pathogens	Municipal	1996	18.81 square miles	1000 feet west of outfall / Bayou la Batre Utilities outfall	2008
AL03170009-0201-300	Grand Bay	E	L	Escatawpa	Mobile	Shellfish Harvesting	Pathogens	On-site wastewater systems	2003-2005	30.73 square miles	Grand Bay	2013
AL03160204-0505-100	Mobile River	R	L	Mobile	Mobile	Limited Warmwater Fishery	Metals (Hg)	Unknown source	2000	7.61 miles	Mobile Bay / Spanish River	2013
AL03160204-0303-102	Mobile River	R	L	Mobile	Baldwin	Fish & Wildlife	Metals (Hg)	Unknown source	2000	20.90 miles	Spanish River / Cold Creek	2013

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AL03160204-0106-101	Cold Creek	R	L	Mobile	Mobile	Fish & Wildlife	Metals (Hg)	Contaminated sediments	1993	4.21 miles	Mobile River / 43	N/A
AL03160204-0201-200	Middle River	R	H	Mobile	Mobile	Fish & Wildlife	Metals (Hg)	Unknown source	2002	9.72 miles	Tensaw River(RM 20.6) / Tensaw River(RM 37.7)	2013
AL03160204-0404-101	Chickasaw Creek	R	H	Mobile	Mobile	Limited Warmwater Fishery	Metals (Hg)	Unknown source	2000	4.43 miles	Mobile River / US Highway 43	2013
AL03160204-0404-102	Chickasaw Creek	R	H	Mobile	Mobile	Fish & Wildlife	Metals (Hg)	Unknown source	2000	6.91 miles	Mobile College / US Highway 43	2013
AL03160204-0402-100	Chickasaw Creek	R	H	Mobile	Mobile	Swimming	Metals (Hg)	Unknown source	2000	26.82 miles	Mobile College / US Highway 43	2013
AL03160204-0503-102	Bay Minette Creek	R	H	Mobile	Baldwin	Fish & Wildlife	Metals (Hg)	Unknown source	2000	18.15 miles	Bay Minette / US Highway 43	2013
AL03160204-0504-101	Threemile Creek	R	L	Mobile	Mobile	Industrial	Pesticides (Chlordane)	Unknown source	2000	2.04 miles	Mobile River / Toulumins Spring Branch	2008
AL03160204-0504-101	Threemile Creek	R	L	Mobile	Mobile	Agricultural & Industrial	Organic Enrichment/DO	Mobile system failureLand development	1990-95 1997	2.04 miles	Mobile River / Toulumins Spring Branch	2003
AL03160204-0504-101	Threemile Creek	R	L	Mobile	Mobile	Agricultural & Industrial	Pathogens	Mobile system failure	2000-01	2.04 miles	Mobile River / Toulumins Spring Branch	2008
AL03160204-0504-102	Threemile Creek	R	L	Mobile	Mobile	Industrial	Organic Enrichment/DO	Mobile system failure	1990-95 1997	4.34 miles	Mobile River / Toulumins Spring Branch	2003
AL03160204-0504-102	Threemile Creek	R	L	Mobile	Mobile	Agricultural & Industrial	Pathogens	Mobile system failure	2000-01	4.34 miles	Mobile River / Toulumins Spring Branch	2008
AL03160204-0504-103	Threemile Creek	R	L	Mobile	Mobile	Fish & Wildlife	Organic Enrichment/DO	Mobile system failure	1990-95 1997	8.85 miles	Mobile Street / Toulumins Spring Branch	2003
AL03160204-0504-103	Threemile Creek	R	L	Mobile	Mobile	Agricultural & Industrial	Pathogens	Mobile system failure	2000-01	8.85 miles	Mobile Street / Toulumins Spring Branch	2003
AL03160204-0504-300	Toulumins Spring Branch	R	H	Mobile	Mobile	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	2000-01	3.22 miles	Threemile Creek / Toulumins Spring Branch	2008
