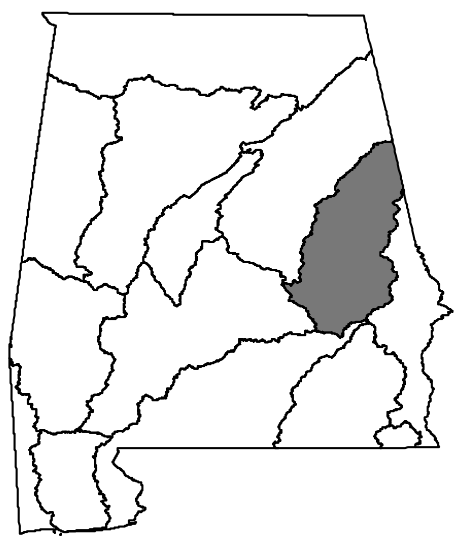
SURFACE WATER QUALITY

SCREENING ASSESSMENT OF THE Tallapoosa River Basin – 2000

Report Date: 2002 September 6



Aquatic Assessment Unit ✦ Field Operations Division

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

THIS PROJECT WAS FUNDED OR PARTIALLY FUNDED
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ENVIRONMENTAL MANAGEMENT
UTILIZING A CLEAN WATER ACT §319(H) NONPOINT SOURCE
DEMONSTRATION GRANT
PROVIDED BY THE U.S. ENVIRONMENTAL
PROTECTION AGENCY - REGION 4.

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AQUATIC ASSESSMENT UNIT

FIELD OPERATIONS DIVISION

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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EXECUTIVE SUMMARY

Background: In 1996, the Alabama Department of Environmental Management (ADEM) adopted a basin wide approach to non-point source (NPS) monitoring and management using a repeating 5-year management cycle. Because of the 5-year rotation, basins are placed into groups so that all basins receive equal focus. Concentrating planning and implementation efforts within one basin group allows a focused review of available data and provides coordinated water quality monitoring and assessment efforts, efficient implementation of control activities on a geographic basis, and consistent and integrated decision-making for awarding CWA §319 funds.

During 2000, the Aquatic Assessment Unit (AAU) of the Field Operations Division completed a NPS screening assessment of the Tallapoosa River Basin. This document provides landuse and NPS impairment information for all the sub-watersheds (Tables 2-5) and an assessment summary for each sub-watershed selected for sampling. Information from other studies conducted in 2000 is also summarized at the end of each section. Data associated with the additional studies conducted in the Tallapoosa River Basin is provided in the appendices.

Land use: Land use percentages (Table E-1) and estimates of animal populations and sedimentation rates were obtained from information provided to ADEM by the Alabama Soil and Water Conservation Committee (ASWCC) and local Soil and Water Conservation Districts (SWCD). This information was provided on Conservation Assessment Worksheets completed in 1998 (FY97 CWA §319 Workplan Project #4) and entered into an ACCESS database by ADEM.

Table E-1. Estimates of percent land cover within the Upper Tallapoosa, Middle Tallapoosa, and Lower Tallapoosa River Cataloging Units (CU) (ASWCC and SWCD 1998).

Cataloging Unit	Forest	Row crop	Pasture	Mining	Urban	Open Water	Other
Upper Tallapoosa	77%	3%	16%	0%	1%	1%	2%
Middle Tallapoosa	78%	1%	10%	0%	4%	7%	1%
Lower Tallapoosa	67%	5%	18%	1%	6%	1%	3%

Nonpoint Source (NPS) impairment potential: The potential for NPS impairment was estimated for each sub-watershed in the Tallapoosa River basin using data compiled by the local SWCD (Tables E-2a and E-2b). Thirty-two of the 59 sub-watersheds were estimated to have a *moderate* or *high* potential for impairment from nonpoint sources. The primary NPS concerns were different in each cataloging unit. Runoff from animal production operations was the main NPS concern in the Upper Tallapoosa River CU. Forestry and sedimentation were concerns in the Middle and Lower Tallapoosa River CU. Runoff from pasturelands was also a concern in the Lower Tallapoosa River CU.

Table E-2a. Number of sub-watersheds with moderate or high ratings for each NPS category

Cataloging Unit	Total # sub-watersheds	Overall Potential	Animal Husbandry	Row crop	Pasture	Mining	Forestry	Sediment
Upper Tallapoosa	19	11	14	4	6	2	5	6
Middle Tallapoosa	22	12	3	0	4	0	15	9
Lower Tallapoosa	18	9	2	6	0	5	9	10

Table E-2b. Number of sub-watersheds with moderate or high ratings for each point source or urban category

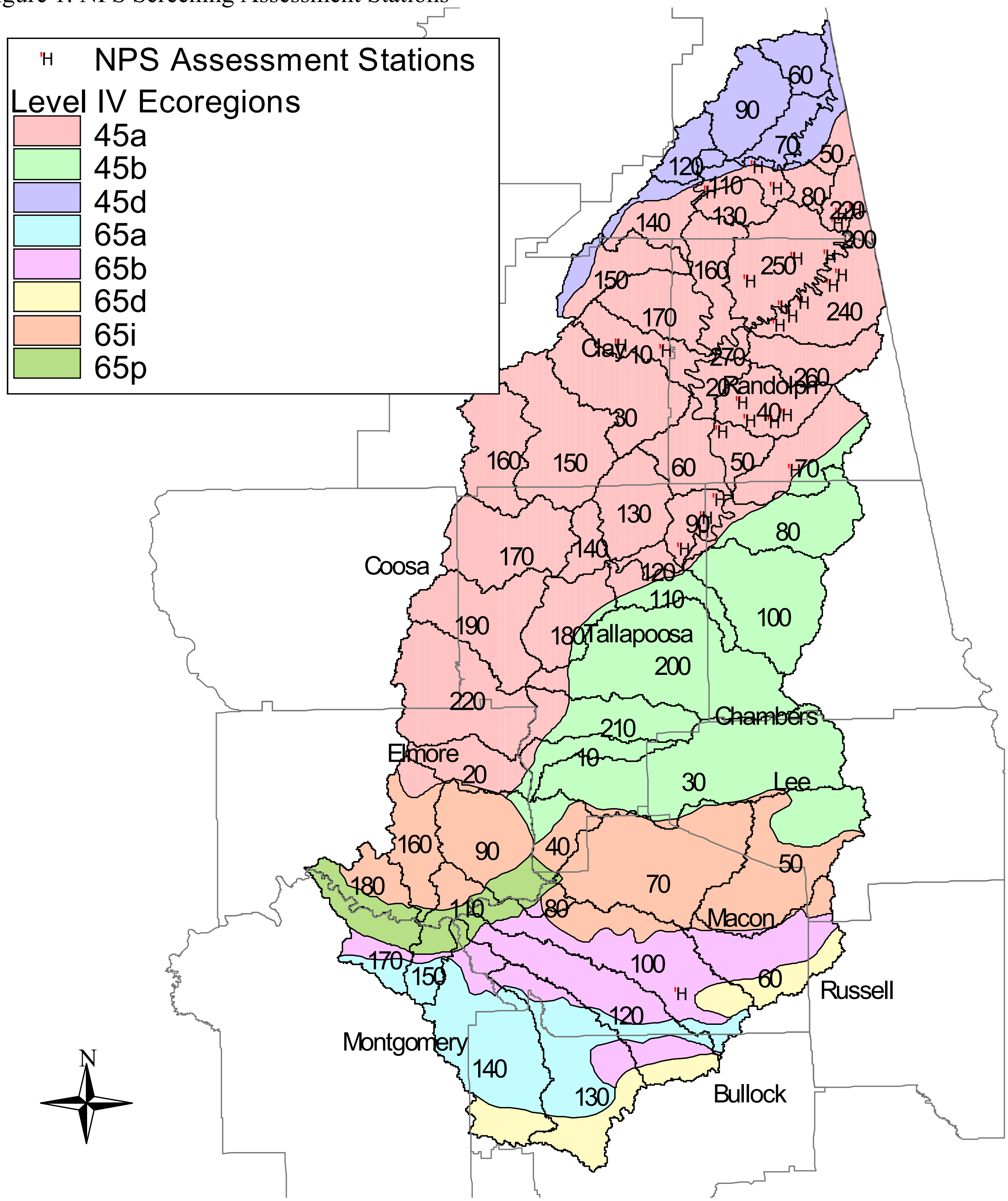
Category	% Urban	Development	Septic tank failure
Upper Tallapoosa	3	3	0
Middle Tallapoosa	5	5	0
Lower Tallapoosa	9	9	1

Assessments conducted during the Alabama Coosa Tallapoosa (ACT) NPS Screening Assessment: Sub-watersheds were selected for assessment during the ACT screening assessment if recent monitoring data were not available, potential impacts from point sources or urban areas were minimal, and the potential from nonpoint sources was moderate or high. Nonpoint source assessments were conducted in 9 sub-watersheds in the Tallapoosa River basin (Figure 1). Assessment of habitat, biological and chemical conditions are based on long-term data from ADEM's Ecoregional Reference Site Program (ADEM 2000a). Tables referenced in the summaries are located at the end of each summary section. Appendices are located at the end of the report. The summaries are organized into 3 sections by CU. Each summary discusses land use, NPS impairment potential, assessments conducted within the sub-watershed, and the NPS priority rating based on available data.

Sub-watershed assessments: Habitat, chemical/physical, and biological indicators of water quality were monitored at 33 stations within 9 sub-watersheds. These data are summarized in Table 16. Aquatic macroinvertebrate assessments were conducted at each of the 33 stations. Fish Community Index of Biotic Integrity (IBI) assessments were conducted at 7 of these stations. Overall condition for each station was rated as the lowest biological assessment result obtained. Eight of the 33 stations were assessed as *fair*. The remaining stations indicated 19 good and 6 excellent assessments.

***Current/Historical Data*:** To provide a summary of water quality work conducted in the Tallapoosa River Basin available current and historical monitoring data is included with this document and is presented in the tables and appendices. A summary of information available is located at the end of each section.

Figure 1. NPS Screening Assessment Stations



***Priority sub-watersheds*:** Six priority sub-watersheds were identified within the Tallapoosa River Basin (Table E-4).

Table E-4. Sub-watersheds recommended for NPS priority status.

Sub-watershed Number	Sub-watershed Name	Lowest Station Assessment	Suspected Cause(s)	Suspected nonpoint source(s)
0108-110	Tallapoosa River	Fair	Sedimentation	Animal production operations, row crop
0108-220	Lost Creek	Fair	Nutrient/Biological enrichment	Pasture, animal production operations
0108-240	Upper Little Tallapoosa	Fair	Biological enrichment	Pasture
0108-250	Cohobadiah Creek	Fair	unknown	Animal production operations
0109-040	Cornhouse Creek	Fair	Sedimentation	Forestry practices
0110-100	Calebee Creek	Fair	Nutrients/Biological Enrichment	Pasture, Forestry practices

Tallapoosa River (0315-0108-110): Three stream segments were assessed in 2000. All three stream segments had *good* macroinvertebrate communities; however the fish community of Cedar Creek (CDRC-15) was assessed as *fair*. Habitat assessment results indicated sedimentation and loss of habitat to be a possible cause(s) of impairment to the fish community. Animal production operations and row crop land use were identified as primary concerns. The overall potential for NPS pollution was estimated as *moderate*.

Lost Creek (0315-0108-220): An assessment conducted of Little Lost Creek indicated *moderate* impairment to both the macroinvertebrate and fish communities. Water chemistry samples collected in July of 2000 indicated elevated biochemical oxygen demand (BOD_5) and nitrate/nitrite concentrations. Habitat assessments conducted at the Little Lost Creek reach indicated run-off from pasture land use and a lack of riparian buffer to be potential sources of the biological impairment. The overall potential for NPS impairment was estimated as moderate. Animal production operations and pasture land use were identified as primary NPS concerns.

***Upper Little Tallapoosa (0315-0108-240)*:** Five stations were sampled within this sub-watershed. Although habitat quality was assessed as *good* or *excellent* at all five stations, 2 stations (BEAR-2 and CUTR-4) indicated *fair* aquatic macroinvertebrate communities and *fair* to *fair-good* fish communities. Observations made during the assessments indicated row crop, poultry production operations and pasture to be potential sources of impairment. Both stream segments indicating impairment had narrow riparian zones.

***Cohobadiah Creek (0315-0108-250)*:** The Cohobadiah Creek sub-watershed was estimated to have the 3rd highest potential for NPS impairment. The primary NPS concerns include runoff from animal production operations, pasture, and mining. Biological impairment was detected at Cohobadiah Creek (macroinvertebrate and fish communities) and Pineywoods Creek (fish community). Water chemistry samples collected during the NPS study did not indicate a cause of the *moderate* impairment. Additional assessment is recommended within this sub-watershed.

Cornhouse Creek (0315-0109-040)**:** Three segments of Cornhouse Creek and one segment of Wildcat Creek were assessed in 2000. All four stream reaches indicated good aquatic macroinvertebrate communities. One segment of Cornhouse Creek (CHRS-20) was also assessed by conducting a fish community survey, which indicated a *fair-good* fish population. This segment of Cornhouse Creek was characterized by a high percentage of sand substrate. Large areas of clearcut with little riparian zone were observed while conducting the assessments.

Calebee Creek (0315-0110-100)**:** Four stream reaches were assessed within the Calebee Creek sub-watershed. Biological impairment was detected at Tallassarr Creek. Habitat quality was assessed as *poor* due to poor bank stability and stream riparian zone. While sampling the segment of Tallassarr Creek cattle were observed in the stream. Runoff from pasture and forestry areas were identified as the primary NPS concerns within the sub-watershed.

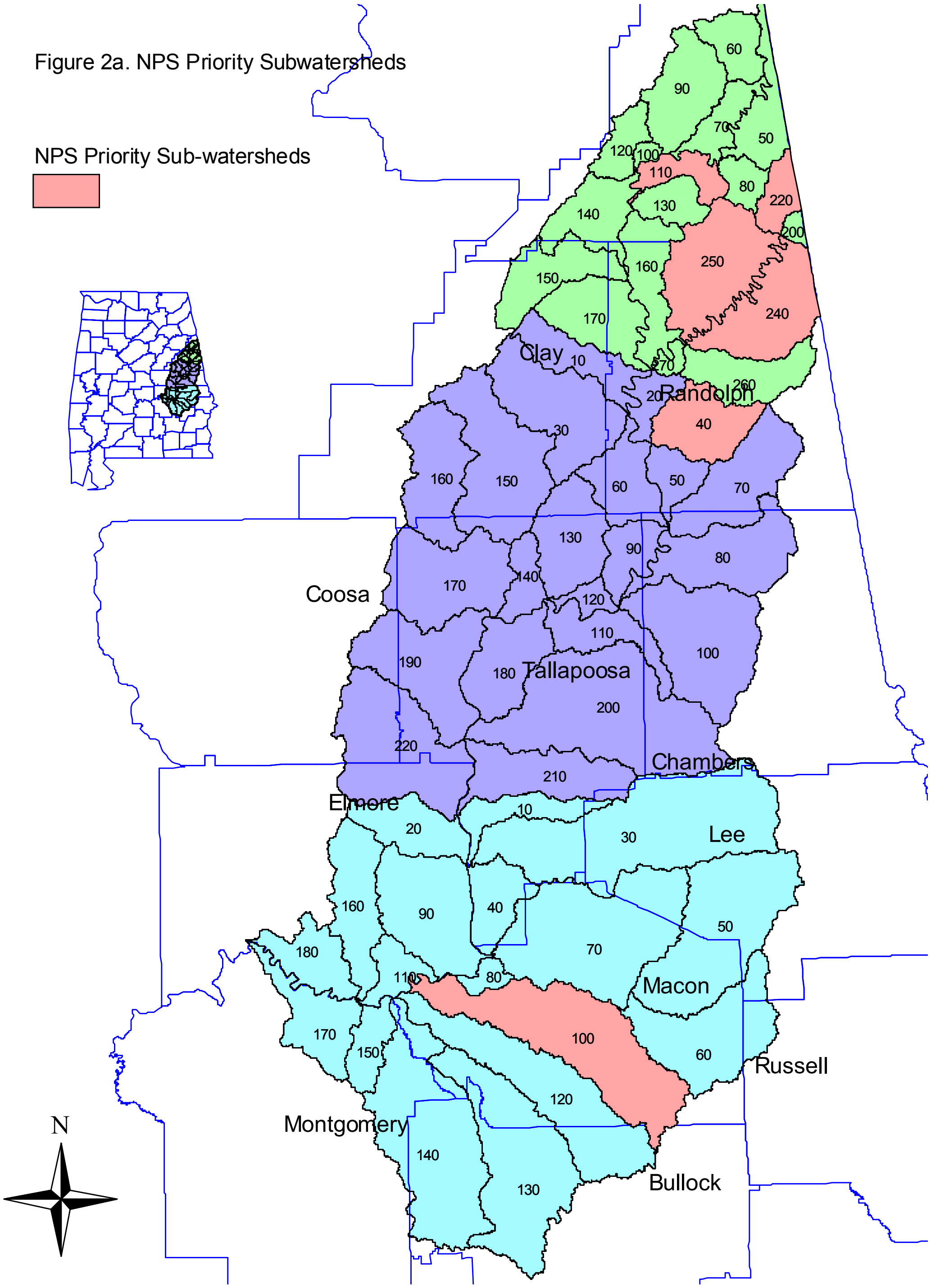


Figure 2a. NPS Priority Subwatersheds
NPS Priority Sub-watersheds
N
Clay
Randolph
Coosa
Tallapoosa
Chambers
Elmore
Lee
Macon
Russell
Montgomery
Bullock

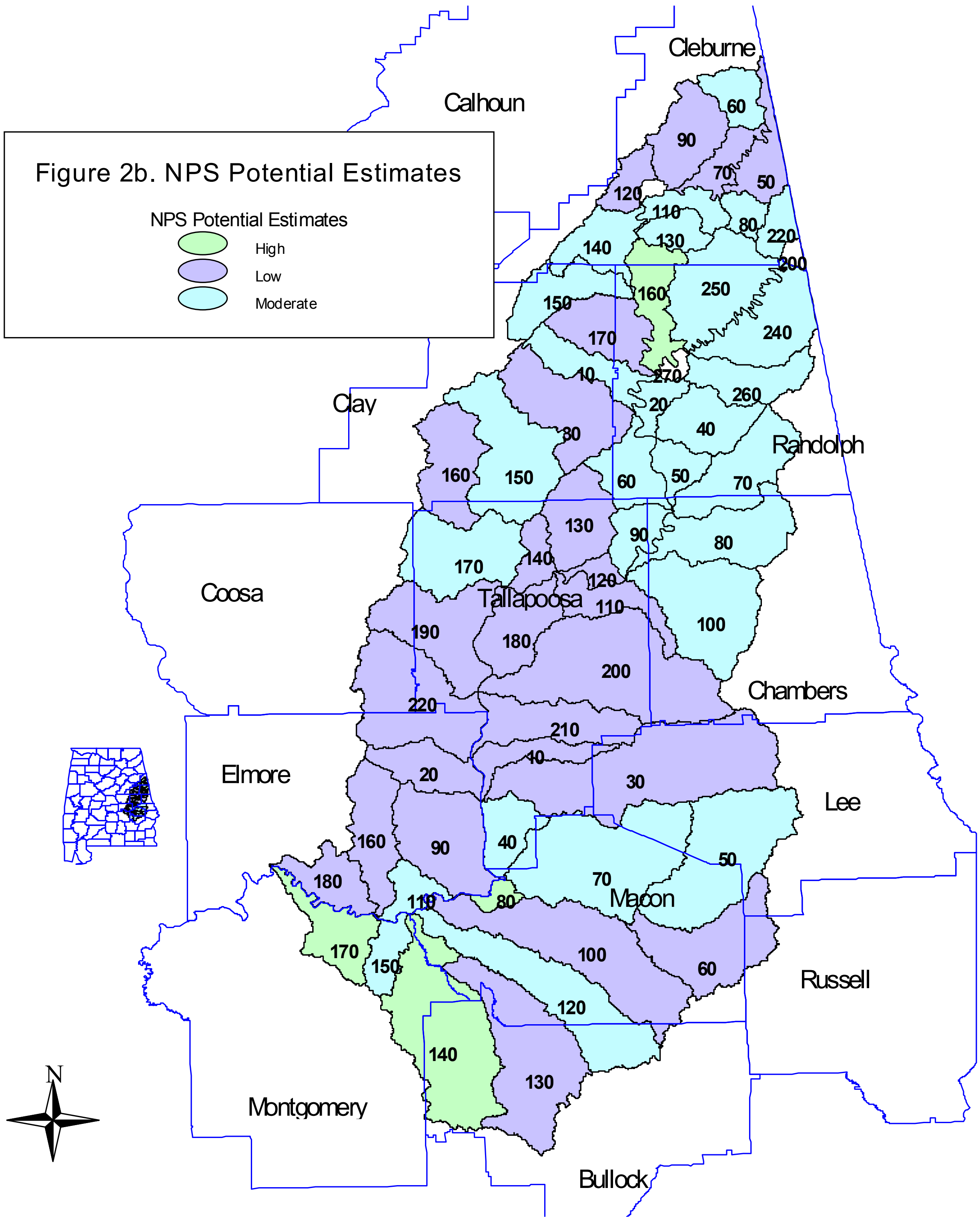


Figure 2b. NPS Potential Estimates
NPS Potential Estimates
High
Low
Moderate
Cleburne
Calhoun
Clay
Randolph
Coosa
Tallapoosa
Chambers
Elmore
Lee
Macon
Russell
Montgomery
Bullock
N
60
90
70
50
120
110
80
220
130
140
200
160
250
150
240
170
10
270
20
260
80
40
160
150
60
50
70
130
90
80
170
140
120
110
100
190
180
200
220
210
10
20
30
160
90
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50
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70
110
80
170
150
100
60
120
140
130

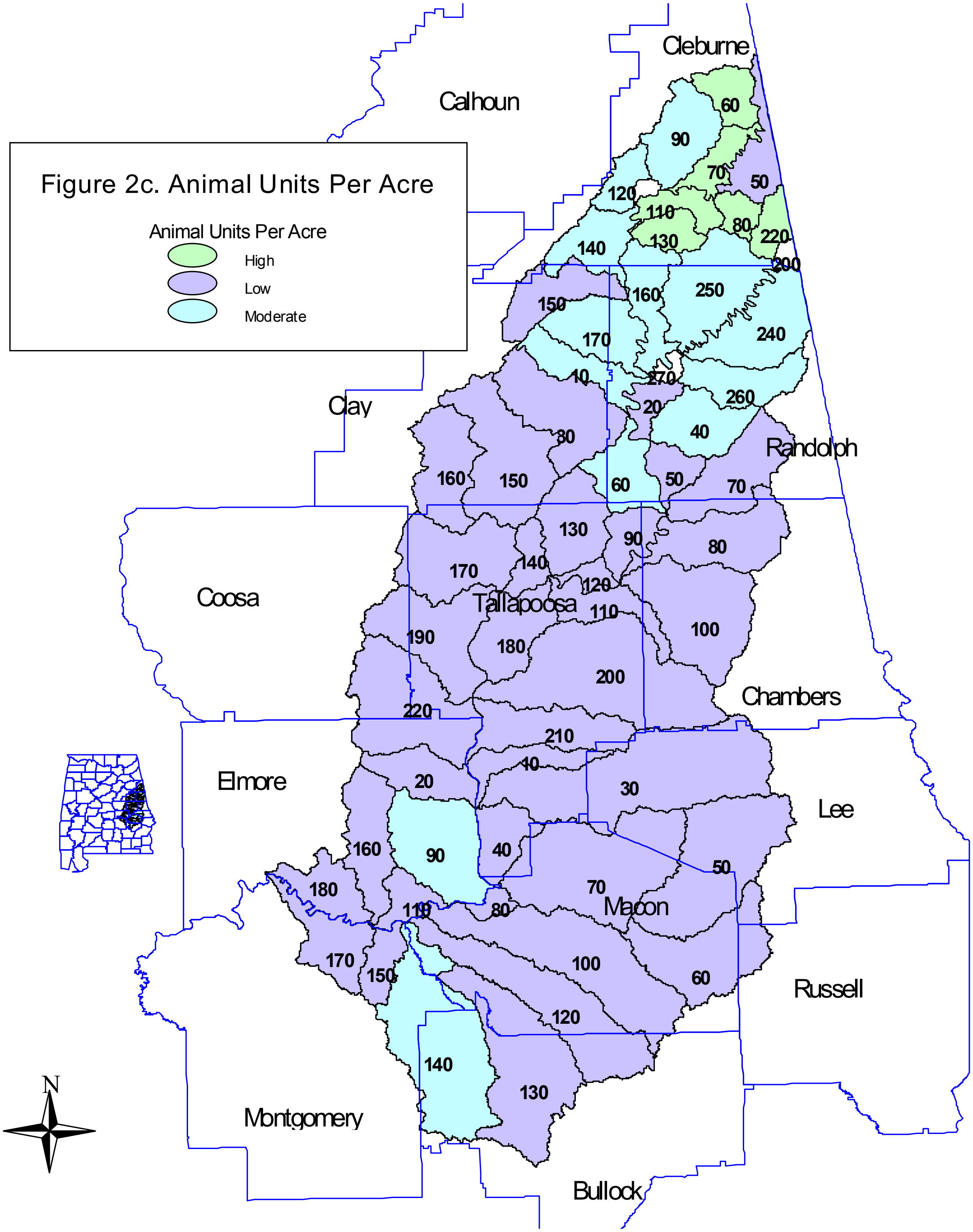

Figure 2c. Animal Units Per Acre

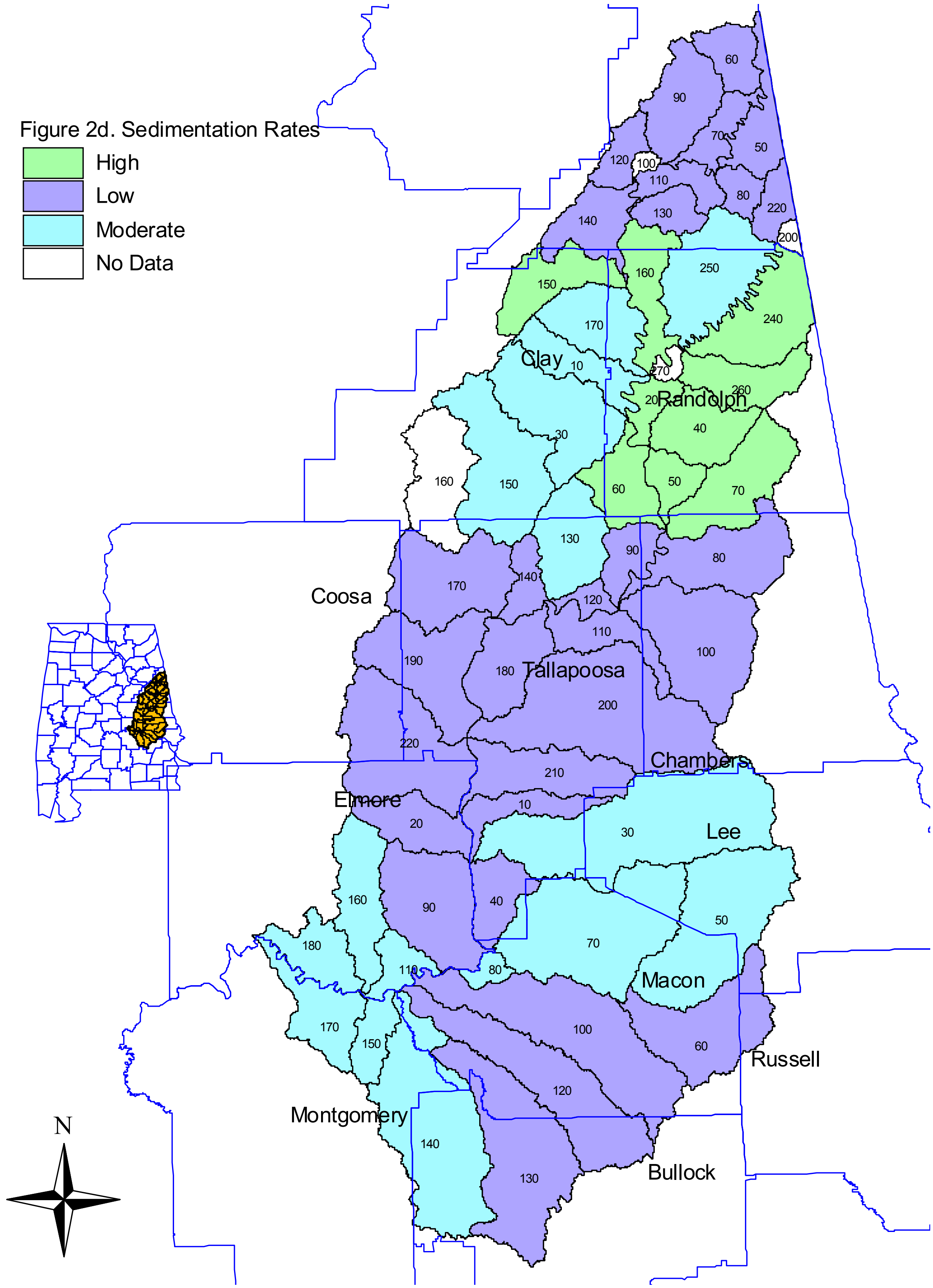
Figure 2d. Sedimentation Rates
High
Low
Moderate
No Data
Clay
Randolph
Coosa
Tallapoosa
Chambers
Elmore
Lee
Macon
Russell
Montgomery
Bullock
N

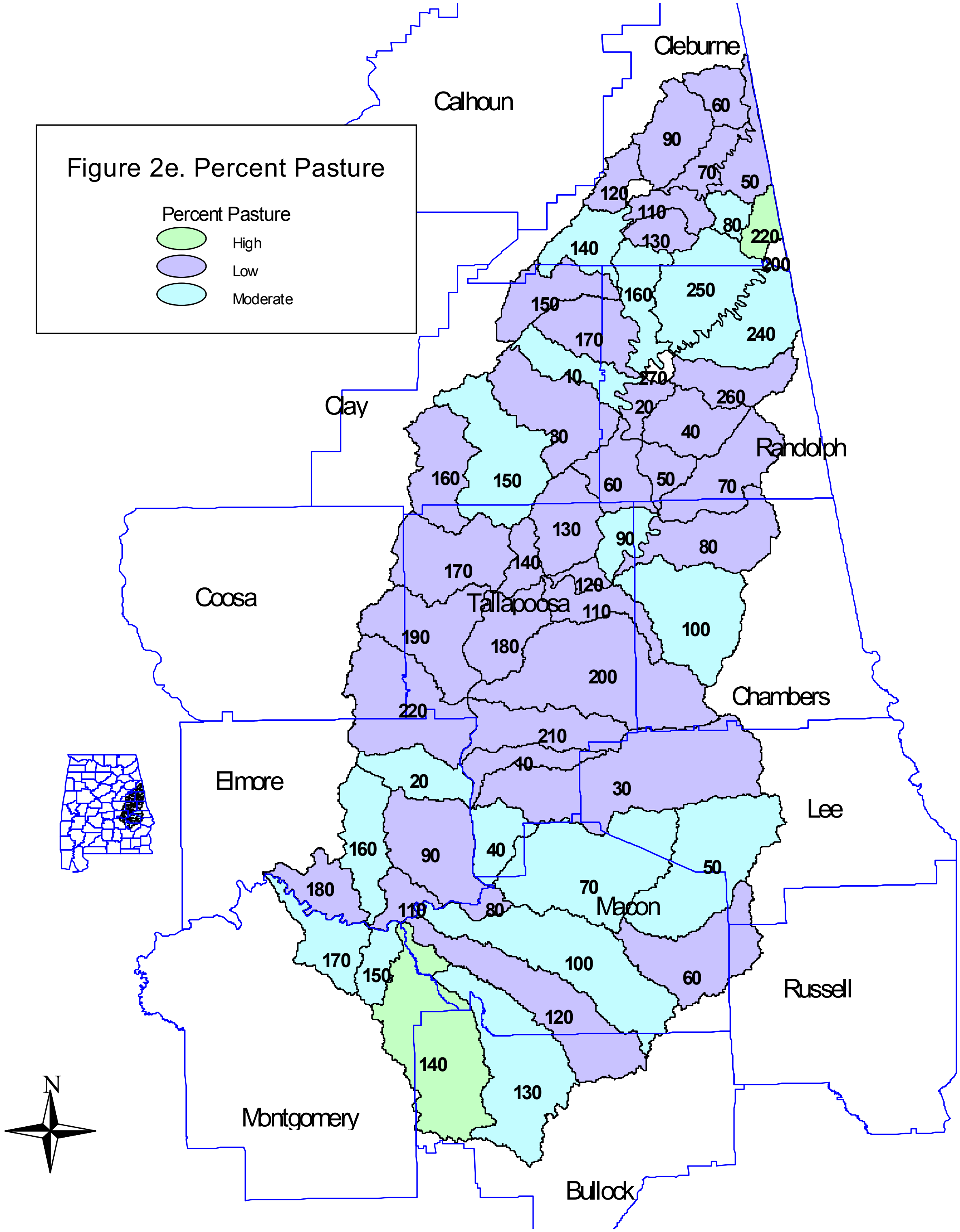
Figure 2e. Percent Pasture
Percent Pasture
High
Low
Moderate
Cleburne
Calhoun
Clay
Randolph
Coosa
Tallapoosa
Chambers
Elmore
Lee
Macon
Russell
Montgomery
Bullock
N
60
90
70
50
120
110
80
220
130
140
200
160
250
150
170
240
10
270
20
260
40
30
160
150
60
50
70
130
90
80
170
140
120
110
100
190
180
200
220
210
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10
30
160
90
40
50
180
70
110
80
170
150
100
60
120
140
130

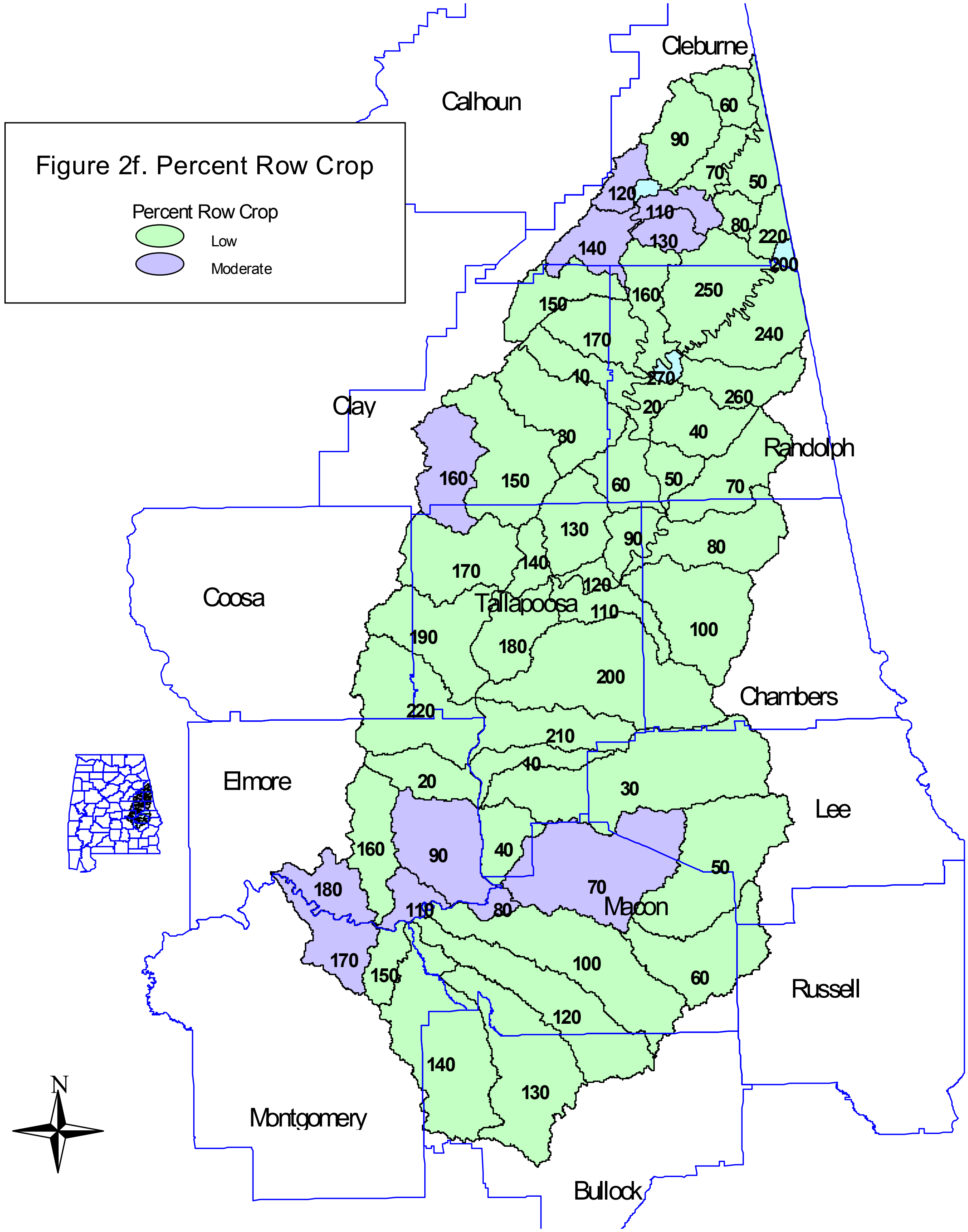
Figure 2f. Percent Row Crop
Percent Row Crop
Low
Moderate
Cleburne
Calhoun
Clay
Randolph
Coosa
Tallapoosa
Chambers
Elmore
Lee
Macon
Russell
Montgomery
Bullock
N

ACKNOWLEDGEMENTS

Thank you to Dr. Patrick O'Neil of the Geological Survey of Alabama for helping with Fish IBI evaluations. Thank you to Vic Payne, the State Soil and Water Conservation Committee, and the Local Soil and Water Conservation Districts (SWCDs) in the Tallapoosa Basin for providing the Conservation Assessment Worksheet information for inclusion in this report.

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LIST OF ABBREVIATIONS

Abbreviation	Interpretation
§	Section
ADEM	Alabama Department of Environmental Management
AU	Animal Unit as defined by ADEM CAFO Rules
Br	Branch
CAFO	Concentrated Animal Feeding Operation
cfs	Cubic Feet per Second
Chem.	Chemical/Physical Water Quality
Co.	County
Confl.	Confluence
Cr	Creek
CU	Cataloging Unit
CWA	Clean Water Act
CWP	Clean Water Partnership
ds	Downstream
EIS	Environmental Indicators Section of ADEM's Field Operations Division
EPA	U.S. Environmental Protection Agency
FOD	Field Operations Division
GSA	Geological Survey of Alabama
IBI	Index of Biotic Integrity (fish community)
Macroinv.	Aquatic Macroinvertebrate
mg/l	Milligrams per Liter
Mod.	Moderate
NPDES	National Pollutant Discharge Elimination System
NPS	Nonpoint Source
nr	Near
R	River
Rd	Road
RM	River Mile
SSWCC	State Soil and Water Conservation Committee
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load
TVA	Tallapoosa Valley Authority
ug/g	Micrograms per Gram
ug/l	Micrograms per Liter
us	Upstream

INTRODUCTION

The Alabama Department of the Environmental Management (ADEM) is charged with monitoring the status of the state's water quality pursuant to the Clean Water Act and the Alabama Water Pollution Control Act. Under the Clean Water Act of 1977, the EPA emphasized programs addressing the chemical contamination of the nation's waters (National Research Council 1992). State and federal programs initiated to meet these water quality guidelines have been largely successful in controlling and reducing certain kinds of chemical pollution from point source discharges (National Research Council 1992, ADEM 1996c). However, the Clean Water Act of 1977 does not directly address impairment from nonpoint sources. Furthermore, programs designed to monitor and control pollutants from point source discharges cannot effectively monitor or control pollution from nonpoint sources (National Research Council 1992).

The detection, assessment, and control of impairment from point sources is fairly well understood because the pollutants, their concentrations, and probable points of impact are known (National Research Council 1992, EPA 1997a). By contrast, nonpoint source pollution is defined as any unconfined or diffuse source of contamination, such as storm water runoff from urban or agricultural areas (EPA 1997a). The pollutants, their concentrations, and/or their source(s) may not be known or well defined. Because pollutants are mobilized primarily during rainstorm events, nonpoint source pollution is generated irregularly and, therefore, may not be detected by periodic chemical water quality measurements (National Research Council 1992). Nonpoint source impairment is associated with land use within a watershed, such as agriculture, silviculture, and mining. Potential sources can therefore be widespread and severe. Water quality at any point along the stream is influenced by water quality from all upstream tributaries.

The 1987 amendments to the Clean Water Act added Section 319, which established a national program to assess and control nonpoint source pollution. Under this program, states are required to assess their nonpoint source pollution problems and submit these assessments to USEPA. In 1996, ADEM adopted a basinwide approach to water quality monitoring using a 5-year rotating basin group cycle. Concentrating monitoring efforts within one basin provides the Department with a framework for more centralized management and implementation of control efforts and provides consistent and integrated decision-making for awarding CWA §319 NPS funds.