AL03160204-0504-500	UT to Threemile Creek	R	H	Mobile	Mobile	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	2000-01	1.04 miles	Threemile Creek / Toulumins Spring Branch	2008
AL03160204-0505-201	Tensaw River	R	H	Mobile	Baldwin	Fish & Wildlife	Metals (Hg)	Unknown source	2002	6.51 miles	Mobile Bay / Tensaw River	2013
AL03160204-0505-202	Tensaw River	R	H	Mobile	Baldwin	Outstanding Alabama Swimming	Metals (Hg)	Unknown source	2002	21.73 miles	Junction of Tensaw and Apalachee Rivers	2013
AL03160204-0105-302	Tensaw River	R	H	Mobile	Baldwin	Outstanding Alabama Swimming	Metals (Hg)	Unknown source	2002	2.93 miles	Junction of Briar Lake / Tensaw River	2013
AL03160204-0105-303	Tensaw River	R	H	Mobile	Baldwin	Fish & Wildlife	Metals (Hg)	Unknown source	2002	10.98 miles	Junction of Tensaw Lake / Tensaw River	2013
AL03160205-0104-100	Mobile Bay	E	M	Mobile	Mobile	Shellfish Harvesting Fish & Wildlife	Pathogens	Urban runoff/storm sewers	1994-97	170.60 sq. miles	Segment classified for shellfish harvesting	2008

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AL03160205-0104-200	Bon Secour Bay	E	M	Mobile	Baldwin	Shellfish Harvesting	Pathogens	Urban runoff/storm sewers	1994-97	103.84 sq. miles	Segment classified for shellfish harvesting	2008
AL03160205-0202-300	Bolton Branch	R	M	Mobile	Mobile	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	2003	2.44 miles	Dog River / Its source	2008
AL03160205-0202-400	Eslava Creek	R	M	Mobile	Mobile	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	2003	3.17 miles	Dog River / Its source	2008
AL03160205-0202-700	Bolton Branch	R	L	Mobile	Mobile	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	2003-05	5.69 miles	Moore Creek / Its source	2013
AL03160205-0205-100	Middle Fork Deer River	R	L	Mobile	Mobile	Fish & Wildlife	Organic enrichment/DO	Urban runoff/storm sewers	2003-05	3.51 miles	Mobile Bay / Its source	2013
AL03160205-0206-100	Fowl River	R	H	Mobile	Mobile	Swimming	Metals (Hg)	Unknown source	2000	20.56 miles	Mobile Bay / Its source	2013
AL03160205-0306-200	Polecat Creek	R	L	Mobile	Baldwin	Swimming	Metals (Hg)	Atmospheric Deposition	2005	7.89 miles	Fish River / Its source	2013
AL03160205-0306-500	Baker Branch	R	L	Mobile	Baldwin	Fish & Wildlife	Organic Enrichment/DO	Pasture grazing	2001	6.15 miles	Polecat Creek / Its source	2013
AL03160205-0307-102	Fish River	R	L	Mobile	Baldwin	Swimming	Metals (Hg)	Unknown source	1996	30.01 miles	Weeks Bay / Its source	2013
AL03160205-0310-101	Bon Secour River	R	L	Mobile	Baldwin	Swimming	Metals (Hg)	Atmospheric Deposition	2005	9.12 miles	Bon Secour Bay / Its source	2013
AL03160205-0310-102	Bon Secour River	R	L	Mobile	Baldwin	Swimming	Metals (Hg)	Atmospheric Deposition	2005	4.38 miles	One mile upstream from first bridge above its mouth	2013
AL03160205-0310-702	UT to Bon Secour River	R	H	Mobile	Baldwin	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	1995	1.64 miles	Baldwin County Road 65 / Its source	2008
AL03160205-0311-100	Oyster Bay	E	L	Mobile	Baldwin	Shellfish Harvesting	Pathogens	Unknown source	2003-2005	0.95 square miles	Oyster Bay	2013
AL-Gulf-of-Mexico	Gulf of Mexico	E	L	Mobile	Mobile	Shellfish Harvesting	Metals (Hg)	Unknown source	1996-97	201.02 square miles	Mississippi / Florida	2013
AL03140103-0102-700	UT to Jackson Lake 2-S	R	H	Perdido-Escambia	Covington	Fish & Wildlife	Organic Enrichment/DO	Pasture grazing	1996-97	1.05 miles	W.F. Jackson Lake / Its source	2007
AL03140103-0102-800	UT to Jackson Lake 3-C	R	H	Perdido-Escambia	Covington	Fish & Wildlife	Organic Enrichment/DO	Pasture grazing	1996-97	1.77 miles	W.F. Jackson Lake / Its source	2007
AL03140103-0402-100	Yellow River	R	L	Perdido-Escambia	Covington	Fish & Wildlife	Metals (Hg)	Unknown source	2002	14.87 miles	AL-FL state line / North Creek	2011
AL03140104-0104-100	Blackwater River	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Metals (Hg)	Unknown source	2002	2.78 miles	AL-FL state line / Blackwater Creek	2011
AL03140106-0302-101	Brushy Creek	R	H	Perdido-Escambia	Escambia	Fish & Wildlife	Organic Enrichment/DO	Municipal	1999	0.22 miles	Boggy Branch	2007
AL03140106-0302-101	Brushy Creek	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Metals (Pb)	Municipal	2004 2005	0.22 miles	AL-FL state line / Boggy Branch	2007
AL03140106-0302-201	Boggy Branch	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Pathogens	Municipal	2004	1.54 miles	Brushy Creek / Boggy Branch	2007
AL03140106-0302-202	Boggy Branch	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Metals (Pb, Cu)	Municipal	2004	1.54 miles	Brushy Creek / Atmore WWTP	2007
AL03140106-0302-202	Boggy Branch	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Organic Enrichment/DO	Industrial	1996 1997	0.22 miles	Atmore WWTP / Mastland Carpets WWTP	2007
AL03140106-0302-202	Boggy Branch	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Ammonia	Municipal	2004 2005	0.22 miles	Atmore WWTP / Mastland Carpets WWTP	2007
AL03140106-0502-100	Syx River	R	M	Perdido-Escambia	Baldwin	Fish & Wildlife	Metals (Hg)	Unknown source	2002	22.72 miles	Hollinger Creek / Its source	2011
AL03140106-0506-100	Syx River	R	M	Perdido-Escambia	Baldwin	Fish & Wildlife	Metals (Hg)	Unknown source	2002	18.52 miles	Perdido River / Hollinger Creek	2011
AL03140106-0603-101	Blackwater River	R	L	Perdido-Escambia	Baldwin	Fish & Wildlife	Metals (Hg)	Unknown source	2002	3.11 miles	Perdido River / Narrow Gap Creek	2011
AL03140106-0703-100	Perdido River	R	L	Perdido-Escambia	Baldwin	Fish & Wildlife	Metals (Hg)	Atmospheric Deposition	2005	21.93 miles	Perdido Bay / Jacks Branch	2011

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AL03140107-0205-100	Little Lagoon	E	L	Perdido-Escambia	Baldwin	Shellfish Harvesting Swimming Fish & Wildlife	Pathogens	Urban runoff/storm sewers	2000	3.96 square miles	In its entirety	2011