In 1997, the Aquatic Assessment Unit (AAU) of ADEM's Field Operations Division (FOD) developed methods that could be used to complete basin-wide screening assessment projects. These methods have been refined as new information and techniques have become available. The projects are completed in 5 phases. During Phase I, land use information, Departmental regulatory databases, available historical data, and other assessment information are used to identify data gaps and to prioritize sub-watersheds with the greatest potential for NPS impairment. Phase II includes reconnaissance and selection of assessment sites. During Phase III, sites are assessed using macroinvertebrate and fish community assessments, habitat assessments, and collection of physical/chemical water quality data. During Phase IV, data collected during Phase III, as well as existing data and assessment information, are analyzed to evaluate the level of impairment within each sub-watershed and determine the cause(s) and source(s) of impairment. A comprehensive report is completed during the final phase.

In 2000, the Aquatic Assessment Unit (AAU) of the Field Operations Division of ADEM initiated a screening assessment of the Alabama, Coosa, and Tallapoosa River Basins. The goal of the project was to collect data that will allow ADEM to estimate the current status in ecological conditions within selected potential priority sub-watersheds using indicators of biological, habitat, and chemical/physical conditions. This information can then be used by the Department to prioritize sub-watersheds most impacted by nonpoint source pollution and to use resources most effectively by directing BMP implementation and demonstration within priority watersheds. This document summarizes the assessment information and results obtained within the Tallapoosa River Basin.

METHODOLOGY

Study Area

The Tallapoosa River basin drains 4,025 mi^2 of Alabama's land area. It flows through parts of 16 counties in Alabama, but only 13 counties (Clay, Cleburne, Calhoun, Randolph, Chambers, Coosa, Lee, Elmore, Tallapoosa, Macon, Bullock, Montgomery and Russell) contain a significant portion of the Basin (Figure 1).

The Alabama portion of the Tallapoosa River Basin (0315) is comprised of 3 major divisions or 'cataloging units' (Upper, Middle and Lower Tallapoosa) and 59 sub-watersheds.

Ecoregions

Ecoregions are relatively homogeneous ecological areas defined by similarity of climate, landform, soil, potential natural vegetation, hydrology, or other ecologically relevant variables. This basin lies primarily above the Fall Line within the *Piedmont* (45) ecoregion. The southern portion of the basin is located in the *Southeastern Plains* (65) ecoregions.

Piedmont (45)

Considered the nonmountainous portion of the old Appalachians Highland by physiographers, the northeast-southwest trending Piedmont ecoregion comprises a transitional area between the mostly mountainous ecoregions of the Appalachians to the northwest and the relatively flat coastal plain to the southeast. It is a complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks with moderately dissected irregular plains and some hills. Once largely cultivated, much of this region has reverted to pine and hardwood woodlands. The soils tend to be finer-textured than in coastal plain regions (Griffith et al. 2001).

The **Southern Inner Piedmont (45a)** is mostly higher in elevation with more relief than 45b, but is generally lower and has less relief and contains different rocks and soils than 45d. Covering most of the Ashland Plateau, the rolling to hilly, well-dissected upland contains mostly schist, gneiss, and granite bedrock. Madison soils are typical over the more micaceous saprolite and rocks, and these soils are more common in 45a than in 45b. This ecoregion is drained mostly by the Tallapoosa River, and in the west, by tributaries to the lower Coosa River. The region is mostly forested, with major forest types of oak-pine and oak-hickory. Native pines include loblolly, shortleaf, and some longleaf. Open areas are mostly in pasture, although there are some small areas of cropland. Hay, cattle, and poultry are the main agricultural products (Griffith et al. 2001).

The **Southern Outer Piedmont (45b)** ecoregion in Alabama is a triangular shaped area sometimes referred to as the Opelika Plateau. It has lower elevations, less relief, and slightly less precipitation than 45a. Oak-hickory and oak-pine are the major forest types, with slightly more loblolly-shortleaf pine forest than in 45a. Schist and gneiss are the dominant rock types, covered with saprolite and mostly red, clayey subsoils. Kanhapludults are the typical soils, such as the Cecil, Appling, Gwinnett, and Pacolet series. The southern boundary of the ecoregion occurs at the Fall Line, where unconsolidated coastal plain sediments are deposited over the Piedmont metamorphic and igneous rocks. The dissected irregular plains are drained by tributaries of the Tallapoosa and Chattahoochee rivers (Griffith et al. 2001).

The **Talladega Upland (45d)** contains the higher elevations of the Alabama Piedmont, and tends to be more mountainous, dissected, and heavily forested than 45a and 45b. The geology is also distinctive, consisting of mostly Silurian to Devonian age phyllite, quartzite, slate, metasiltstone, and metaconglomerate, in contrast to the high-grade metamorphic and intrusive igneous rocks of 45a and 45b. The more mountainous parts of the region, with ridges formed from quartzite, sandstone, and metaconglomerate, contain Alabama's highest point, 2407-foot Cheaha Mountain. The climate of 45d is slightly cooler and wetter than the other ecoregions (45a, b) of the Alabama Piedmont. Oak-hickory-pine is the natural vegetation type, and the region once contained some unique montane longleaf pine communities. Public land (Talladega National Forest) comprises a large portion of the region (Griffith et al. 2001).

Southeastern Plains (65)

These irregular plains consist of cropland, pasture, woodland, and forest. Natural vegetation is mostly oak-hickory-pine and southern mixed forest. The Cretaceous or Tertiary-age sands, silt and clays of the region contrast geologically with the Paleozoic limestone, shale and sandstone of ecoregions to the north. Elevations and relief are greater than the Southern Coastal Plain (75), but generally less than in much of the Piedmont streams. Streams in this area are low-gradient and sandy bottomed (Griffith and Omernik 1991). The East Gulf Coastal Plain Section is characterized by gentle rolling hills, sharp ridges, prairies and broad alluvial floodplains. The greater part of this section is underlain by permeable sands and gravel, which have excellent water bearing properties. Streams in this section are generally slow and have muddy of sand bottoms (Griffith et al. 2001).

The flat to undulating **Blackland Prairie (65a)** region has distinctive Cretaceous-age chalk, marl, and calcareous clay. Soils are generally clayey and tend to shrink and crack when dry and swell when wet. Streams have a high variability in flow and affect some fish species distributions. The natural vegetation had dominant trees of sweetgum, post oak, and red cedar, along with patches of bluestem prairie. Today, the area is mostly cropland and pasture, with small patches of mixed hardwoods. Pond-raised catfish aquaculture has increased in recent years (Griffith et al. 2001).

The **Flatwoods/Blackland Prairie Margins (65b)** combines two slightly different areas. The flatwoods are comprised of a mostly forested lowland area of little relief, formed primarily on dark, massive marine clay of the Porters Creek Formation. Soils, such as Wilcox and Mayhew, are deep, clayey, somewhat poorly to poorly drained, and acidic. The Blackland Prairie Margins are undulating, irregular plains, with slightly more relief than the Flatwoods, but also tend to have heavy clay soils that are sticky when wet, hard and cracked when dry, with generally poor drainage (Griffith et al. 2001).

The dissected irregular plains and gently rolling low hills of the **Southern Hilly Gulf Coastal Plain (65d)** ecoregion developed over diverse east-west trending bands of sand, clay, and marl formations. Broad cuestas with gentle south slopes and steeper north-facing slopes are common, and the heterogeneous region has a mix of clayey, loamy, and sandy soils. It has more rolling topography, higher elevations, and more relief than 65a, 65b, 65f, 65g, and streams have increased gradient. The natural vegetation of oak-hickory-pine forest grades into southern mixed forest to the south. Land cover is mostly forest and woodland, with some cropland and pasture (Griffith et al. 2001).

The **Fall Line Hills (65i)** are composed primarily of Cretaceous-age loamy and sandy sediments. It is mostly forested terrain of oak-hickory-pine on hills with 200-400 feet of relief.

Elevations range from 200-1000 feet. Longleaf pine is being reintroduced in many parts of the region, and the area around the Talladega National Forest in west Alabama provides a major stronghold for the endangered red-cockaded woodpecker (Griffith et al. 2001).

Southeastern Floodplains and Low Terraces (65p) comprise a riverine ecoregion of large sluggish rivers and backwaters with ponds, swamps, and oxbow lakes. It includes the larger river systems, the Coosa, Tallapoosa, Black Warrior, Tombigbee, Alabama, Chattahoochee, and Conecuh. River swamp forests of bald cypress and water tupelo and oak-dominated bottomland hardwood forests provide important wildlife corridors and habitat. While hardwood forests cover much of the floodplains, cropland is typical on the higher, better-drained terraces (Griffith et al. 2001).

Topography/Soils

Most of the soils in the *Piedmont Plateau* are derived from granite, hornblende, and mica schists. Madison, Pacolet, and Cecil soils, which have red clayey subsoils and sandy loam or clay loam surface layers, are very extensive. Topography is rolling to steep with elevations in most areas range from 700 to 1000 feet. Most rolling areas were once cultivated but are now in pasture or forest.

Most of the soils in the *Upper Coastal Plain* are derived from marine and fluvial sediments eroded from the Appalachian and Piedmont plateaus. Smithdale, Luverne and Savannah soils are extensive with either loamy or clayey subsoils and sandy loam or loam surface layers. Savannah soils have a fragipan. Topography is level to very steep with narrow ridgetops and broad terraces that are cultivated. Most of the area is in forest with elevations ranging from 200 to 1000 feet. (ACES 1997)

The soils of the *Major Flood Plains and Terraces* are not extensive but important where they are found along streams and rivers as in the Lower Tallapoosa CU. They are derived from alluvium deposited by the streams. The Cahaba, Annemaine, and Urbo series represent major soils of this area. A typical area consists of cultivated crops on the nearly level terraces and bottomland hardwood forests on the floodplain of streams. (ACES 1997)

Review of Available Data

The use of available data was an important component of the ACT basin-wide screening assessment because it allowed ADEM to concentrate efforts in those areas where recent data were not available. Chemical, habitat, and biological data from other projects were used to supplement data collected during the ACT Basin NPS Screening Assessment. However, water quality data and information can range from casual observations to intensive water chemistry, biological, and physical characterization. To use existing data to accurately assess conditions within a sub-watershed, it is important to understand the objectives of these projects.

During 2000, ADEM identified two levels of waterbody assessments: monitored and evaluated (ADEM 2000h). When information such as observed conditions, limited water quality data, water quality data older than 5 years, or estimated impacts from observed or suspected activities are used as the basis for the assessment, the assessment is generally referred to as "evaluated". Evaluated assessments usually require the use of some degree of professional judgement by the person making the assessment. Monitored assessments are based on chemical, physical, and/or biological data collected using commonly accepted and well-documented methods. There is a higher level of certainty associated with monitored assessments than with evaluated assessments.

Monitored assessments have been conducted in conjunction with ADEM's Ecoregional Reference Site Program (Appendix F-1), State Parks Monitoring Project (Appendix F-2), §303(d) Waterbody Monitoring Program (Appendix F-3), the Catoma Creek Watershed Monitoring Project (Appendix F-4), ADEM's Reservoir Monitoring Program (Appendix F-6), and the University Reservoir Tributary Nutrient Project (Appendix F-7). Evaluated assessments have been conducted in conjunction with ADEM's ALAMAP Program (Appendix F-8), Ambient Trend Monitoring Program (Appendix F-9), and Clean Water Strategy Project (Appendix F-10). A summary of each project, including lead agency, project objectives, type of assessments conducted and data collected, and applicable quality assurance manuals is provided in the appendices.

Other data/information: ADEM's Departmental municipal, industrial, mining, and CAFO databases were reviewed to rule out sub-watersheds primarily impacted by point sources or monitored in conjunction with NPDES permits (ADEM 1999e, 2001d). Biological and chemical data were also reviewed to concentrate efforts of the ACT Basin Screening Assessment in areas that have not been recently assessed.

Landuse: Estimates of landuse percentages, animal populations, and sedimentation rates were obtained from information provided to ADEM by the Alabama Soil and Water Conservation Committee (ASWCC) and local Soil and Water Conservation Districts (SWCD). This information was provided on Conservation Assessment Worksheets completed in 1998 (FY97 CWA § 319 Workplan Project #4). Additional landuse information was obtained from estimates of percent land cover for the entire southeastern U.S. published by EPA (EPA 1997a). These estimates were based on leaves-off Landsat TM data acquired in 1988, 1990, 1991, 1992, and 1993. Recent ground-truthing of these estimates have indicated 58% accuracy due to a decrease in agricultural use and an increase in plantation pine in some areas of Alabama within the last 10 years (Pitt 2000). Use of these estimates to locate least-impaired ecoregional reference sites in Georgia has indicated an accuracy of 40-60% (Olson and Gore 2000). Therefore, only the conservation assessment worksheets were used to evaluate potential for impairment from nonpoint sources. A comparison of landuse estimates from the conservation assessment worksheets and the EPA Landsat data is provided in Tables 5a through 5c. The finer landuse categories defined by the EPA landuse dataset are provided in Appendices A-1a through A-1c. Descriptions of the Landsat TM data are provided in Appendix A-2.

Animal population estimates: The potential NPS impairment from activities associated with animal husbandry was assessed. The impairment potential among the different animal types was standardized by converting animal populations into animal units (AU). Animal unit estimates were calculated for each of the animal types based on the current conversion factors found in ADEM Administrative Code Chapter 335-6-7 (Table M-1). These values considered characteristics such as live weight equivalent waste quantity and constituent composition (limiting nutrients, moisture, additive compounds, etc.) (ADEM 1999b). AU estimates for each animal type were further standardized by converting to animal unit densities (AU/acre of sub-watershed).

Table M-1. Animal Unit Equivalent based on CAFO Program Rule ADEM Administrative Code Chapter 335-6-7

Animal Type (CAFO Definition)	*Numbers of Animals*	*Animal Unit (AU) Equivalent*
Cattle (slaughter, feeder, dairy heifers)	*1*	*1.0*
Dairy (mature)	*1*	*1.4*
Swine (>55 lbs)	*1*	*0.4*
Poultry (Broiler & Layer)	*125*	*1.0*

Forestry practices: Where the information was available, 3 categories were added to assess the potential for impairment from forestry practices: percent acres clear-cut, percent of acres harvested annually, and percent of forest needing improvement. This information was provided by the local SWCD and the Alabama Forestry Association.

Urban nonpoint sources: Percent urban land, number of current construction/stormwater authorizations, and number of failing septic systems were used to identify sub-watersheds potentially impaired by urban landuses.

Nonpoint Source Impairment Potential and Sub-watershed Ranking

An estimate of the potential for nonpoint source impairment was determined for each sub-watershed and cataloging unit. Information (parameters) was selected to represent potential categories of impairment sources for the Alabama, Coosa and Tallapoosa Basins. Each sub-watershed was assigned an impairment potential for each category. The sub-watershed values for each category were H=5, M =3, and L=1. For each category, the range of values used for a sub-watershed's impairment potential were determined by calculating the mean and standard deviation for each parameter including data from all three basins (Alabama, Coosa and Tallapoosa). A value less-than-or-equal-to the calculated mean was assigned a "Low" potential. Values greater than the mean, but equal-to-or-less-than two standard deviations above the mean were assigned a "Moderate" potential and values greater than two standard deviations above the mean were assigned a "High" potential for NPS impairment. If more than one parameter was considered in a category, then the highest parameter potential was considered the category potential.

The potentials for each rural nonpoint source category were summed for each sub-watershed, averaged and ranked highest to lowest to determine the final NPS impairment potential. High ranked sub-watersheds also having a high non-rural NPS potential were further evaluated to determine the probable source location in relation to potential assessment sites. Any sub-watershed containing a CWA§303(d) segment or assigned a "High" potential in any rural NPS category were ranked highest on the impairment potential list irregardless of its overall impairment potential status. The "non-rural" and "other" NPS categories were used as indicators of potential problems in the watersheds, but are of a nature that are not addressed in the scope of this project. The information used to compile the rural NPS categories is from the 1998 SWCD Conservation Assessments.

Category	**Impairment Potential**		
Rural NPS Categories	**Low**	**Moderate**	**High**
% Cropland	<7	7 to 23	>23
% of Acres where Pesticides used	<8	8 to 33	>33
% Pastureland	<14	14 to 38	>38
% Mining	<0.3	0.3 to 2.1	>2.1
% Forestry Activities (highest rating)			
% of Acres Clear Cut	<2.0	2.0 to 5.5	>5.5
% of Acres Harvested Annually	<4	4 to 11	>11
% of Forest Needing Improvement	<13	13 to 41	>41
Animal Units per Acre	<0.12	0.56 to 0.12	>0.56
% Aquaculture (Acres/Acre)	<0.2	0.2 to 2.6	>2.6
Sedimentation rate (tons/acre/yr)	<4.5	4.5 to 18.2	>18.2

Category	Impairment Potential		
Urban NPS Categories	Low	Moderate	High
% Urban	<4	4 to 23	>23
Development (highest rating)			
# constr./strmwater author. (CSA)	<5	5 to 21	>21
# CSA/acre of sub-watershed	<0.11	0.11 to 0.47	>0.47
# Septic Tanks failing per acres	<0.003	0.003 to 0.011	>0.011

It is important to note that the ranges used for the Alabama, Coosa and Tallapoosa Basins may not be applicable to water quality conditions and activities in other basins of the State. These categories and ranges are intended to be descriptive, but are open to differing interpretations considering alternative data analysis techniques and are subject to refinement as data availability and analysis warrants.

The Local SWCDs also evaluated the streams for each of the sub-watersheds located in their respective counties. These evaluations were discussed during public meetings and were used to rank the sub-watersheds as to their perceived priority for conducting water quality improvement projects. The 1st priority was given to the sub-watershed with the greatest need. A single sub-watershed may have more than one priority if two or more of the counties containing the sub-watershed gave it a top-five priority ranking. This information was used to supplement the sub-watershed estimates of NPS impairment potential (Tables 5 and 15).

Site Selection

The results of the sub-watershed NPS impairment potential estimates were used to rank the sub-watersheds for all three basins from the highest to the lowest potential. Additional review of municipal, industrial and mining permit tracking databases were used to identify those sub-watersheds most impaired by point sources. Approximately ten sub-watersheds were selected from each of the three basins (~30 total) to select candidate assessment sites and conduct field reconnaissance. Where possible, assessment sites were located in relatively small drainages in order to relate water quality to specific NPS sources and to compare results to ADEM's network of least-impacted reference sites.

Habitat Assessment

Biological condition of the fish and aquatic macroinvertebrate communities is generally correlated with the quality of available habitat (without considering influences of water quality). The presence of stable and diverse habitat usually will support a diverse and healthy aquatic fauna (Barbour and Stribling 1991). Habitat quality was therefore assessed at each assessment site in order to evaluate stream condition and to assist in the interpretation of the biological data (Tables 6a, 6b and 6c). Primary, secondary, and tertiary habitat parameters were evaluated to assess overall habitat quality at each site. Primary habitat parameters evaluate the availability and quality of substrate and instream cover. They include those characteristics that directly support aquatic communities, such as substrate type and stability, and availability. Secondary habitat parameters evaluate channel morphology, which was determined by flow regime, local geology, land surface form, soil, and human activities. Channel morphology indirectly affects the biological communities by affecting sediment movement through a stream (Barbour and Stribling 1991). Secondary habitat parameters include an evaluation of flow regime, sinuosity/ instream geomorphology, and sediment deposition and scouring. Tertiary habitat characteristics evaluate bank structure and riparian vegetation. Bank and riparian vegetation prevent bank erosion and protect the stream from stormwater runoff from impervious surfaces. The presence of overhanging riparian vegetation also determines the primary energy source for aquatic macroinvertebrate communities—the base of the fish food chain (Vannote et al. 1980). Tertiary parameters include bank condition, bank vegetative protection, and riparian zone width.

The EPA published revised habitat assessment forms which evaluate riffle/run (Appendix B-1) and glide/pool (Appendix B-2) streams separately (EPA 1997b). The primary habitat parameters of the glide/pool habitat assessment place more emphasis on habitat characteristics important to this stream-type, primarily pool structure and variability. Because the revised habitat assessment forms more accurately assess habitat quality and degradation to glide/pool streams, the ADEM began using the revised forms in 1996 (ADEM 1999e). In addition, because they measure impairment to habitat quality, the scores (converted into percent maximum) were comparable between stream types and can be used to evaluate streams throughout the basin.

One physical characterization sheet was filled out at each station (Appendix C). Depending upon stream geomorphology, each team member completed a riffle/run or glide/pool habitat assessment.

Aquatic Macroinvertebrate Assessment: Multi-habitat EPT Method

Aquatic macroinvertebrate and habitat assessments were conducted at one-hundred-seven (107) sites within the Alabama, Coosa and Tallapoosa Basins (including 28 reference sites or potential reference sites).

Field Methods: A three-member team conducted the ADEM's Multihabitat EPT screening method at one-hundred-seven sites within the three basins. At each station, basic field parameters were measured and a stream flow was estimated utilizing an abbreviated cross-section flow measurement technique utilizing 6-10 measurements (ADEM 1996e). A satellite correctable GPS Unit was used to determine the latitude and longitude of each station (if possible).