AL03140303-0302-101	Rocky Creek	R	H	Perdido-Escambia	Butler	Fish & Wildlife	Unknown toxicity	Unknown source	1986	8.01 miles	Persimmon Creek / County Road north of Chapman	2007
AL03140304-0106-100	Conecuh River	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Metals (Hg)	Unknown source	2002	12.70 miles	AL-FL state line / Manate Branch	2011
AL03140305-0301-100	Little Escambia Creek	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Metals (Hg)	Unknown source	2002	12.21 miles	AL-FL state line / Wild Fork Creek	2011
AL03140305-0301-100	Big Escambia Creek	R	L	Perdido-Escambia	Escambia	Fish & Wildlife	Metals (Hg)	Unknown source	2002	17.03 miles	AL-FL state line / Big Spring Creek	2011
AL03150110-0201-700	Pepperell Branch	R	H	Tallahpoosa	Lee	Fish & Wildlife	Nutrients	Industrial	1988	6.67 miles	Sougarhatchee Creek / Its source	2006
AL03150110-0204-101	Sougarhatchee Creek (Yates Reservoir Embayment)	L	H	Tallahpoosa	Tallahpoosa	Public Water Supply Swimming	Nutrients	Industrial Municipal	1994-97	203.78 acres	Tallahpoosa River / end of embayment	2006
						Fish & Wildlife	Organic Enrichment/DO	Non-irrigated crop production Pasture grazing				
AL03150110-0301-400	Moore's Mill Creek	R	L	Tallahpoosa	Lee	Swimming Fish & Wildlife	Siltation	Land development Urban runoff/storm sewers	1998	10.51 miles	Chewacla Creek / Its source	2002
AL03150110-0504-101	Cablee Creek	R	H	Tallahpoosa	Maccon	Fish & Wildlife	Siltation	Agriculture	1996	10.26 miles	Tallahpoosa River / Maccon County Road 9	2012
AL03150110-0703-100	Cubahatchee Creek	R	H	Tallahpoosa	Maccon	Swimming Fish & Wildlife	Siltation Other habitat alterations	Agriculture Surface mining	1996	22.07 miles	Tallahpoosa River / Coon Hop Creek	2012
AL03150110-0702-102	Cubahatchee Creek	R	H	Tallahpoosa	Maccon	Swimming Fish & Wildlife	Siltation Other habitat alterations	Agriculture Surface mining	1996	22.37 miles	Coon Hop Creek / Its source	2012
AL03150110-0702-102	Cubahatchee Creek	R	L	Tallahpoosa	Maccon	Swimming Fish & Wildlife	Pathogens	Pasture Grazing	2000	22.37 miles	Coon Hop Creek / Its source	2012
AL03150110-0903-101	Lime Creek	R	M	Tallahpoosa	Maccon	Fish & Wildlife	Siltation	Agriculture	1996	10.29 miles	Tallahpoosa River / Johnsons Creek	2012
AL03150110-0903-102	Lime Creek	R	M	Tallahpoosa	Montgomery	Fish & Wildlife	Siltation	Surface mining	1996	5.51 miles	Panther Creek / Johnsons Creek	2012
AL06030002-0105-101	Guess Creek	R	H	Tennessee	Jackson	Fish & Wildlife	Unknown toxicity	Unknown source	1987	11.08 miles	Paint Rock River / Bee Branch	2010
AL06030002-0402-401	Warren Smith Creek	R	H	Tennessee	Jackson	Fish & Wildlife	Siltation	Surface mining-abandoned	1986	1.96 miles	Dry Creek / Ross Branch	2010
AL06030002-0306-100	Beaverdam Creek	R	M	Tennessee	Madison	Fish & Wildlife	Siltation	Non-irrigated crop production Land development	1994-95	22.14 miles	Brier Fork / Its source	2010
AL06030002-0304-200	Hester Creek	R	M	Tennessee	Madison	Fish & Wildlife	Nutrients	Pasture grazing	1994-95	7.27 miles	Mountain Fork / AL-TN state line	2006
AL06030002-0304-200	Hester Creek	R	L	Tennessee	Madison	Fish & Wildlife	Pathogens	Land development Agriculture	1999-2004	7.27 miles	Mountain Fork / AL-TN state line	2010
AL06030002-0307-100	Brier Fork	R	L	Tennessee	Madison	Fish & Wildlife	Siltation	Non-irrigated crop production Land development	1994-95	21.89 miles	Flint River / AL-TN state line	2010
AL06030002-0401-102	Flint River	R	M	Tennessee	Madison	Fish & Wildlife	Pathogens	Pasture grazing	1999	15.32 miles	Alabama Highway 72 / Mountain Fork	2006
AL06030002-0403-101	Hurricane Creek	R	H	Tennessee	Madison	Fish & Wildlife	Pathogens	Agriculture Pasture grazing	1997	7.31 miles	Flint River / Curley Pike Road	2006
AL06030002-0404-200	Goose Creek	R	H	Tennessee	Madison	Fish & Wildlife	Unknown Toxicity	Agriculture	1997	8.89 miles	Flint River / Its source	2010
AL06030002-0502-101	Huntsville Spring Branch	R	L	Tennessee	Madison	Fish & Wildlife	Pesticides (DDT)	Contaminated sediments	1993	11.08 miles	Indian Creek / Johnson Road (Huntsville Field)	N/A
AL06030002-0502-102	Huntsville Spring Branch	R	L	Tennessee	Madison	Fish & Wildlife	Metals (Hg, As)	Urban Runoff/Storm Sewers	1994-95	1.98 miles	Johnson Road (Huntsville Field) / Breglian Branch	2010

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AL06030002-0505-101	Indian Creek	R	L	Tennessee	Madison	Fish & Wildlife	Pesticides (DDT)	Contaminated sediments	1991-91	7.69 miles	Tennessee River /	N/A
AL06030002-0601-300	Hughes Creek	R	M	Tennessee	Morgan	Fish & Wildlife	Siltation	Agriculture	1993	3.02 miles	Cotaco Creek /	2006
AL06030002-0601-700	Mill Pond Creek	R	H	Tennessee	Marshall	Fish & Wildlife	Siltation	Agriculture	1994-95	1.29 miles	Hog Jaw Creek /	2006
AL06030002-0602-102	West Fork Cotaco Creek	R	M	Tennessee	Morgan	Fish & Wildlife	Pathogens	Agriculture	1997	8.12 miles	Alabama Highway 67 /	2006
AL06030002-0602-200	Mud Creek	R	L	Tennessee	Morgan	Fish & Wildlife	Organic Enrichment/DO	Agriculture	2004 2005	3.42 miles	West Fork of Cotaco Creek /	2010
AL06030002-0603-102	Cotaco Creek	R	H	Tennessee	Morgan	Swimming	Pathogens	Agriculture	1997	5.38 miles	Guyer Branch /	2006
AL06030002-0604-100	Town Creek	R	H	Tennessee	Morgan	Fish & Wildlife	Organic Enrichment/DO	Agriculture	1997	5.28 miles	Cotaco Creek /	2006
AL06030002-0802-201	French Mill Creek	R	H	Tennessee	Limestone	Fish & Wildlife	Pathogens	Pasture grazing	1997	5.21 miles	Piney Creek /	2006
AL06030002-1002-300	Herrin Creek	R	M	Tennessee	Morgan	Fish & Wildlife	Ammonia	Pasture grazing	1994-95	6.21 miles	Crowdabout Creek /	2010
AL06030002-1008-200	Flat Creek	R	H	Tennessee	Lawrence	Fish & Wildlife	Ammonia	Pasture grazing	1997	7.78 miles	West Flint Creek /	2010
AL06030002-1204-103	Second Creek	R	H	Tennessee	Lauderdale	Fish & Wildlife	Pathogens	Pasture grazing	1997	13.00 miles	Lauderdale County Road 76 /	2006
AL06030004-0102-100	Shoal Creek	R	H	Tennessee	Limestone	Fish & Wildlife	Pathogens	Pasture grazing	1997	7.47 miles	Elk River /	2006