The Multihabitat EPT method is a screening technique used in watershed screening assessment studies. Because basin wide screening surveys entail assessments at multiple sites over a large area, the collection effort and analysis time were decreased by processing the samples in the field and focusing on the collection of the pollution-sensitive Ephemeroptera, Plecoptera, and Trichoptera (EPT) taxa. This method was used to prioritize sub-watersheds most impaired by nonpoint source pollution. Once priority sub-watersheds have been identified, more extensive monitoring efforts will be needed in the watershed to document and assess trends in water quality after BMP implementation.

Collecting samples from multiple habitats: The productive habitats at a site will differ naturally between upland streams above the Fall Line and Coastal Plain streams. Streams above the Fall Line were generally "Riffle-Run" streams. The streams below the Fall Line were generally "Glide-Pool" streams and were characterized by low gradient, sandy substrates, a lack of riffle habitat, and meandering flows. All available habitats were sampled at each site including: 1) riffles, 2) leaf packs, 3) rootbanks, 4) snags/logs and rocks, and 5) sand.

Process samples in the field: After each habitat was collected, the organic material was elutriated from the inorganic material. The inorganic material was visually inspected for organisms (esp. Trichoptera in stone cases, and relative abundance and voucher specimens of snails, bivalves, and mussels). The organic matter was washed down, and large debris was visually inspected and removed.

***Collection of pollution-sensitive taxa*:** representative "EPT" organisms were removed from the sample and preserved in a pre-labeled vial by habitat. The vials for each station were returned to the lab in a Nalgene container labeled with the Station number, date and time collected, the names of the habitats collected at the station along with the initials of the team member who processed the sample. The organisms were identified to family level in the Laboratory.

***Field QA/QC*:** the debris remaining from all habitats at ten percent of the field picked stations was preserved in a wide-mouth container and returned to the laboratory for verification of the removal of all EPT taxa.

***Lab QA/QC*:** Ten percent (10%) of all laboratory samples identified are verified by a second qualified biologist. All data entered in the aquatic macroinvertebrate mainframe PACE database are verified for accuracy. Ten percent (10%) of all metric calculations completed by MACINV are also hand calculated to verify the accuracy of the database programming.

Data analysis: The total number of pollution-sensitive EPT families collected from each station was compared to EPT Index data collected from least-impaired ecoregional reference sites to indicate the health of each stream reach. Each site was assessed as *excellent*, *good*, *fair*, or *poor* (ADEM 1997f).

Fish IBI Assessment

Site Selection: Fish IBI assessments were completed July 6- July 20, 2000. Personnel from the Environmental Indicators Section completed fish IBI assessments at 8 stations in the Tallapoosa Basin (Tables 7a-7c, Appendix 3d). Fish IBI assessments were conducted in sub-watersheds meeting one or more of the following criteria:

1. aquatic macroinvertebrate assessment borders between two impairment categories, or;
2. station was impaired by sedimentation or habitat degradation;

Sample Collection: The Fish IBI Assessment developed by the GSA was used to evaluate water quality at eight (8) stations throughout the Tallapoosa Basin. The methods summarized here are described in more detail in O'Neil and Shepard (1998). They are currently being incorporated into the ADEM's Fish Community Assessment standard operating procedures manual. Additional information pertaining to metrics testing and criteria development is included in these sources.

At each station, one three-person team conducted a timed, multi-habitat assessment of the fish community, sampling all available habitats including riffles, pools, runs, snags, and undercut banks. Streams were sampled for 30 to 40 minutes using Nylon minnow seines (1/8 to 3/16-inch mesh) and a portable backpack shocking unit to collect from all habitat areas. A field sheet was completed at each site.

In the field, collected specimens were fixed in 10% formalin and transported to the laboratory. Samples were preserved in 70% ethanol after sorting, identification to species, enumeration and weighing to the nearest gram.

Fish IBI Assessment Metrics: The fish IBI method initially developed by Karr et al. (1986) was modified by the GSA to increase sensitivity to sources of impairment found within Alabama. The twelve metrics used to evaluate water quality of streams and rivers include measures of species richness and composition, trophic composition, and fish abundance and condition (O'Neil and Shepard 1998). The total number of fish captured was standardized to catch per hour for purposes of calculating one metric. Each metric was given a score according to the associated criteria and totaled to determined the Index of Biotic Integrity (IBI) score. The integrity of the fish community was determined to be *excellent*, *good*, *fair*, *poor*, or *very poor* based on the total IBI score.

Chemical Assessment

Water chemistry samples were analyzed for selected parameters used as indicators of impairment from land uses present within the Alabama, Coosa and Tallapoosa River basins. These include sedimentation (total suspended solids, total dissolved solids), nutrient enrichment (total phosphate, nitrate/nitrite, biochemical oxygen demand (BOD_5), and mining impacts (iron, manganese).

Stream flow estimates, routine field parameters, and water quality samples were collected at each of station in September 2000. Chemical analyses of water samples were conducted by the ADEM's Central Laboratory in Montgomery. Water quality samples for laboratory analysis were collected, preserved, and transported to the ADEM Laboratory as described in ADEM Field Operations Standard Operating Procedures and Quality Control Assurance Manual, Volume I - Physical/Chemical (2000a). Duplicate field parameters and samples were collected during ten percent (10%) of the sampling events.

Water quality samples and routine field parameters were collected in conjunction with several other studies conducted by ADEM, GSA, and several Alabama universities, from 1995-00 (Table 8, Appendix F).

Chain of Custody

Sample handling and chain-of custody procedures were utilized for all biological and chemical samples as outlined in ADEM Field Operations Standard Operating Procedures and Quality Control Assurance Manual, Volumes I and II to ensure the integrity of all samples collected (1999e, 2000a).

Final Assessment and Ranking of Sub-watersheds

Although the components or phases of this project resulted in a fully integrated assessment of the Alabama, Coosa and Tallapoosa basins, biological, habitat, and chemical assessments were weighted differently in ranking and prioritizing sub-watersheds. Biological communities respond to changes in water quality more slowly than water quality changes, they respond to stresses of various degrees over time. Consequently, monitoring changes in biological communities can detect impairment from nonpoint sources, which can be infrequent or low-level. The results of fish and aquatic macroinvertebrate assessments were therefore used to identify priority sub-watersheds. Land use patterns, habitat condition, chemical water quality measurements and Conservation Assessment Worksheet data were used to evaluate the cause(s) of impairment. Evaluations of chemical measurements were made by comparing data from streams in the same area.

Biological community assessments of *poor* or *very-poor* were used to identify priority sub-watersheds. Sub-watersheds meeting these criteria, but suspected to be impaired by point sources or urban runoff were not recommended as priority sub-watersheds for implementation of nonpoint source controls.

RESULTS

The results of the Tallapoosa River Basin Nonpoint Source Screening Assessment are organized into three sections by cataloging unit. Each section summarizes the monitoring information compiled for each NRCS sub-watershed selected for assessment. Tables specific to each cataloging unit are included at the end of each section. These tables include information for all sub-watersheds within the Tallapoosa River Basin. A summary of sampling within each Cataloging Unit from other projects conducted during 2000 is presented at the end of each section. Available data collected while conducting other projects within the CU is presented in the tables and appendices.

Section I: Upper Tallapoosa River Cataloging Unit (0315-0108)

Landuse: The primary landuses throughout the Upper Tallapoosa River Cataloging Unit were forest and pasture (Table 12b). It contains 19 sub-watersheds located primarily within Cleburne, Clay, and Randolph counties. The cataloging unit is located in the Talladega Upland and Southern Inner Piedmont Ecoregion (Subregions 45a-45d) (Fig. 3a).

Percent land cover estimated by local SWCD (ASWCC 1998)

Forest	Row Crop	Pasture	Mining	Open Water	Urban	Other
77%	3%	16%	0%	1%	1%	2%

NPS impairment potential: One sub-watershed was estimated to have a *high* potential and ten sub-watersheds were estimated to have a *moderate* potential for impairment from nonpoint sources. The main concerns were runoff from animal production operations, pasture, and sedimentation. Animal production included cattle and poultry (Table 13). The highest contributions to the sediment loading in the CU were estimated to be from dirt roads and gullies (3.44 and 2.72 tons/acre/year, respectively) (Table 14). The overall potential for nonpoint source impairment in the CU was *moderate* based upon estimates of sedimentation rates, animal unit densities and pasture land use (Table 15). Observations made during the assessments indicated that some streams had poor riparian zones (land adjacent to the waterbody), which can retain some nutrients and sediments thereby reducing NPS impairment.

Number of Sub-watersheds with (M)oderate or (H)igh ratings for each NPS category

Category	Overall Potential	Animal Husbandry	Row Crops	Pasture	Mining	Forestry	Sediment
Moderate	10	8	4	5	2	0	2
High	1	6	0	1	0	0	4

Number of Sub-watersheds with (M)oderate or (H)igh ratings for each point source category

Category	%Urban	Development	Septic tank Failure
Moderate	3	2	0
High	0	1	0

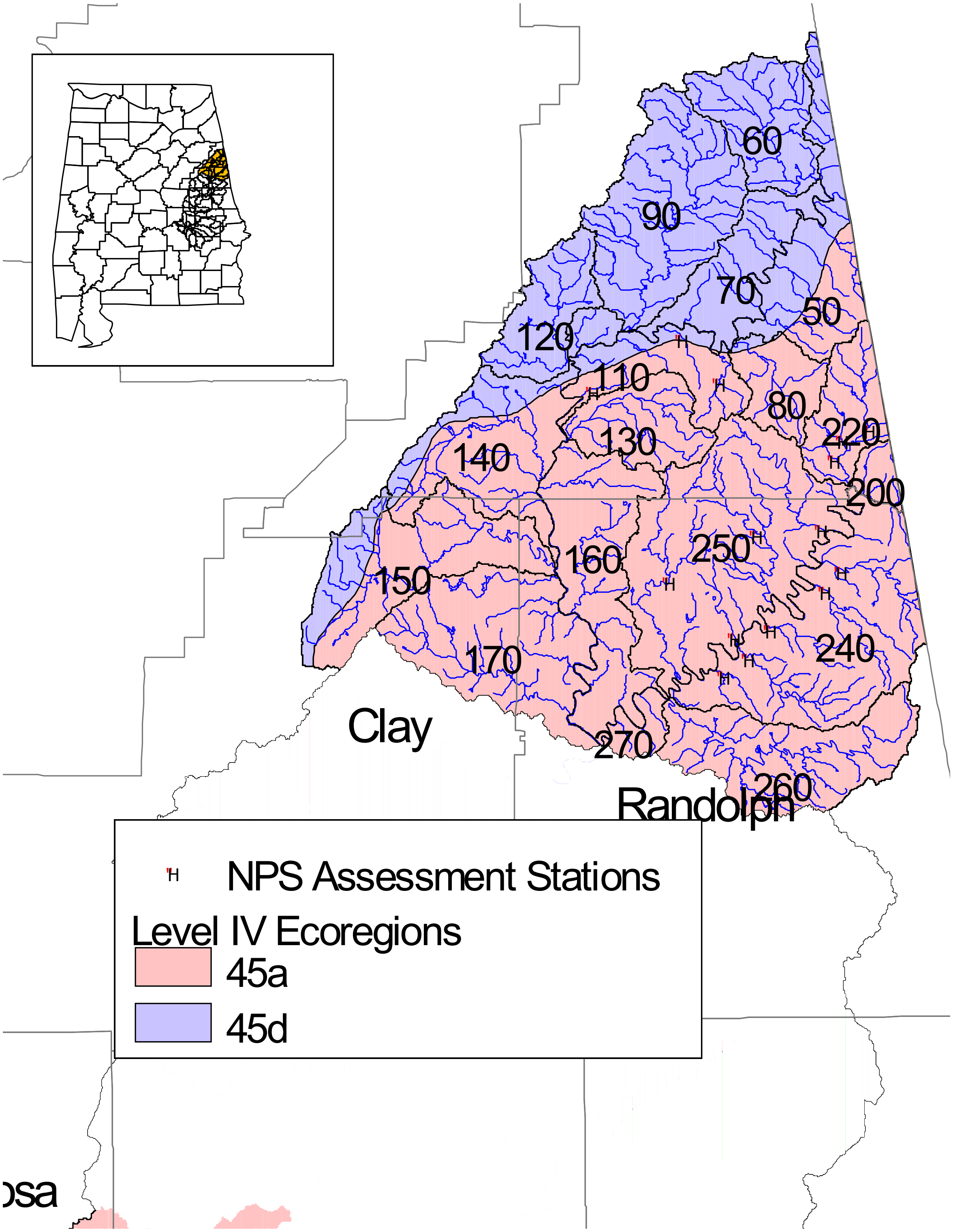
Data Summaries: A summary of each NRCS sub-watershed selected for assessment is provided. Each summary discusses the land use, assessments conducted, and if applicable, the NPS priority status. Data associated with the land use, NPS impairment potential, and biological assessment(s) are located in the tables at the end of the section. Additionally provided and located at the end of the screening assessment sub-watershed summaries are project summaries of other water quality assessments conducted during 2000. Data associated with other water quality assessments are located in the appendices.

Study Area: Four sub-watersheds (110, 220, 240, and 250) in the Upper Tallapoosa River Cataloging Unit were selected and sampled during the NPS screening assessment (Table 10). These four sub-watersheds were selected because of the estimated potential for NPS impairment and absence of recent monitoring data.

Sub-watershed Assessments: Habitat quality and biological community assessments were conducted at 15 stations during the NPS project (Table 10). Habitat quality at two (2) stations (HENR-1 and WLFR-7) was assessed as *excellent*, nine (9) stations were assessed as *good*, and four (4) stations were assessed as *fair* (Table 6a). The biological community assessments indicated some *moderate* impairment within the selected sub-watersheds. Two stations (HENR-1 and WLFR-7) had *excellent* aquatic macroinvertebrate communities. Nine of the stream reaches assessed had *good* or *slightly* impaired communities and four reaches had *fair* or *moderately* impaired aquatic macroinvertebrate communities. A fish community assessment conducted at CDRC-15 indicated a *fair-good* fish population.

NPS Priority Sub-watersheds: A sub-watershed was recommended for NPS priority status if the macroinvertebrate or fish community was assessed as *fair* or *poor*. All four sub-watersheds had stream segments assessed as *fair* indicating *moderate* impairment. Streams indicating impairment within their drainage include Cedar Creek (110), Little Lost Creek (220), Bear Creek and Cutnose Creek (240) and Cohobadiah Creek and Pineywoods Creek (250) (Table 16 and 17). Possible sources observed during the assessment process include: clearcuts, logging roads and row crops without a riparian buffer in the Pineywoods Creek drainage, pasture with very little riparian buffer in the Cutnose Creek drainage, and row crops and pasture with very little riparian in the Bear Creek drainage.

Figure 3a. Upper Tallapoosa NPS Assessment Stations



Sub-Watershed: Tallapoosa River

NRCS Sub-Watershed Number 110

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
CDRC-15	Habitat, Macroinvertebrate, Fish, Chemistry	2000	Cedar Creek at Cleburne Co. Rd. 19	4	F/W
UTTC-14	Habitat, Macroinvertebrate	2000	Unnamed Tributary of Tallapoosa River at unnamed Cleburne Co. Rd. off Co. Rd. 18	3	F/W
VDNC-13	Habitat, Macroinvertebrate	2000	Verdin Creek at Hwy 46	5	F/W

Landuse: The Tallapoosa River sub-watershed drains approximately 26 mi^2 in Cleburne County. The main landuse concerns were animal production operations and row crops (Table 5a). The SWCD estimates of animal concentrations in the sub-watershed were high (0.79 AU/Acre), with broiler poultry being the dominant animal (0.73 AU/Acre) (Table 3a). The overall potential for impairment from nonpoint sources was estimated as *moderate*. One construction/stormwater authorization has been issued in the sub-watershed (Table 9).

Assessments: Habitat and macroinvertebrate assessments were conducted at three NPS screening assessment stations within the sub-watershed in June 2000 (Table 6a and 7a). Habitat quality at Cedar Creek (CDRC-15) and an unnamed tributary of the Tallapoosa River (UTTC-14) was assessed as *fair*. Verdin Creek (VDNC-13) was assessed as having *good* habitat quality (Table 6a). The reaches at CDRC-15 and UTTC-14 had uncharacteristic high percentages of sand substrate and low instream habitat quality compared to regional reference sites and other streams in the cataloging unit. Aquatic macroinvertebrate assessments conducted indicated *good* communities at all three stations (Table 7a). The CDRC-15 station was further assessed with a fish community survey. The fish IBI at CDRC-15 indicated a *fair-good* fish community (Table 7a).

NPS Priority Status: The Tallapoosa River (110) is a recommended priority sub-watershed. Moderate impairment was indicated in the fish community of Cedar Creek. The sub-watershed was also ranked as the second highest in the basin for NPS potential based on information provided by the local SWCD (Table 5a).

Sub-Watershed: Lost Creek

NRCS Sub-Watershed Number 220

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
LSTC-12	Habitat, Macroinvertebrate	2000	Lost Creek at unnamed Cleburne Co. Rd. off of Co. Rd. 49	12	F&W
LTLC-11	Habitat, Macroinvertebrate, Chemical, Fish	2000	Little Lost Creek at unnamed Cleburne Co. Rd. off of Co. Rd. 49	4	F&W
UTLC-10	Habitat, Macroinvertebrate	2000	UT of Lost Creek at unnamed Cleburne Co. Rd. off of Co. Rd. 45	3	F&W

Landuse: The Lost Creek sub-watershed drains approximately 22 mi^2 in Cleburne County. The main landuse concerns were runoff from animal production operations and pasture (Table 5a). The SWCD estimates of animal concentrations in the sub-watershed (Table 3a) were high (1.14 AU/Acre), with broiler poultry being the dominant animal (1.04 AU/Acre). The overall potential for impairment from nonpoint sources (Table 5a) was estimated as *moderate*. One construction/stormwater authorization, one mining NPDES permit, and one CAFO registration have been issued in the sub-watershed (Table 9).

Assessments: Habitat and macroinvertebrate assessments were conducted at three NPS project stations within the sub-watershed in June 2000 (Table 6a and 7a). Habitat quality at the stream reaches of Lost Creek (LSTC-12) and an unnamed tributary of Lost Creek (UTLC-10) were assessed as *good*. Little Lost Creek (LTLC-11) had *fair* habitat quality (Table 6a). The majority of the streams substrate was similarly proportioned between cobble, gravel, sand and silt (Table 6a) Aquatic macroinvertebrate assessments conducted indicated the same as the habitat assessments (LSTC-12 and UTLC-10) were assessed as having *good* communities and (LTLC-11) having *fair* aquatic macroinvertebrate communities. The LTLC-11 station was further assessed with a fish community survey. The fish IBI indicated a *fair-good* fish community (Table 7a).

***NPS Priority Status**:* The Lost Creek sub-watershed was ranked ninth within the basin for NPS potential. The overall assessment is *moderate* impairment, with the Little Lost Creek drainage as the area of focus. The Little Lost Creek stream reach was assessed indicating *moderate* impairment in both biological communities. Water chemistry samples collected in July 2000 had elevated biochemical oxygen demand (BOD_5) and nitrate/nitrite compared to other streams in the region (Appendix D-1). Potential sources of the impairment associated with Little Lost Creek are pasture with very little riparian zone.

Sub-Watershed: Upper Little Tallapoosa River

NRCS Sub-Watershed Number 240

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
BEAR-2	Habitat, Macroinvertebrate, Chemical, Fish	2000	Bear Creek at Randolph Co. Rd. 97	19	F&W
CNER-3	Habitat, Macroinvertebrate	2000	Cane Creek at Randolph Co. Rd. 59	8	F&W
CUTR-4	Habitat, Macroinvertebrate, Chemical, Fish	2000	Cutnose Creek at AL Hwy. 48	14	F&W
HENR-1	Habitat, Macroinvertebrate	2000	Henson Branch at Randolph Co. Rd. 58	4	F&W
SHLR-5	Habitat, Macroinvertebrate	2000	Shoal Creek at AL Hwy. 48	18	F&W

Landuse: The Upper Little Tallapoosa River sub-watershed drains approximately 81 mi^2 in Cleburne and Randolph Counties. Percent land cover of the Upper Little Tallapoosa River sub-watershed is primarily forest and pasture (Table 2a). Two CAFO registrations have been issued in the sub-watershed (Table 9). The main NPS impairment concern was identified as sedimentation. The local SWCD estimates (Table 4a) indicated a high potential for NPS impairment (28.2 tons/acre/year) mostly from dirt roads, roadbanks, gullies, and sand and gravel pits. The overall potential for impairment from nonpoint sources (Table 5a) was estimated as *moderate*.