AL06030004-0104-102	Anderson Creek	R	M	Tennessee	Lauderdale	Fish & Wildlife	Siltation	Pasture grazing	1994-95	9.31 miles	SNAKE Road bridge /	2010
AL06030004-0105-101	Elk River	R	L	Tennessee	Lauderdale	Swimming	pH	Pasture grazing	1990-91	1569.21 acres	Wheeler Lake /	2007
AL06030004-0105-101	Elk River	R	L	Tennessee	Limestone	Swimming	Nutrients	Pasture grazing	1999-02	1569.21 acres	Wheeler Lake /	2007
AL06030005-0701-201	McKernan Creek	R	H	Tennessee	Colbert	Public Water Supply	Ammonia	Agriculture	1988	2.71 miles	Tennessee River /	2010
AL06030005-0702-100	Pond Creek	R	L	Tennessee	Colbert	Agricultural & Industrial	Organic Enrichment/DO	Non-irrigated crop production	1991	12.43 miles	Tennessee River /	2010
AL06030005-0702-100	Pond Creek	R	L	Tennessee	Colbert	Swimming	Organic Enrichment/DO	Non-irrigated crop production	1991	12.43 miles	Tennessee River /	2010
AL06030006-0101-700	Little Dice Branch	R	M	Tennessee	Franklin	Fish & Wildlife	Siltation	Surface mining-abandoned	1982	3.83 miles	Bear Creek /	2010
AL06030006-0103-101	Bear Creek (Bear Creek Lake)	R	L	Tennessee	Franklin	Public Water Supply	Metals (Hg)	Unknown source	2005	653.54 acres	Bear Creek Lake Dam /	2010
AL06030006-0103-103	Bear Creek	R	H	Tennessee	Marion	Swimming	Metals (Al)	Surface mining-abandoned	1992-96	3.00 miles	Mill Creek /	2010
AL06030006-0204-202	Purgatory Creek	R	H	Upper Tombigbee	Marion	Fish & Wildlife	pH	Surface mining-abandoned	1988	1.77 miles	Wicket Creek /	2008
AL06030006-0204-203	Purgatory Creek	R	H	Upper Tombigbee	Marion	Public Water Supply	pH	Surface mining-abandoned	1988	1.21 miles	US Highway 278 /	2008
AL06030006-0402-102	Tombigbee River (Aliceville Reservoir)	R	L	Upper Tombigbee	Pickens	Swimming	Organic Enrichment/DO	Dam construction	1991	2008.15 acres	Beville Dam /	2006
AL06030006-0607-101	Factory Creek	R	M	Upper Tombigbee	Sumter	Fish & Wildlife	Organic Enrichment/DO	Agriculture	2001	1.80 miles	Tombigbee River /	2012
AL06030006-0607-100	Sipsey River	R	M	Upper Tombigbee	Pickens	Fish & Wildlife	Metals (Fe)	Surface mining	1991-93	43.49 miles	Tombigbee River /	2012
AL060300201-0903-101	Wahalak Creek	R	L	Lower Tombigbee	Choctaw	Fish & Wildlife	Pathogens	Urban runoff/storm sewers	2001	14.08 miles	Tombigbee River /	2013

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AL03160203-0601-100	Bassett Creek	R	M	Lower Tombigbee	Clarke	Fish & Wildlife	Pathogens	Municipal	2001-02	12.81 miles	Little Bassett Creek / its source	2012
AL03160203-1103-102	Tombigbee River	R	L	Lower Tombigbee	Clarke	Fish & Wildlife	Metals (Hg)	In place contaminants	2001-02	3.80 miles	Upper end of Bilbo Island / Olin Basin	2008
AL03160203-1103-700	Bilbo Creek	R	L	Lower Tombigbee	Washington	Swimming Fish & Wildlife	Organic Enrichment/DO	Unknown source	2001-02	29.27 miles	Tombigbee River / its source	2012
AL03160203-1103-800	Olin Basin	L	L	Lower Tombigbee	Washington	Fish & Wildlife	Pesticides (DDT) Metals (Hg)	Contaminated sediments	1993	71.06 acres	All of Olin Basin	N/A