Assessments: Five stations were sampled in 2000 to assess the sub-watershed. Habitat and aquatic macroinvertebrate assessments were conducted at all five stations in June 2000 (Table 6a and Table 7a). Habitat quality was *good* at four stations (BEAR-2, CUTR-4, CNER-3 and SHLR-5) and *excellent* at one station (HENR-1). Characteristic for the region, the reaches were assessed as riffle run streams. The reach assessed on Shoal Creek (SHLR-5) indicated a comparatively low instream habitat quality and four of the five streams had low riparian measurements. (Table 6a). The aquatic macroinvertebrate assessments indicate two *fair* (BEAR-2 and CUTR-4) two *good* (CNER-3 and SHLR-5) and one *excellent* (HENR-1) communities within the stream segments sampled (Table 7a). The two fair stream reaches were further assessed with fish community surveys. The fish IBI results were similar to the macroinvertebrates with BEAR-2 having a *fair* and CUTR-4 having a *fair-good* fish community (Table 7a).

NPS Priority Status*:* The Upper Little Tallapoosa River (240) is a recommended priority sub-watershed based on biological community assessments and SWCD estimates for potential NPS impairment. The biological assessments at Bear Creek and Cutnose Creek indicated *moderate* impairment. Potential sources observed during the assessments were row crop, poultry houses and pasture/cattle. Both streams had very little riparian zone.

Sub-Watershed: Cohobadiah Creek

NRCS Sub-Watershed Number 250

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
COHR-8	Habitat, Macroinvertebrate, Chemical, Fish	2000	Cohobadiah Creek at Randolph Co. Rd. 431	22	F&W
KNSR-9	Habitat, Macroinvertebrate	2000	Knokes Creek at Randolph Co. Rd. 37	16	F&W
PNYR-6	Habitat, Macroinvertebrate, Chemical, Fish	2000	Pineywoods Creek at Randolph Co. Rd. 431	24	F&W
WLFR-7	Habitat, Macroinvertebrate	2000	Wolf Creek at Randolph Co. Rd. 532	5	F&W

Landuse: The Cohobadiah Creek sub-watershed drains approximately 96 mi^2 in Cleburne and Randolph Counties. Main NPS concerns were runoff from animal production operations and pasture. The SWCD estimates of animal concentrations in the sub-watershed (Table 3a) were moderate (0.50 AU/Acre), with broiler poultry being the dominant animal (0.41 AU/Acre). One construction/stormwater authorization and four CAFO registrations have been issued in the sub-watershed (Table 9). The overall potential for impairment from nonpoint sources (Table 5a) was estimated as *moderate*.

Assessments: Four stations were sampled during the NPS project to assess the sub-watershed. Habitat and aquatic macroinvertebrate assessments were conducted at all four stations. Habitat quality was *fair* at one station (PNYR-6), *good* at two stations (COHR-6 and KNSR-9) and *excellent* at one station (WLFR-7) (Table 6a). The aquatic macroinvertebrate assessments indicate two *good* (KNSR-9 and PNYR-6) one *fair* (COHR-8) and one *excellent* (WLFR-7) communities within the stream segments sampled (Table 7a). Two segments were further assessed using fish IBI. The reach at COHR-8 was sampled because the aquatic macroinvertebrate assessment indicated *moderate* impairment and the reach at PNYR-6 was further assessed because of the large percentage of sand (87%) substrate which was uncharacteristic compared to other streams in the Cataloging Unit. The fish IBI results were both COHR-8 and PNYR-6 having a *fair* fish community (Table 7a).

NPS Priority Status: The Cohobadiah Creek sub-watershed was ranked third in the basin for NPS potential impairment based on information provided by the local SWCD (Table 5a). Primary sources include animal husbandry, pasture runoff and mining (Table 5a). The Cohobadiah Creek drainage appears to be an area of concern. Having excellent habitat for biological communities and assessed with fair biological communities indicates a potential water quality problem. However, water chemistry samples collected from Cohobadiah Creek did not indicate a cause of the moderate impairment of the biological communities. Collection of additional water chemistry samples are needed to help identify impairment sources.

Other Projects Conducted in 2000

Seven sub-watersheds (100, 110, 130, 160, 170, 260 and 270) within the Upper Tallapoosa Cataloging Unit were sampled in 2000 in association with other studies conducted by the Environmental Indicators Section of ADEM.

Section 303(d): In accordance with Section 303(d) of the Federal Clean Water Act, each state must identify its polluted water bodies that do not meet surface water quality standards and submit this list to the USEPA. In an effort to address water quality problems ADEM conducts monitored assessments of priority water bodies to support §303(d) listing and de-listing decisions. This project includes intensive chemical, habitat, and biological data collected using ADEM's SOPs and QA/QC manuals. Three sub-watershed within the Upper Tallapoosa CU were monitored in 2000. The Tallapoosa River (100), Tallapoosa River (110) and Dynne Creek (130) sub-watersheds were assessed during the 2000 303(d) sampling efforts (Appendix E-1). The 2000 303(d) project study period extended from April 2000 through March 2001. Water chemistry was collected at each station during eight sampling events within the sampling period (Appendix F-1). Habitat and aquatic macroinvertebrate assessments were conducted on two (TALC-1 and TALC-5) of the stations located in the Upper Tallapoosa Cataloging Unit (Table 6a and 7a)(ADEM 2000c).

Alabama Monitoring and Assessment Plan (ALAMAP)**:** Green Creek in the Wedowee Creek sub-watershed (260) (Figure 4a) was sampled in 2000 while conducting the ALAMAP sampling (Table 6a and Appendices E-1, F-3 and F-4). The purpose of ALAMAP is to provide data that can be used to estimate the current status of all streams within Alabama. The program consists of a randomly generated list of two-hundred fifty stations throughout the state. Fifty stations are sampled annually in August. A five year cycle will complete the sampling of all 250 stations (ADEM 2000b).

Reservoir Water Quality Monitoring Program (RWQMP)**:** The same watershed strategy (5 year basin rotation) mentioned in the introduction applies to the RWQMP. Therefore, sampling stations were located on the Tallapoosa River and it's tributaries at various locations on the respective reservoirs (Thurlow, Yates, Martin and Harris). Four sub-watersheds (160, 170, 260 and 270) within the Upper Tallapoosa Cataloging Unit were sampled during the 2000 reservoir sampling (Appendix E-1). The RWQMP sampling period was from April 2000 through October 2000. During monthly sampling visits water chemistry samples were collected from the photic zone and temperature, dissolved oxygen, specific conductivity and pH from the water column at multiple depths (ADEM 2000j).

Historical Data/Studies: A review of existing data indicated that assessments have been conducted recently within four sub-watersheds (Appendix E-2). Sub-watersheds 050 and 260 were assessed during the 1999 303(d) stream monitoring. The Tallapoosa River sub-watershed (140) was sampled in 1996 as part of ADEM's Clean Watershed Strategy (CWS) sampling (Appendix F-5). Sub-watershed 090 was sampled in 1997 as part of the ALAMAP program (Appendices F-3 and F-4).

Figure 4a. Upper Tallapoosa Additional and Historical Assessment Stations

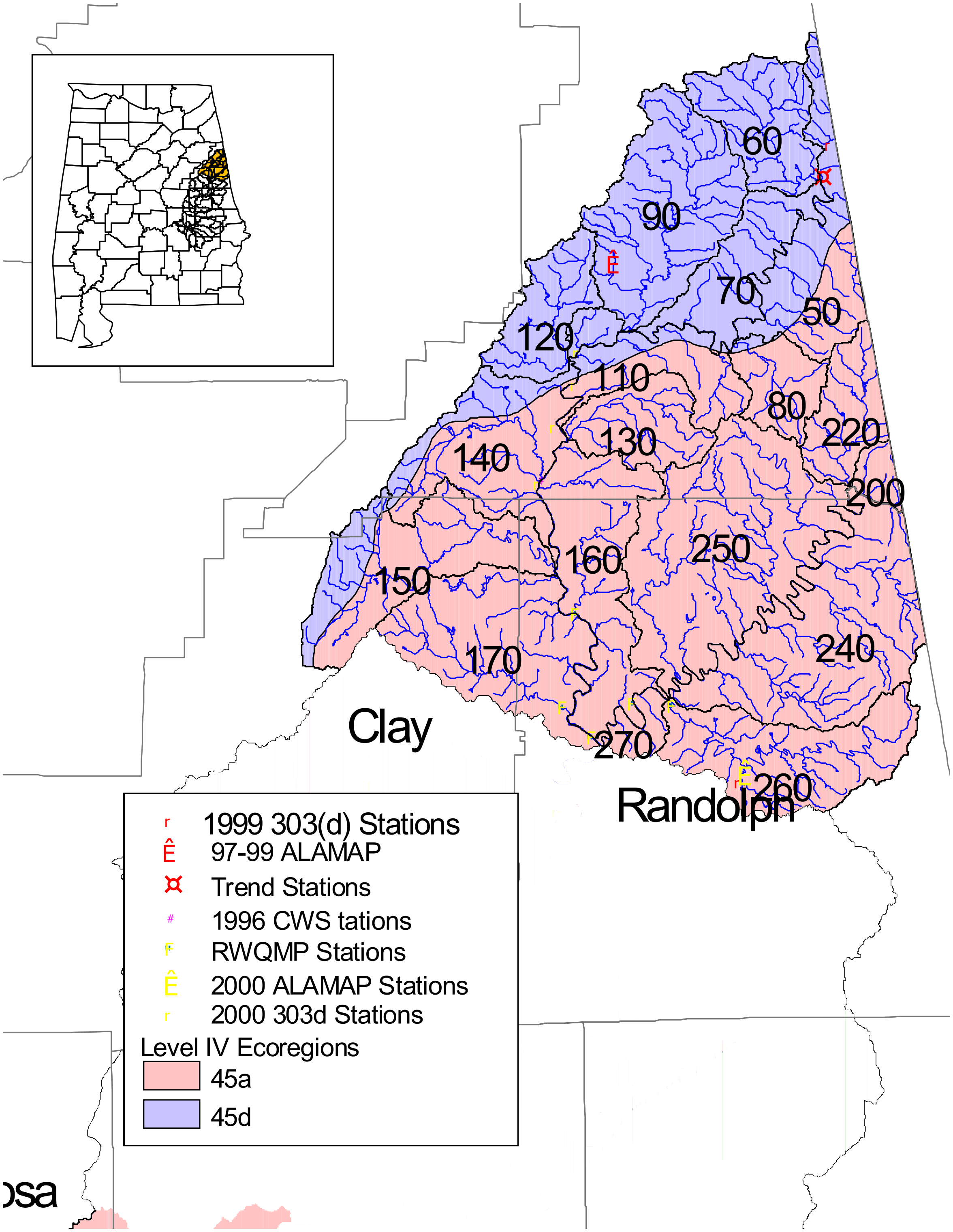


Table 2a. Land use percentages for the Upper Tallapoosa cataloging unit (0315-0108) from EPA landuse categories (EPA 1997) and local SWCD Conservation Assessment Worksheet landuse estimates (ASWCC 1998).

Subwatershed	Percent Total Landuse													
	Open Water		Urban		Mines		Forest		Pasture		Row Crops		Other	
	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA
Upper Tallapoosa (0315-0108)														
050	1	<1		1			84	90	8	5	5	4	2	1
060	1	<1		1			88	97	6	2	4	1	1	<1
070	1	<1	1	1			86	94	8	3	3	3	1	1
080	0	<1		1			76	82	19	14	1	4	2	
090	1	<1	5	1		<1	82	96	10	2	1	1	1	<1
100		<1		3		<1		76		9		8		3
110	1	<1		1		<1	85	87	11	9	9	3	1	1
120	1	<1	4	3		<1	83	90	3	3	8	2	1	<1
130	1	<1		<1			85	92	5	6	8	2	1	
140	1	<1		1			65	88	25	7	8	4	1	1
150	1	<1		1	0		90	92	5	6	0	1	3	<1
160	0	5		1	1		70	89	27	5	1	2	1	<1
170	1	2		1	0		84	85	9	9	0	2	5	1
200		<1		1				48		43		8		<1
220	1	<1	1	1			36	59	57	35	4	6	2	<1
240	0	1	0	1	0		76	73	20	19	2	6	1	1
250	10	1	0	1	0		66	82	21	13	1	4	2	1
260	4	<1	10	1			75	77	8	15	2	6	1	1
270		16		1				77		5		2		<1

Table 3a. Estimations of animal concentrations, animal units (A.U.), and percent of acres where pesticides/herbicides applied in the Upper Tallapoosa Cataloging Unit (0315-0108). Numbers of animals and pesticides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		50	60	70	80	90	100	110	120	130	140*
County (s)		Cleburne	Cleburne	Cleburne	Cleburne	Cleburne	Cleburne*	Cleburne	Calhoun* Cleburne	Cleburne	Clay* Cleburne Randolph*
Acres Reported (% of Total)		100	100	100	100	100	0	100	100	100	86
Pesticides Applied	Est. % Total Reported Acres	0	*	*	0	0		0	0	*	*
Cattle	# / Acre	0.00	0.04	0.05	0.08	0.02		0.05	0.06	0.04	0.03
	A.U./Acre	**0.00**	**0.04**	**0.05**	**0.08**	**0.02**		**0.05**	**0.06**	**0.04**	**0.03**
Dairy	# / Acre	---	---	---	---	---		---	---	---	---
	A.U./Acre	---	---	---	---	---		---	---	---	---
Swine	# / Acre	---	---	---	---	---		---	---	---	---
	A.U./Acre	---	---	---	---	---		---	---	---	---
Poultry - Broilers	# / Acre	12.16	75.84	82.63	156.59	38.84		91.85	50.81	94.76	37.91
	A.U./Acre	**0.10**	**0.61**	**0.66**	**1.25**	**0.31**		**0.73**	**0.41**	**0.76**	**0.30**
Poultry - Layers	# / Acre	---	---	---	6.20	---		---	---	---	---
	A.U./Acre	---	---	---	**0.05**	---		---	---	---	---
Catfish	# Acres/ Acre	---	---	---	---	---		---	---	---	---
Total	A.U./Acre	**0.10**	**0.65**	**0.71**	**1.38**	**0.33**		**0.79**	**0.46**	**0.79**	**0.34**
Potential for NPS Impairment		Low	**High**	**High**	**High**	Mod		**High**	Mod	**High**	Mod

* No data reported for this portion of the subwatershed; nd = no data

Table 3a, cont. Estimations of animal concentrations, animal units (A.U.), and percent of acres where pesticides/herbicides applied in the Upper Tallapoosa Cataloging Unit (0315-0108). Numbers of animals and pesticides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		150	160	170	200*	220	240	250	260	270*	Total
County (s)		Clay Cleburne* Randolph*	Cleburne Randolph	Clay Randolph	Cleburne*	Cleburne	Cleburne* Randolph	Cleburne* Randolph	Randolph	Randolph*	
Acres Reported (% of Total)		87	164	100	0	100	100	65	100	0	98
Pesticides Applied	Est. % Total Reported Acres	0	0	0		*	0	0	0		0
Cattle	# / Acre	0.01	0.05	0.19		0.06	0.05	0.08	0.07		0.06
	A.U./Acre	**0.01**	**0.05**	**0.19**		**0.06**	**0.05**	**0.08**	**0.07**		**0.06**
Dairy	# / Acre	---	---	---		---	---	---	---		
	A.U./Acre	**---**	---	---		---	---	---	---		
						---	---	---	---		
Swine	# / Acre	---	---	---		---	---	---	---		
	A.U./Acre	---	---	---		---	---	---	---		
Poultry - Broilers	# / Acre	0.03	57.84	7.33		129.61	61.53	51.35	14.63		49.92
	A.U./Acre	**0.00**	**0.46**	**0.06**		**1.04**	**0.49**	**0.41**	**0.12**		**0.40**
Poultry - Layers	# / Acre	---	0.22	1.54		5.13	2.51	0.64	0.91		0.88
	A.U./Acre	---	**0.00**	**0.01**		**0.04**	**0.02**	**0.01**	**0.01**		**0.01**
Catfish	# Acres/ Acre	---	0.00	0.00		---	0.00	---	---		0.00
Total	A.U./Acre	**0.01**	**0.51**	**0.26**		**1.14**	**0.56**	**0.50**	**0.20**		**0.47**
Potential for NPS Impairment		Low	Mod	Mod		**High**	Mod	Mod	Mod		

* No data reported for this portion of the subwatershed; nd = no data

These two subs appear to have the acreages switched for Randolph Co. Reported to Vic Payne SWCC Water Quality Coordinator

Table 4a. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Upper Tallapoosa cataloging unit (315-0108) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (* Indicates not reported)

Subwatershed	**50**	**60**	**70**	**80**	**90**	**100**	**110**	**120**	**130**	**140**
Forest Condition										
% of Subwatershed Needing Forest Improvement	*	*	*	*	*	*	*	*	*	*
Sediment Contributions (Tons/Acre)										
Cropland	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0
Sand & Gravel Pits										
Mined Land										
Developing Urban Land			0.6							
Critical Areas										
Gullies										
Stream Banks	0.2	0.1	0.2	0.4	0.2		0.3	0.1	0.3	0.1
Dirt Roads and Roadbanks	0.8	0.7	1.3	1.3	0.2		0.8	0.3	0.6	0.1
Woodlands										
Total Sediment	1.1	0.9	2.2	1.7	0.4		1.1	0.4	0.9	0.2
Potential for Sediment NPS	Low	Low	Low	Low	Low		Low	Low	Low	Low
Septic Tanks										
# Septic Tanks per acre*								0.00		
# Septic Tanks Failing per acre*										
# of Alternative Septic Systems										
Resource Concerns in the Subwatershed										
Excessive Erosion on Cropland										
Gully Erosion on Agricultural Land										
Road and Roadbank Erosion										
Poor Soil Condition (cropland)										
Excessive Animal Waste Applied to Land										
Excessive Pesticides Applied to Land										
Excessive Sediment from Cropland										
Excessive Sediment From Roads/Roadbanks										
Excessive Sediment from Urban Development										
Inadequate Management of Animal Wastes										
Nutrients in Surface Waters	X	X	X	X	X		X	X	X	X
Pesticides in Surface Waters										
Bacteria and other organisms in surface waters	X	X	X	X			X	X	X	X
Low dissolved oxygen in surface waters										
Livestock are overgrazing pastures										
Livestock Commonly have Access to Streams										

Table 4a, Cont. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Upper Tallapoosa cataloging unit (315-0108) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (*Indicates not reported)

Subwatershed	**150**	**160**	**170**	**200**	**220**	**240**	**250**	**260**	**270**
Forest Condition									
% of Subwatershed Needing Forest Improvement	1	0	1	*	*	0	0	0	*
Sediment Contributions (Tons/Acre)									
Cropland	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
Sand & Gravel Pits		10.3				6.5	2.2	0.5	
Mined Land	0.1	0.3	0.1			0.1	0.9		
Developing Urban Land							0.1		
Critical Areas	0.4	1.9	0.8			1.5	0.9	1.7	
Gullies	0.4	6.3	2.7			8.0	4.4	5.7	
Stream Banks	7.5	3.2	2.4		0.1	5.2	3.6	4.1	
Dirt Roads and Roadbanks	15.0	2.3	4.5		0.7	6.6	3.1	6.6	
Woodlands	0.8	0.2	0.4			0.2	0.1	0.2	
Total Sediment	24.2	24.6	11.0		0.8	28.2	15.4	18.8	
Potential for Sediment NPS	**High**	**High**	Mod		Low	**High**	Mod	**High**	
Septic Tanks									
# Septic Tanks per acre*	0.01	0.00	0.02			0.00	0.01	0.01	
# Septic Tanks Failing per acre*	0.0	0.0	0.0			0.00	0.0	0.0	
# of Alternative Septic Systems									
Resource Concerns in the Subwatershed									
Excessive Erosion on Cropland						X	X	X	
Gully Erosion on Agricultural Land	X		X			X	X	X	
Road and Roadbank Erosion	X		X			X	X	X	
Poor Soil Condition (cropland)	X		X			X	X	X	
Excessive Animal Waste Applied to Land	X		X			X	X	X	
Excessive Pesticides Applied to Land							X		
Excessive Sediment from Cropland	X		X			X	X	X	
Excessive Sediment From Roads/Roadbanks	X	X	X			X	X	X	
Excessive Sediment from Urban Development		X				X	X		
Inadequate Management of Animal Wastes		X	X			X	X	X	
Nutrients in Surface Waters	X	X	X		X	X	X	X	
Pesticides in Surface Waters						X	X		
Bacteria and other organisms in surface waters	X	X	X		X	X	X	X	
Low dissolved oxygen in surface waters						X	X	X	
Livestock are overgrazing pastures	X	X	X			X	X	X	
Livestock Commonly have Access to Streams		X				X	X	X	

Table 5a. Estimation of potential sources of NPS impairment for subwatersheds in the Upper Tallapoosa cataloging unit (0315-0108). Source categories are based upon information provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets completed in 1998, and from Construction Stormwater Authorization information provided by the Mining and NPS Unit of ADEM. *Rural landuse sources were used to develop the NPS potential. The presence of a CWA 303(d) stream segment within a subwatershed raised the subwatershed to the top of the prioritization ranking.

Subwatershed	Screening Rank in Tallapoosa Basin* 1 = Highest Potential	Potential NPS Impairment	Potential Sources of Impairment								
			Rural Landuses						Urban / Suburban / Residential Landuses		
			Animal Husbandry	Row Crops	Pasture Runoff	Mining	Forestry Practices	Sedimentation	Urban	Development	Septic Tank Failure
050	46	L	L	L	L	L	L	L	L	M	
060	23	M	H	L	L	L	L	L	L	L	
070	22	L	H	L	L	L	L	L	L	L	
080	13	M	H	L	M	L	L	L	L	L	
090	43	L	M	L	L	L	L	L	M	L	
100	50									H	
110	2	M	H	M	L	L	L	L	L	L	
120	36	L	M	M	L	L	L	L	M	L	L
130	16	M	H	M	L	L	L	L	L	L	
140	30	M	M	M	M	L	L	L	L	L	
150	19	M	L	L	L	L	L	H	L	L	L
160	6	H	M	L	M	M	L	H	L	L	L
170	33	L	M	L	L	L	L	M	L	L	L
200	50									M	
220	9	M	H	L	H	L	L	L	L	L	
240	9	M	M	L	M	L	L	H	L	L	L
250	3	M	M	L	M	M	L	M	L	L	L
260	14	M	M	L	L	L	L	H	M	L	L
270	50									L	

Table 6a. Physical characteristics and habitat quality of sites assessed in the Upper Tallapoosa River Basin.

		Upper Tallapoosa (03150108)								
		CDRC-15	TALC-1**	UTTC-14	VDNC-13	TALC-5**	LSTC-12	LTLC-11	UTLC-10	BEAR-2
Subwatershed #		110	110	110	110	130	220	220	220	240
Date (YYMMDD)		000607	000608	000613	000607	000613	000607	000607	000607	000521
Ecoregion/ Subregion		45a	45a	45a	45a	45a	45a	45a	45a	45a
Drainage area (mi^2)		4		3	5		12	4	3	19
Width (ft)		10	70	8	13	50	12	9	10	30
Canopy Cover*		50 / 50	O	50 / 50	MS	MO	MO	MO	S	MS
Depth (ft)	Riffle	…..	0.5	0.2	0.3	1	0.3	0.5	0.5	……
	Run	1.0	2	0.5	1.0	2.0	0.5	1.0	1.0	1.0
	Pool	1.5	2.8	1.0	2.5	4.5	2.0	2.0	2.5	1.5
Substrate (%)	Bedrock	…..	2	…..	1	10.0	…..	…..	…..	45
	Boulder	…..	…..	2	3	2	…..	2	3	10
	Cobble	…..	3	3	40	1	25	20	40	25
	Gravel	2	40	40	15	32	15	20	20	10
	Sand	50	36	45	17	24	24	33	10	3
	Silt	35	10	7	20	10	20	20	20	4
	Detritus	3	9	3	3	16	4	2	5	3
	Clay	2	…..	…..	1	5	2	3	2	…..
	Org. Silt	…..	…..	…..	…..	…..	…..	…..	…..	…..
Geomorphology		RR	RR	RR	RR	RR	RR	RR	RR	RR
Habitat Survey (% maximum)										
Instream Habitat Quality		13	80	25	74	80	75	66	73	82
Sediment Deposition		16	70	33	50	50	51	58	54	78
Sinuosity		3	10	3	78	10	88	73	93	93
Bank and Vegetative Stability		83	60	43	51	60	60	55	46	61
Riparian Measurements		78	55	15	78	40	45	35	95	36
Habitat Assessment Score		116	156	136	160	155	157	137	169	172
% Maximum		48	65	57	67	65	65	57	70	72
Assessment		F	G	F	G	G	G	F	G	G

** 303(d) Station
^ ALAMAP Station

Table 6a, Cont. Physical characteristics and habitat quality of sites assessed in the Upper Tallapoosa River basin.

		Upper Tallapoosa (03150108)								
		CUTR-4	CNER-3	HENR-1	SHLR-5	COHR-8	KNSR-9	PNYR-6	WLFR-7	TA7U4-33^
Subwatershed #		240	240	240	240	250	250	250	250	260
Date (YYMMDD)		000531	000531	000531	000531	000601	000531	000601	000601	000802
Ecoregion/ Subregion		45a	45a	45a	45a	45a	45a	45a	45a	45a
Drainage area (mi^2)		14	8	4	18	22	16	24	5	
Width (ft)		15	12	12	…..	20	25	15	10	20
Canopy Cover*		MS	50 / 50	MS	50 / 50	MS	S	MS	MS	50 / 50
Depth (ft)	Riffle	0.5	0.2	0.3	0.2	0.5	0.5	0.3	0.3	0.25
	Run	1.0	0.4	0.5	0.4	1.0	1.0	1.0	1.0	1.0
	Pool	2.5	1.0	1.0	1.5	4.0	2.0	3.0	1.5	1.5
Substrate (%)	Bedrock	65	…..	35	…..	11	28	1	30	45
	Boulder	3	2	5	2	5	12	…..	2	15
	Cobble	10	35	40	20	20	25	2	20	12
	Gravel	10	48	13	50	30	15	7	30	5
	Sand	2	6	1	15	10	3	87	10	10
	Silt	8	6	5	6	20	15	3	5	10
	Detritus	2	3	1	6	2	2	5	3	3
	Clay	…..	…..	…..	1	2	…..	…..	…..	…..
	Org. Silt	…..	…..	…..	…..	…..	…..	…..	…..	……
Geomorphology		RR	RR	RR	RR	RR	RR	RR	RR	RR
Habitat Survey (% maximum)										
	Instream Habitat Quality	74	67	70	38	81	75	52	84	83
	Sediment Deposition	69	64	76	30	41	54	35	75	58
	Sinuosity	93	83	93	45	83	80	60	93	83
	Bank and Vegetative Stability	63	80	80	35	83	76	40	81	62
	Riparian Measurements	31	45	85	31	95	50	65	95	90
Habitat Assessment Score		162	159	193	171	181	165	134	203	174
% Maximum		67	66	80	71	75	69	56	85	73
Assessment		G	G	E	G	G	G	F	E	G

** 303(d) Station
^ ALAMAP Station

Table 7a. Bioassessment results conducted in the Upper Tallapoosa River Basin

	Upper Tallapoosa River Basin											
Sub-watershed	110	110	110	110	130	220	220	220	240	240	240	240
Station	CDRC-15	TALC-1**	UTTC-14	VNDC-13	TALC-5**	LSTC-12	LTLC-11	UTLC-10	BEAR-2	CUTR-4	CNER-3	HENR-1
Macroinvertebrate community												
Date	000607	000608	000613	000607	000613	000607	000607	000607	000521	000531	000531	000531
# EPT families	12	17	11	12	9	11	6	13	9	9	11	15
Assessment	G	E	G	G	F	G	F	G	F	F	G	E
Fish community												
Date	000705						000705		000705	000705		
Time (min)	30						30		30	30		
Richness measures												
# species	13						17		23	18		
# darter species	1						2		4	3		
# minnow species	5						6		9	7		
# sunfish species	4						3		3	2		
# sucker species	1						2		3	2		
# intolerant species	0						1		1	1		
Composition measures												
% sunfish	23.6						25.7		25	4.4		
% omnivores and herbivores	10.8						37.5		17.1	1.1		
% insectivourous cyprinids	50.3						27.1		28	85		
% top carnivores	0.6						3		0.8	1.8		
Population measures												
Individuals	157						339		368	568		
# collected per hour	314						678		736	1132		
% disease and anomalies	0						1.5		17.7	11.2		
IBI Score	46						46		44	46		
Assessment	F-G						F-G		F	F-G		

** 303(d) Station

^ ALAMAP Station

Table 7a, Cont. Bioassessment results conducted in the Upper Tallapoosa River Basin

Sub-watershed	240	250	250	250	250
Station	SHLR-5	COHR-8	KNSR-9	PNYR-6	WLFR-7
Macroinvertebrate community					
Date	000531	000601	000531	000601	000601
# EPT families	10	8	12	11	14
Assessment	G	F	G	G	E
Fish community					
Date		000705		000706	
Time (min)		30		30	
Richness measures					
# species		16		17	
# darter species		3		3	
# minnow species		6		7	
# sunfish species		1		3	
# sucker species		2		2	
# intolerant species		1		1	
Composition measures					
% sunfish		1.2		13.4	
% omnivores and herbivores		11.8		9.5	
% insectivourous cyprinids		58.6		63	
% top carnivores		2.3		0.4	
Population measures					
Individuals		343		284	
# collected per hour		686		568	
% disease and anomalies		8.7		2.5	
IBI Score		44		44	
Assessment		F		F	

Section II: Middle Tallapoosa River Cataloging Unit (0315-0109)

Landuse: Based on the conservation assessment worksheets completed (1998) by the local SWCDs, the primary land uses throughout the Middle Tallapoosa River cataloging unit were forest (78%) and pasture (10%) (Table 12b). The Middle Tallapoosa River cataloging unit of the Tallapoosa River Basin contains 22 sub-watersheds located primarily within Chambers, Clay, Coosa, Elmore, Lee, Randolph, and Tallapoosa counties. The cataloging unit is located in the Southern Upper and Lower Piedmont Ecoregions (Subregions 45a-45b) (Figure 3b).

Percent land cover estimated by local SWCD (ASWCC 1998)

Forest	Row Crop	Pasture	Mining	Open Water	Urban	Other
78%	1%	10%	0%	7%	4%	1%

NPS impairment potential: The overall potential for nonpoint source impairment in the Middle Tallapoosa CU was *low* based upon estimates of sedimentation rates, animal unit densities, and pasture land (Table 15). No sub-watersheds were estimated to have a high potential for impairment from nonpoint sources. Twelve of the twenty-two sub-watersheds were estimated to have a *moderate* potential of NPS impairment. The primary concerns were runoff from forestry practices and sedimentation. Observations made during the assessment process support the concerns indicated by the local SWCD. Clearcuts and various successions of forests were observed within or near some stream segments assessed.

Number of Sub-watersheds with (M)oderate or (H)igh ratings for each NPS category

Category	Overall Potential	Animal Husbandry	Row Crops	Pasture	Mining	Forestry	Sediment
Moderate	12	3	0	4	0	11	5
High	0	0	0	0	0	4	4

Number of Sub-watersheds with (M)oderate or (H)igh ratings for each point source category

Category	%Urban	Development	Septic tank Failure
Moderate	5	4	0
High	0	0	0

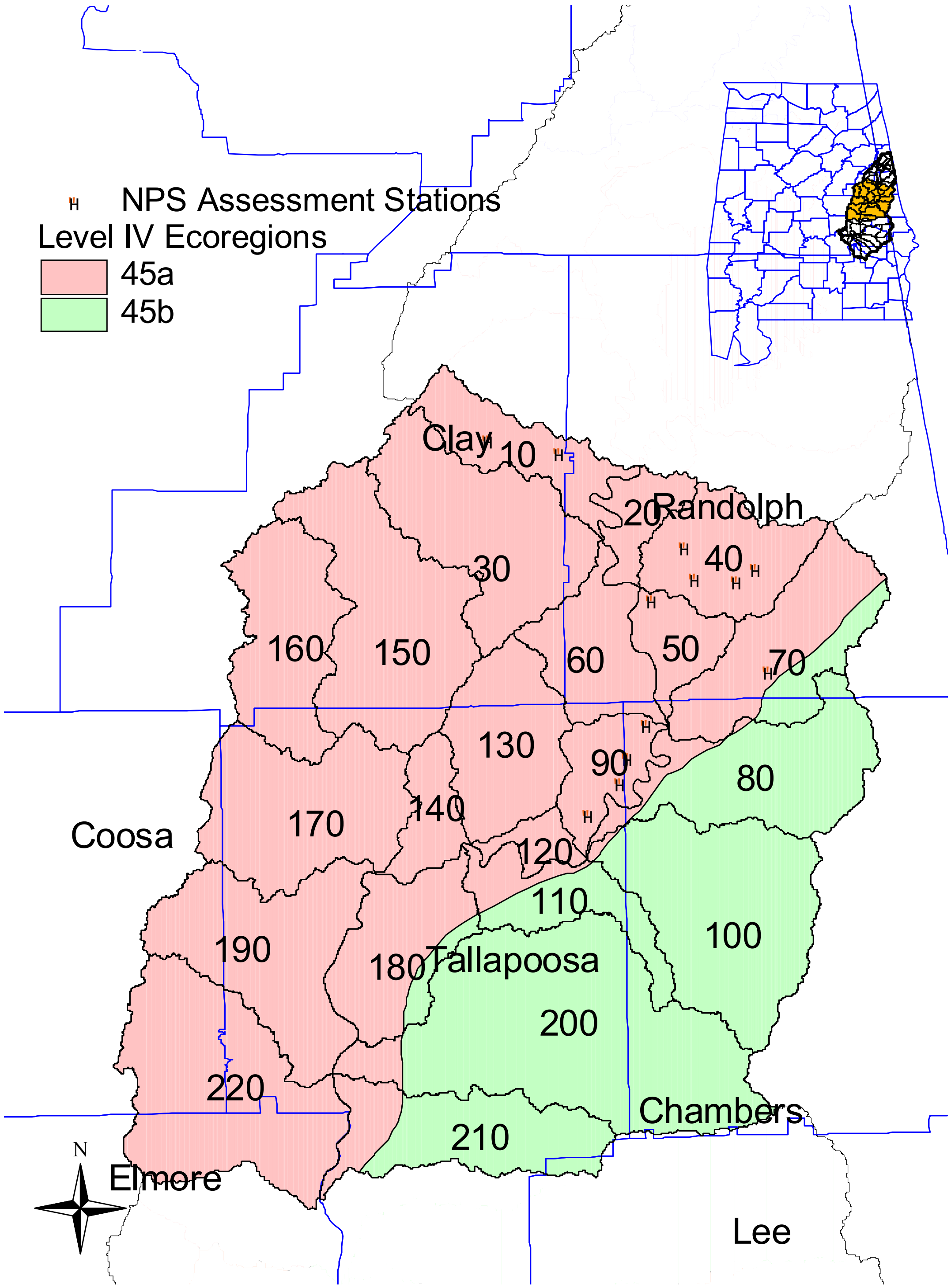
Data Summaries: A summary of each NRCS sub-watershed selected for assessment is provided. Each summary discusses the land use, assessments conducted and, if applicable, the NPS priority status. Data associated with the land use, NPS impairment potential, and biological assessment(s) are located in the tables at the end of the section. Located at the end of the screening assessment sub-watershed summaries are project summaries of additional water quality assessments conducted during 2000. Data associated with other water quality assessments are located in the appendices.

Study Area: Four (010, 040, 050, 090) of the twenty two sub-watersheds in the Middle Tallapoosa River Cataloging Unit were sampled during in the NPS screening assessment (Figure 3b). These four sub-watersheds were selected because of the estimated potential for NPS impairment and absence of recent monitoring data.

Sub-wtaershed Assessments: Habitat and biological assessments were conducted at twelve (12) stations during the Tallapoosa Basin NPS screening project (Table 10). Habitat quality at four (4) stations were assessed as *excellent*, six (6) stations were assessed as *good*, and three (2) stations were assessed as *fair* (Table 6b). The biological community assessments indicated three (FOXC-17, NBSR-22 and LYNC-25) streams with *excellent* aquatic macroinvertebrate diversity. Nine streams indicated *good* communities. A fish community assessment conducted at CHSR-20 indicated a *fair-good* fish population (Table 7b).

***Priority Sub-watersheds**:* Eleven of the stream segments had an overall assessment of good and excellent indicating slight or no impairment. One stream reach on Cornhouse Creek (CHSR-20) had a *fair-good* fish community indicating moderate to slight impairment. Based on this it is recommended the Cornhouse Creek sub-watershed have a low priority, with focus on the drainage near the CHSR-20 reach. Potential sources of impairment observed during the assessments were large clearcuts and pasture/cattle.

Figure 3b. Middle Tallapoosa NPS Screening Assessment Stations



Sub-Watershed: Fox Creek

NRCS Sub-Watershed Number 010

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
FOXC-16	Habitat, Macroinvertebrate	2000	Fox Creek at AL Hwy. 9	15	F&W
FOXC-17	Habitat, Macroinvertebrate	2000	Fox Creek at Pettis Rd. off of AL Hwy. 48	37	F&W

Landuse: The Fox Creek sub-watershed drains approximately 45 mi^2 in Clay and Randolph Counties. Primary NPS concerns were runoff from animal production operations and pasture. One current construction/stormwater authorization has been issued in the sub-watershed (Table 9). The SWCD estimates of animal concentrations in the sub-watershed (Table 3b) were moderate (0.18 AU/Acre), with cattle being the dominant animal (0.14 AU/Acre). The overall potential for impairment from non-point sources (Table 5b) was estimated as *moderate*.

Assessments: Two stream segments were sampled in June 2000. The two stream reaches located on the same stream (Fox Creek) were assessed as having good habitat quality and a good and excellent aquatic macroinvertebrate assessment for FOXC-16 and FOXC-17 respectively (Table 6b and 7b).

Sub-Watershed: Cornhouse Creek

NRCS Sub-Watershed Number 040

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
CHSR-19	Habitat, Macroinvertebrate, Chemical	2000	Cornhouse Creek at Randolph Co. Rd. 33	29	F&W
CHSR-20	Habitat, Macroinvertebrate, Chemical	2000	Cornhouse Creek at Randolph Co. Rd. 821	56	F&W
CHSR-21	Habitat, Macroinvertebrate	2000	Cornhouse Creek at unnamed Randolph Co. Rd. near Rock Springs Church	12	F&W
WDTR-18	Habitat, Macroinvertebrate	2000	Wildcat Creek at Randolph Co. Rd. 15	14	F&W

Landuse: The Cornhouse Creek sub-watershed drains approximately 56 mi^2 in Randolph County. The primary landuse within the sub-watershed is forest, with a small percentage of pasture and row crop. No authorizations or permits have been issued in the sub-watershed (Table 9). The overall potential for impairment from non-point sources (Table 5b) was estimated as *moderate*.

Assessments: Four stations were sampled during the NPS project to assess the sub-watershed. Habitat and aquatic macroinvertebrate assessments were conducted at all four stations. Habitat quality was *fair* at one station (CHSR-20), *good* at one station (CHSR-21) and *excellent* at two stations (CHSR-19 and WDTR-18) (Table 6b). The aquatic macroinvertebrate assessments indicate all four stations had *good* communities within the stream segments sampled (Table 7b). One segment was further assessed using fish IBI. The reach at CHSR-20 was sampled because the habitat assessment indicated *moderate* impairment. This stream segment had an uncharacteristic larger percentage of sand for bottom substrate. The fish IBI results indicated a *fair-good* fish community (Table 7b).

NPS Priority Status: The Cornhouse Creek sub-watershed is recommended a *low* priority based on *moderate* impairment indicated from biological assessments. The sampling reach on Cornhouse Creek (CHSR-20) had a *fair* habitat assessment and *fair-good* fish community assessment. The moderate impairment identified in the fish community is possibly resulting from the uncharacteristic high percentage of sand substrate. Potential sources are large areas of clearcut with little riparian zone that were observed while conducting the assessments. Water chemistry samples collected from the CHSR-20 station also indicated a high biochemical oxygen demand (BOD_5) compared to other streams in the region.

Sub-Watershed: Beaverdam Creek

NRCS Sub-Watershed Number 050

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
BVDR-23	Habitat, Macroinvertebrate,	2000	Beaverdam Creek at Randolph Co. Rd. 33	13	F&W
NBSR-22	Habitat, Macroinvertebrate,	2000	No Business Creek at unnamed Randolph Co. Rd. North of Corinth	6	F&W

Landuse: The Beaverdam Creek sub-watershed drains approximately 26 mi^2 in Randolph and Chambers Counties. Sedimentation was the primary NPS concern. The main sources of sedimentation were identified as gullies and dirt roads. Forestry, which comprises 81% of the sub-watershed, was identified as a *moderate* concern. No construction/stormwater authorizations or NPDES permits have been issued in the sub-watershed (Table 9). The overall potential for impairment from non-point sources (Table 5b) was estimated as *moderate*.

Assessment: Habitat and aquatic macroinvertebrate assessments were conducted on two stream reaches in May 2000. The stream reach on No Business Creek (NBSR-22) had *excellent* habitat quality and an *excellent* aquatic macroinvertebrate community (Table 6b and 7b). The Beaverdam Creek station (BVDR-23) had both a *good* habitat and macroinvertebrate community (Table 6b and 7b).

Sub-Watershed: Hodnett Mill Creek

NRCS Sub-Watershed Number 090

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
GLYT-27	Habitat, Macroinvertebrate	2000	Galloway Creek at unnamed Tallapoosa Co. Rd. near Coger Hill Church	5	F&W
HTMT-26	Habitat, Macroinvertebrate	2000	Hodnett Mill Creek at unnamed Tallapoosa Co. Rd. at Frogeye	9	F&W
LNYC-25	Habitat, Macroinvertebrate	2000	Laney Creek at Chambers Co. Rd. 62	3	F&W
UTTC-24	Habitat, Macroinvertebrate	2000	Unnamed Tributary to Tallapoosa River at Chambers Co. Rd. 62	4	F&W

Landuse: The Hodnett Mill Creek sub-watershed drains approximately 32 mi^2 in Chambers and Tallapoosa Counties. No current authorizations or permits have been issued in the sub-watershed (Table 9). The overall potential for impairment from non-point sources (Table 5b) was estimated as *moderate*, mainly from pasture runoff and forestry practices.

Assessments: Four stations were sampled during the NPS project to assess the sub-watershed. Habitat and aquatic macroinvertebrate assessments were conducted at all four stations. Habitat quality was *good* at two stations (GLTY-27 and UTTC-24), and *excellent* at two stations (HTMT-26 and LNYC-25) (Table 6b). The aquatic macroinvertebrate assessments indicate one station (LNYC-25) had *excellent* and three stations (GLYT-27, HTMT-26 and UTTC-24) had *good* communities (Table 7b).

Other Projects Conducted in 2000

Nine sub-watersheds (010, 030, 150, 170, 180, 190, 200, 210 and 220) were sampled in 2000 in association with other studies conducted by the Environmental Indicators Section of ADEM.

Section 303(d): In accordance with Section 303(d) of the Federal Clean Water Act, each state must identify its polluted water bodies that do not meet surface water quality standards and submit this list to the USEPA. In an effort to address water quality problems within Alabama, ADEM conducts monitored assessments of priority water bodies to support §303(d) listing and de-listing decisions. This project includes intensive chemical, habitat, and biological data collected using ADEM's SOPs and QA/QC manuals. The Crooked Creek (030) (Figure 4b) sub-watershed was assessed during the 2000 303(d) sampling efforts (Appendices E-1). The 2000 303(d) project study period extended from April 2000 through March 2001. Water chemistry was collected at each station during eight sampling events within the sampling period (Appendix F-1) (ADEM 2000c).

***Alabama Monitoring and Assessment Plan (ALAMAP)*:** The purpose of ALAMAP is to provide data that can be used to estimate the current status of all streams within Alabama. The program consists of a randomly generated list of two-hundred fifty stations throughout the state. Fifty stations are sampled annually in August. A five year cycle will complete the sampling of all 250 stations (ADEM 2000b). Three sub-watersheds (150, 170 and 220) (Figure 4b) had stations that were sampled as part of the 2000 ALAMAP sampling efforts (Table 6b and Appendices E-1 and F-6).

Reservoir Water Quality Monitoring Program (RWQMP)**:** The same watershed strategy (5 year basin rotation) mentioned in the introduction applies to the RWQMP. Therefore, sampling stations were located on the Tallapoosa River and it's tributaries at various locations on the respective reservoirs (Thurlow, Yates, Martin and Harris). Six sub-watersheds (170, 180, 190, 200, 210 and 220) (Figure 4b) within the Middle Tallapoosa Cataloging Unit were sampled during the 2000 reservoir sampling (Appendix E-1). The RWQMP sampling period was from April 2000 through October 2000. During monthly sampling visits water chemistry samples were collected from the photic zone and temperature, dissolved oxygen, specific conductivity and pH from the water column at multiple depths (ADEM 2000j).

Reference Site**:** One of ADEM's ecoregional reference sites is located in the Middle Tallapoosa Cataloging Unit. A stream reach of Hurricane Creek located in the Hurricane Creek sub-watershed (060) was sampled during the 2000 NPS study. The reach at HCR-1 is dominated by gravel, cobble and boulder substrates, which is characteristic for the region. The habitat assessment conducted in May 2000 indicated the site has *good* habitat quality for biological communities (Table 6b). Aquatic macroinvertebrate and fish community surveys were also conducted in 2000. The results of the biological community surveys indicate the reach at HCR-1 had an *excellent* aquatic macroinvertebrate community and *good* fish community (Table 7b). The station on Hurricane Creek (HCR-1) was established in 1992 and has been sampled in 1992-1995 and 1997-2000. ADEM has a total of thirty-two established reference sites located in various subecoregions throughout the state (ADEM 2000a).

Historical Data/Studies: A review of historical data indicates six of the twenty-two sub-watersheds within the Cataloging Unit have been assessed during other projects (Figure 5). In 1996, in association with ADEM Clean Water Strategy (CWS), sampling stations were located in three sub-watersheds (020, 030 and 040) (Appendices E-2 and F-5)(ADEM 1999a). Stations were also sampled while conducting ALAMAP sampling. One station was sampled in 020 in 1997. Two sub-watersheds (100 and 220) were sampled in 1999 (Appendix E-2) (ADEM 2000b).

Figure 4b. Middle Tallapoosa Additional and Historical Assessment Stations

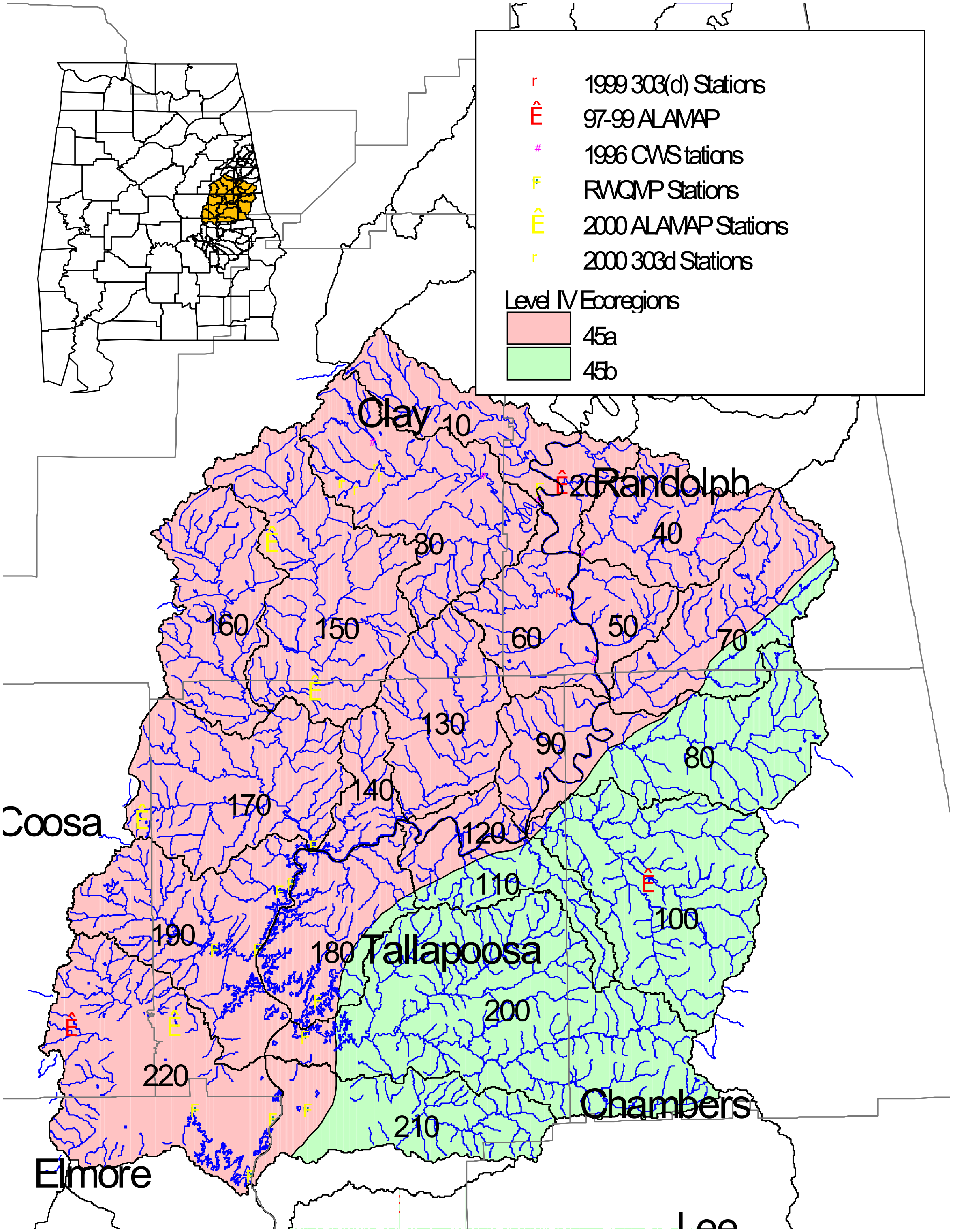


Table 2b. Land use percentages for the Middle Tallapoosa cataloging unit (0315-0109) from EPA landuse categories (EPA 1997) and local SWCD Conservation Assessment Worksheet landuse estimates (ASWCC 1998).

Subwatershed	Percent Total Landuse													
	Open Water		Urban		Mines		Forest		Pasture		Row Crops		Other	
	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA
Middle Tallapoosa (0315-0109)														
010	15	9	1	1	0	<1	64	71	16	15	1	4	4	1
020	11	11		1			75	88	2	<1	1	<1	11	<1
030	1	<1	1	1	0		87	84	8	11	0	3	3	<1
040	12	<1		1			67	93	13	5	5	2	3	
050	5	1		1			81	95	9	3	2	1	3	1
060	3	<1	4	1			81	93	7	3	2	2	4	1
070	1	<1	10	1			77	84	8	8	2	4	2	1
080	0	<1	1	1	0		90	89	8	6	0	4	0	1
090	1	1	0	1			80	86	18	8	1	4	0	1
100	1	<1	1	1		<1	81	78	16	13	1	5	0	4
110	0	<1	0	1			94	89	5	4		3	0	5
120	0	4	0	1			98	88	1	3		2		2
130	0	<1	1	1	0		93	96	5	2	0	2	0	<1
140	1	2	2	1			89	88	8	5		3		1
150	2	<1	0	1		<1	67	87	28	10	1	3	1	<1
160	0	<1	1	1	0		92	94	6	5	0	2	1	<1
170	1	<1	11	1			81	93	8	3		2		1
180	20	12	3	1			75	81	2	2		1	0	2
190	13	10	18	3			63	80	6	3		2	0	1
200	4	3	2	1			83	84	10	5	0	3	0	5
210	16	15	2	1			81	80	2	2		1	0	3
220	26	19	9	1	0	<1	58	76	7	2		2	0	1

Table 3b. Estimations of animal concentrations, animal units (A.U.), and percent of acres where pesticides/herbicides applied in the Middle Tallapoosa Cataloging Unit (0315-0109). Numbers of animals and pesticides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		10	20	30	40	50	60	70	80	90	100
County (s)		Clay Randolph	Randolph	Clay Randolph*	Randolph	Chambers* Randolph	Chambers* Clay Randolph Tallapoosa*	Chambers Randolph	Chambers Randolph* Tallapoosa*	Chambers Tallapoosa	Chambers Tallapoosa*
Acres Reported (% of Total)		100	99	93	75	97	89	100	93	100	96
Pesticides Applied	Est. % Total Reported Acres	0	0	0	0	0	0	0	0	0	1
Cattle	# / Acre	0.14	0.00	0.07	0.14	0.03	0.11	0.07	0.04	0.06	0.07
	A.U./Acre	**0.14**	**0.00**	**0.07**	**0.14**	**0.03**	**0.11**	**0.07**	**0.04**	**0.06**	**0.07**
Dairy	# / Acre	---	---	0.00	---	---	---	---	---	---	---
	A.U./Acre	---	---	**0.00**	---	---	---	---	---	---	---
Swine	# / Acre	0.01	---	---	---	---	0.02	---	---	---	---
	A.U./Acre	**0.00**	---	---	---	---	**0.01**	---	---	---	---
Poultry - Broilers	# / Acre	1.53	---	0.52	2.84	0.08	24.65	1.39	---	---	---
	A.U./Acre	**0.01**	---	**0.00**	**0.02**	**0.00**	**0.20**	**0.01**	---	---	---
Poultry - Layers	# / Acre	2.67	---	0.83	2.64	2.73	4.18	0.70	---	0.73	---
	A.U./Acre	**0.02**	---	**0.01**	**0.02**	**0.02**	**0.03**	**0.01**	---	**0.01**	---
Catfish	# Acres/ Acre	0.00	---	0.00	0.00	0.00	0.00	---	---	0.00	---
Total	A.U./Acre	**0.18**	**0.00**	**0.08**	**0.19**	**0.05**	**0.35**	**0.09**	**0.04**	**0.07**	**0.07**
Potential for NPS Impairment		Mod	Low	Low	Mod	Low	Mod	Low	Low	Low	Low

* No data reported for this portion of the subwatershed; nd = no data

Table 3b, cont. Estimations of animal concentrations, animal units (A.U.), and percent of acres where pesticides/herbicides applied in the Middle Tallapoosa Cataloging Unit (0315-0109). Numbers of animals and pesticides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed								
		110	120	130	140	150	160	170	180	190
County (s)		Chambers Tallapoosa	Tallapoosa	Clay Tallapoosa	Tallapoosa	Clay Tallapoosa	Clay Tallapoosa	Clay* Coosa* Tallapoosa	Tallapoosa	Coosa Tallapoosa
Acres Reported (% of Total)		100	100	100	100	100	100	92	100	100
Pesticides Applied	Est. % Total Reported Acres	0	*	0	*	0	0	*	*	*
Cattle	# / Acre	0.02	0.00	0.02	0.03	0.06	0.04	0.03	0.01	0.01
	A.U./Acre	**0.02**	**0.00**	**0.02**	**0.03**	**0.06**	**0.04**	**0.03**	**0.01**	**0.01**
Dairy	# / Acre	---	---	---	---	0.00	---	---	---	---
	A.U./Acre	---	---	---	---	**0.00**	---	---	---	---
Swine	# / Acre	---	---	---	---	0.01	---	---	---	---
	A.U./Acre	---	---	---	---	**0.00**	---	---	---	---
Poultry - Broilers	# / Acre	---	---	---	2.83	1.17	0.31	---	---	---
	A.U./Acre	---	---	---	**0.02**	**0.01**	**0.00**	---	---	---
Poultry - Layers	# / Acre	---	2.50	---	---	1.18	---	---	---	---
	A.U./Acre	---	**0.02**	---	---	**0.01**	---	---	---	---
Catfish	# Acres/ Acre	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00
Total	A.U./Acre	**0.02**	**0.02**	**0.02**	**0.05**	**0.08**	**0.04**	**0.03**	**0.01**	**0.01**
Potential for NPS Impairment		Low	Low	Low	Low	Low	Low	Low	Low	Low

* No data reported for this portion of the subwatershed; nd = no data

Table 3b, cont. Estimations of animal concentrations, animal units (A.U.), and percent of acres where pesticides/herbicides applied in the Middle Tallapoosa Cataloging Unit (0315-0109). Numbers of animals and pesticides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed 200	210	220	Total
County (s)		Chambers Lee* Tallapoosa	Lee* Tallapoosa	Coosa Elmore Tallapoosa	
Acres Reported (% of Total)		88	96	100	95
Pesticides Applied	Est. % Total Reported Acres	0	*	*	0
Cattle	# / Acre	0.03	0.01	0.01	0.04
	A.U./Acre	**0.03**	**0.01**	**0.01**	**0.04**
Dairy	# / Acre	---	---	---	0.00
	A.U./Acre	---	---	---	**0.00**
Swine	# / Acre	---	---	---	0.00
	A.U./Acre	---	---	---	**0.00**
Poultry - Broilers	# / Acre	---	---	---	1.07
	A.U./Acre	---	---	---	**0.01**
Poultry - Layers	# / Acre	---	---	---	0.53
	A.U./Acre	---	---	---	**0.00**
Catfish	# Acres/ Acre	0.00	0.00	0.00	0.00
Total	A.U./Acre	**0.03**	**0.01**	**0.01**	**0.05**
Potential for NPS Impairment		Low	Low	Low	Low

* No data reported for this portion of the subwatershed; nd = no data

Table 4b. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Middle Tallapoosa cataloging unit (0315-0109) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (* Indicates not reported)

Subwatershed	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**
Forest Condition										
% of Subwatershed Needing Forest Improvement	2	0	2	0	0	1	4	22	46	20
Sediment Contributions (Tons/Acre)										
Cropland	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Sand & Gravel Pits	1.8	8.0			1.8	2.0	2.5	0.0		
Mined Land	0.0		0.0							
Developing Urban Land	0.3		0.0				5.0	0.2	0.2	0.3
Critical Areas	0.5	3.8	0.4	2.5	3.7	0.7	1.1	0.2	0.2	0.2
Gullies	3.5	20.9		8.1	12.2	8.6	8.5	0.2	0.2	0.4
Stream Banks	2.2	4.5	1.5	5.8	3.1	1.9	3.3	0.3	0.6	0.1
Dirt Roads and Roadbanks	4.1	9.0	4.5	6.9	5.6	7.6	3.5	0.3	0.2	0.3
Woodlands	0.4	0.2	0.5	0.2	0.2	0.3	0.4	1.3	0.4	1.2
Total Sediment	12.7	46.4	6.9	23.6	26.8	21.1	24.5	2.5	1.7	2.5
Potential for Sediment NPS	Mod	**High**	Mod	**High**	**High**	**High**	**High**	Low	Low	Low
Septic Tanks										
# Septic Tanks per acre	0.02	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.01	0.01
# Septic Tanks Failing per acre	0.0	0.0	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00
# of Alternative Septic Systems										
Resource Concerns in the Subwatershed										
Excessive Erosion on Cropland	X						X		X	X
Gully Erosion on Agricultural Land	X	X	X	X	X	X	X	X	X	X
Road and Roadbank Erosion	X	X	X	X	X	X	X	X	X	X
Poor Soil Condition (cropland)	X	X	X	X	X	X	X			X
Excessive Animal Waste Applied to Land	X		X		X					
Excessive Pesticides Applied to Land										
Excessive Sediment from Cropland	X		X				X		X	X
Excessive Sediment From Roads/Roadbanks	X	X	X	X	X	X	X	X	X	X
Excessive Sediment from Urban Development		X					X			X
Inadequate Management of Animal Wastes	X				X			X		
Nutrients in Surface Waters	X	X	X	X	X	X	X	X		
Pesticides in Surface Waters							X			
Bacteria and other organisms in surface waters	X		X		X	X	X			
Low dissolved oxygen in surface waters							X			
Livestock are overgrazing pastures	X	X	X	X	X	X	X		X	
Livestock Commonly have Access to Streams	X	X		X	X	X	X	X	X	X

Table 4b, cont. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Middle Tallapoosa cataloging unit (0315-0109) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (* Indicates not reported)

Subwatershed	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**	**190**	**200**
Forest Condition										
% of Subwatershed Needing Forest Improvement	24	20	4	24	3	6	45	25	9	22
Sediment Contributions (Tons/Acre)										
Cropland			0.0		0.0	0.0				0.0
Sand & Gravel Pits	0.2	0.3						0.0		
Mined Land			0.0			0.0				
Developing Urban Land	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.1
Critical Areas	0.1	0.0	0.1	0.0	0.3	0.3	0.1	0.0	0.0	0.1
Gullies	0.1		0.0		1.1		0.0	0.0	0.0	0.1
Stream Banks	0.0	0.0	0.1	0.1	1.3	0.0	0.0	0.0	0.1	0.0
Dirt Roads and Roadbanks	0.2	0.2	5.5	0.1	4.0	9.9	0.1	0.1	0.0	0.3
Woodlands	0.4	0.3	0.3	0.1	0.5	0.5	0.1	0.1	0.1	0.6
Total Sediment	1.0	0.8	5.9	0.3	7.3	10.8	0.3	0.3	0.3	1.2
Potential for Sediment NPS	Low	Low	Mod	Low	Mod	Mod	Low	Low	Low	Low
Septic Tanks										
# Septic Tanks per acre	0.01	0.00	0.01	0.02	0.02	0.02	0.01	0.01	0.01	0.02
# Septic Tanks Failing per acre	0.00		0.00		0.00	0.00			0.00	0.00
# of Alternative Septic Systems										
Resource Concerns in the Subwatershed										
Excessive Erosion on Cropland	X		X	X		X	X	X		X
Gully Erosion on Agricultural Land	X		X	X	X	X	X			X
Road and Roadbank Erosion	X	X	X	X	X	X	X	X	X	X
Poor Soil Condition (cropland)	X		X	X	X	X	X	X		X
Excessive Animal Waste Applied to Land					X	X				
Excessive Pesticides Applied to Land										
Excessive Sediment from Cropland	X			X		X	X	X		X
Excessive Sediment From Roads/Roadbanks	X	X	X		X	X	X	X	X	X
Excessive Sediment from Urban Development							X		X	
Inadequate Management of Animal Wastes					X	X				
Nutrients in Surface Waters	X			X	X					
Pesticides in Surface Waters										
Bacteria and other organisms in surface waters	X	X	X	X	X	X				X
Low dissolved oxygen in surface waters										
Livestock are overgrazing pastures	X		X	X	X	X	X	X		X
Livestock Commonly have Access to Streams	X		X	X		X		X	X	X

Table 4b, cont. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Middle Tallapoosa cataloging unit (0315-0109) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (*Indicates not reported)

Subwatershed	**210**	**220**
Forest Condition		
% of Subwatershed Needing Forest Improvement	27	9
Sediment Contributions (Tons/Acre)		
Cropland		
Sand & Gravel Pits	0.0	0.0
Mined Land		0.0
Developing Urban Land	0.0	0.8
Critical Areas	0.1	0.0
Gullies	0.0	0.0
Stream Banks	0.0	0.1
Dirt Roads and Roadbanks	0.1	0.1
Woodlands	0.2	0.2
Total Sediment	0.5	1.2
Potential for Sediment NPS	Low	Low
Septic Tanks		
# Septic Tanks per acre	0.00	0.04
# Septic Tanks Failing per acre		0.00
# of Alternative Septic Systems		
Resource Concerns in the Subwatershed		
Excessive Erosion on Cropland	X	
Gully Erosion on Agricultural Land	X	X
Road and Roadbank Erosion	X	X
Poor Soil Condition (cropland)	X	
Excessive Animal Waste Applied to Land		
Excessive Pesticides Applied to Land		
Excessive Sediment from Cropland	X	
Excessive Sediment From Roads/Roadbanks	X	X
Excessive Sediment from Urban Development	X	
Inadequate Management of Animal Wastes		
Nutrients in Surface Waters		
Pesticides in Surface Waters		
Bacteria and other organisms in surface waters		
Low dissolved oxygen in surface waters		
Livestock are overgrazing pastures	X	
Livestock Commonly have Access to Streams	X	X

Table 5b. Estimation of Potential Sources of NPS Impairment for subwatersheds in the Middle Tallapoosa cataloging unit (0315-0109). Source categories are based upon information provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets completed in 1998, and from Construction Stormwater Authorization information provided by the Mining and NPS Unit of ADEM. *Rural landuse sources were used to develop the NPS potential. The presence of a CWA 303(d) stream segment within a subwatershed raised the subwatershed to the top of the prioritization ranking.

Subwatershed	Rank in Tallapoosa Basin* 1 = Highest Potential	Potential NPS Impairment	Potential Sources of Impairment								
			Rural Landuses						Urban / Suburban / Residential Landuses		
			Animal Husbandry	Row Crops	Pasture Runoff	Mining	Forestry Practices	Sedimentation	Urban	Development	Septic Tank Failure
010	29	M	M	L	M	L	L	M	L	L	L
020	21	M	L	L	L	L	L	H	L	L	L
030	38	L	L	L	L	L	L	M	L	L	L
040	17	M	M	L	L	L	L	H	L	L	L
050	18	M	L	L	L	L	M	H	L	L	L
060	16	M	M	L	L	L	L	H	M	M	L
070	15	M	L	L	L	L	M	H	M	L	L
080	20	M	L	L	L	L	H	L	L	L	L
090	10	M	L	L	M	L	H	L	L	L	L
100	12	M	L	L	M	L	H	L	L	L	L
110	42	L	L	L	L	L	M	L	L	L	L
120	44	L	L	L	L	L	M	L	L	M	
130	33	L	L	L	L	L	M	M	L	L	L
140	34	L	L	L	L	L	M	L	L	L	
150	28	M	L	L	M	L	M	M	L	L	L
160	27	M	L	L	L	L	M	M	L	L	L
170	14	M	L	L	L	L	H	L	M	L	
180	35	L	L	L	L	L	M	L	L	L	
190	48	L	L	L	L	L	L	L	M	M	L
200	32	L	L	L	L	L	M	L	L	M	L
210	39	L	L	L	L	L	M	L	L	L	
220	46	L	L	L	L	L	L	L	M	L	L

Table 6b. Physical characteristics and habitat quality of sites assessed in the Middle Tallapoosa River basin.

		Middle Tallapoosa (03150109)						
		FOXC-16	FOXC-17	HRSC-2**	HRSC-4**	CHSR-19	CHSR-20	CHSR-21
Subwatershed #		010	010	030	030	040	040	040
Date (YYMMDD)		000606	000606	000606	000606	000530	000530	000530
Ecoregion/ Subregion		45a	45a	45a	45a	45a	45a	45a
Drainage area (mi^2)		15	37			29	56	12
Width (ft)		20	30	20	20	17	12	15
Canopy Cover*		MS	50 / 50	50 / 50	50 / 50	50 / 50	MO	S
Depth (ft)	Riffle	0.3	1.0	0.4	0.3	0.4	0.3	0.3
	Run	1.2	1.5	0.5	1.0	0.6	1.0	1.0
	Pool	2.5	3.0	1.5	2.7	4.0	2.5	3.0
Substrate (%)	Bedrock	…..	25	…..	7	2	1	…..
	Boulder	…..	5	…..	2	1	1	…..
	Cobble	5	5	…..	4	30	5	15
	Gravel	25	14	20	20	10	3	40
	Sand	42	35	50	43	40	77	38
	Silt	20	10	25	20	12	8	5
	Detritus	6	5	3	2	4	4	2
	Clay	2	1	2	2	1	1	…..
	Org. Silt	…..	…..	…..	…..	…..	…..	…..
Geomorphology		RR	RR	GP	RR	RR	RR	RR
Habitat Survey (% maximum)								
Instream Habitat Quality		64	75	45	65	71	46	70
Sediment Deposition		46	58	60	57	50	50	60
Sinuosity		48	78	42	52	93	8	5
Bank and Vegetative Stability		70	51	85	85	76	31	68
Riparian Measurements		54	18	15	37	95	95	95
Habitat Assessment Score		148	145	129	163	184	128	161
% Maximum		62	60	58	68	76	53	67
Assessment		G	G	F	G	E	F	G

** 303(d) Station

Table 6b Con't. Physical characteristics and habitat quality of sites assessed in the Middle Tallapoosa River basin.

		WDTR-18	BVDR-23	NBSR-22	HCR-1*	GLYT-27	HTMT-26	LNYC-25	UTTC-24
Subwatershed #		040	050	050	060	090	090	090	090
Date (YYMMDD)		000517	000517	000517	000517	000516	000516	000516	000516
Ecoregion/ Subregion		45a	45a	45a	45a	45a	45a	45a	45a
Drainage area (mi^2)		14	19	6	12	5	9	3	4
Width (ft)		…..	30	5	25	10	20	10	10
Canopy Cover*		50 / 50	S	MO	50 / 50	S	S	S	O
Depth (ft)	Riffle	0.4	…..	0.4	0.4	0.3	1.0	0.3	0.3
	Run	…..	1.5	0.8	1.0	0.4	1.0	0.8	0.3
	Pool	3.0	3.0	1.0	4.0	2.5	3.5	2.0	0.5
Substrate (%)	Bedrock	3	3	…..	…..	…..	25	2	….
	Boulder	10	…..	…..	10	…..	15	1	…..
	Cobble	25	2	40	10	10	10	40	35
	Gravel	10	30	25	40	20	5	30	25
	Sand	40	50	23	25	50	30	20	33
	Silt	8	10	8	10	5	8	4	5
	Detritus	4	5	4	5	15	7	3	2
	Clay	…..	…..	….	…..	…..	…..	…..	…..
	Org. Silt	…..	…..	…..	…..	…..	…..	…..	…..
Geomorphology		RR	GP	RR	RR	RR	RR	RR	RR
Habitat Survey (% maximum)									
Instream Habitat Quality		64	77	88	85	71	73	85	73
Sediment Deposition		66	76	68	62	64	69	69	51
Sinuosity		50	50	68	67	80	78	60	80
Bank and Vegetative Stability		89	55	85	60	56	89	53	36
Riparian Measurements		100	91	96	82	90	64	100	19
Habitat Assessment Score		182	161	195	178	170	182	181	125
% Maximum		76	73	81	74	71	76	75	52
Assessment		E	G	E	G	G	E	G	F

* Reference Site

Table 6b Con't. Physical characteristics and habitat quality of sites assessed in the Middle Tallapoosa River basin.

		TA6U4-27^	TA4U4-18^	TA3U4-9^
Subwatershed #		150	170	220
Date (YYMMDD)		000801	000801	000801
Ecoregion/ Subregion		45a	45a	45a
Drainage area (mi^2)				
Width (ft)		50	5	8
Canopy Cover*		O	S	S
Depth (ft)	Riffle	0.7	0.2	0.3
	Run	1.0	0.4	0.5
	Pool	1.5	0.9	0.8
Substrate (%)	Bedrock	10	…..	…..
	Boulder	25	…..	10
	Cobble	15	…..	40
	Gravel	20	10	10
	Sand	24	51	31
	Silt	1	30	5
	Detritus	5	9	4
	Clay	…..	…..	….
	Org. Silt	…..	…..	….
Geomorphology		RR	GP	RR
Habitat Survey (% maximum)				
Instream Habitat Quality		90	32	83
Sediment Deposition		55	45	80
Sinuosity		88	42	98
Bank and Vegetative Stability		90	55	90
Riparian Measurements		90	85	95
Habitat Assessment Score		191	121	206
% Maximum		79	55	85
Assessment		E	F	E

^ ALAMAP Station

Table 7b. Bioassessment results conducted in the Middle Tallapoosa River basin (03150109).

	Middle Tallapoosa										
Sub-watershed	010	010	030	030	040	040	040	040	050	050	060
Station	FOXC-16	FOXC-17	HRSC-2**	HRSC-4**	CHSR-19	CHSR-20	CHSR-21	WDTR-18	BVDR-23	NBSR-22	HCR-1*
Macroinvertebrate community											
Date	000606	006006	000606	006060	000530	000530	000530	000517	000517	000517	000517
# EPT Families	11	16	8	13	10	10	11	11	11	16	18
Assessment	G	E	F	G	G	G	G	G	G	E	E
Fish community											
Date						000706					000706
Time (min)						30					30
Richness measures											
# species						19					18
# darter species						4					4
# minnow species						9					9
# sunfish species						1					2
# sucker species						1					1
# intolerant species						2					1
Composition measures											
% sunfish						3.4					0.8
% omnivores and herbivores						3.6					7.9
% insectivourous cyprinids						80					77.5
% top carnivores						3					0.0
Population measures											
Individuals						638					608
# collected per hour						1276					1216
% disease and anomalies						20.7					0.0
IBI Score						46					50
Assessment						F-G					G

* Reference Site

** 303(d) Station

Table 7b. Bioassessment results conducted in the Middle Tallapoosa River basin (03150109).

Sub-watershed	090	090	090	090
Station	GLYT-27	HTMT-26	LNYC-25	UTTC-24
Macroinvertebrate community				
Date	000516	000516	000516	000516
# EPT families	11	11	15	12
Assessment	G	G	E	G
Fish community				
Date				
Time (min)				
Richness measures				
# species				
# darter species				
# minnow species				
# sunfish species				
# sucker species				
# intolerant species				
Composition measures				
% sunfish				
% omnivores and herbivores				
% insectivourous cyprinids				
% top carnivores				
Population measures				
Individuals				
# collected per hour				
% disease and anomalies				
IBI Score				
Assessment				

Section III: Lower Tallapoosa River Cataloging Unit (0315-0110)

Landuse: Based on the conservation assessment worksheets completed (1998) by the local SWCDs, the primary land uses with NPS pollution potential throughout the Lower Tallapoosa River cataloging unit were forest, pasture and cropland (Table 12b).

Percent land cover estimated by local SWCD (ASWCC 1998)

Forest	**Row Crop**	**Pasture**	**Mining**	**Open Water**	**Urban**	**Other**
67%	5%	18%	1%	1%	6%	3%

NPS impairment potential: The sub-watersheds were estimated as having a *high* potential for NPS impairment (080,140,170). The primary NPS concern within these sub-watersheds was runoff associated with the following landuses: pasture, mining operations and forestry practices. The overall potential for nonpoint source impairment in the cataloging unit was *moderate*. (Table 15).

Number of Sub-watersheds with (M)oderate or (H)igh ratings for each NPS category (Table 5a)

Category	**Overall Potential**	**Animal Husbandry**	**Row Crops**	**Pasture**	**Mining**	**Forestry**	**Sediment**
Moderate	6	2	0	9	3	8	10
High	3	0	0	1	2	1	0

Number of Sub-watersheds with (M)oderate or (H)igh ratings for each point source category (Table 5a)

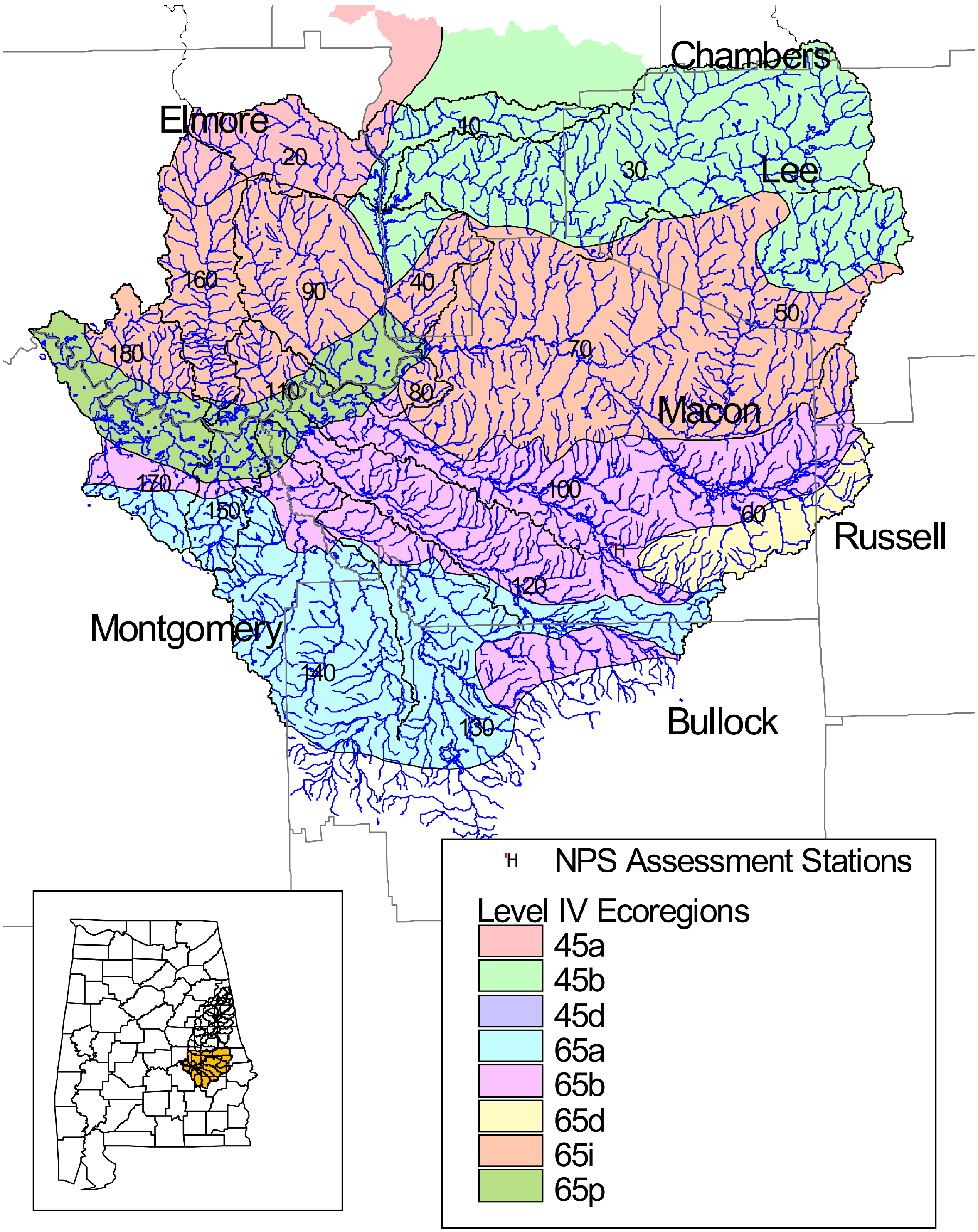
Category	**%Urban**	**Development**	**Septic tank Failure**
Moderate	7	5	1
High	2	4	0

Study Area: Two sub-watersheds in the Lower Tallapoosa River Cataloging Unit were selected for assessment during this project. The Lower Tallapoosa River CU contains 18 sub-watersheds located primarily within Lee, Tallapoosa, Elmore, Chambers, Macon, Russell, Bullock, and Montgomery counties. The cataloging unit is located in the Southern Upper and Lower Piedmont, Blackland prairie, Flatwoods/Alluvial Prairie Margins, Sand Hills, and the Southern Pine Plains and Hills Ecoregions (Subregions 45a,b; 65a,b,c,f) (Figure 3c)(ACES 1997).

Sub-watershed Assessments: One station was sampled during the 2000 NPS project within the Lower Tallapoosa Cataloging Unit. Habitat and aquatic macroinvertebrate assessments were conducted on Tallassarr Creek (TALM-32) in the Calebee Creek (100) sub-watershed (Table 6c and 7c). Habitat quality at the reach sampled on Tallassarr Creek was poor and the aquatic macroinvertebrate assessment indicated a fair (moderately impaired) community. Three other stations in the Calebee Creek sub-watershed and four stations in the Line Creek sub-watershed (140) were selected for sampling during the NPS project. When visited in May 2000 they were not sampled due to no-flow conditions observed at the stream reaches.

NPS Priority Sub-watersheds: The Calebee Creek is recommended as a priority sub-watershed. The sub-watershed was ranked fifth in the Tallapoosa River Basin for potential for NPS impairment. When sampling the stream reach at TALM-32 cattle were observed in the stream. The stream had a poor streambank stability and stream riparian zones scores. The aquatic macroinvertebrate assessment indicated *moderate* impairment.

Figure 3c. Lower Tallapoosa NPS Screening Assessment Stations



Sub-Watershed: Calebee Creek

NRCS Sub-Watershed Number 100

Station	Assessment Type	Date	Location	Area (mi^2)	Classification
TALM-32	Habitat, Macroinvertebrate	2000	Tallassarr Creek at Macon Co. Rd. 47	8	F&W

Landuse: The Calebee Creek sub-watershed drains approximately 161 mi^2 in Bullock and Macon Counties. Primary landuses include forest and row crop. One Construction/Stormwater authorization, two Mining NPDES permits, one Municipal NPDES permit, and four Semi-Public/Private NPDES permits have been issued in the sub-watershed (Table 9). The overall potential for impairment from non-point sources (Table 5c) was estimated as *low*.

Assessments: Habitat and aquatic macroinvertebrate assessments were conducted on Tallassarr Creek (TALM-32) in the Calebee Creek (100) sub-watershed (Table 6c and 7c). Habitat Quality at the reach sampled on Tallassarr Creek was *poor* and the aquatic macroinvertebrate assessment indicated a *fair* community.

NPS Priority Status: The Calebee Creek sub-watershed was selected as a priority. The sub-watershed was ranked fifth in the Tallapoosa River Basin for potential for NPS impairment. When sampling the stream reach at TALM-32 cattle were observed in the stream. The stream also had a low bank stability and riparian measurement score. The aquatic macroinvertebrate assessment indicated moderate impairment.

Other Projects Conducted in 2000

Eight sub-watersheds (020, 030, 040, 050, 070, 100, 120 and 140) were sampled in 2000 in association with other studies conducted by the Environmental Indicators Section of ADEM.

Section 303(d):): In accordance with Section 303(d) of the Federal Clean Water Act, each state must identify its polluted water bodies that do not meet surface water quality standards and submit this list to the USEPA. In an effort to address water quality problems within Alabama ADEM conducts monitored assessments of priority water bodies to support §303(d) listing and de-listing decisions. This project includes intensive chemical, habitat, and biological data collected using ADEM's SOPs and QA/QC manuals (ADEM2000c). Five sub-watersheds (030, 050, 100, 120 and 140) were assessed during the 2000 303(d) sampling efforts (Appendix E-1)(Figure 4c). The 2000 303(d) project study period extended from April 2000 through March 2001. Several stations within the Lower Tallapoosa Cataloging Unit had habitat and aquatic macroinvertebrate assessments conducted to assist with the assessment of impairment within the waterbodies (Table 6c and 7c). The biological communities sampled at three locations on Pepperell Branch, located in the Sougahatchee Creek sub-watershed (030), and three locations on Chewacla Creek, located in the Chewacla Creek sub-watershed (050), indicated some impairment (Table 7c). A segment of Pepperell Branch is on ADEM's 1998 303(d) list of impaired waterbodies. Water chemistry were collected at each station during eight sampling events within the sampling period (Appendix F-1). This data has been provided to ADEM's Water Division for evaluation.

***Alabama Monitoring and Assessment Plan (ALAMAP)*:** The purpose of ALAMAP is to provide data that can be used to estimate the current status of all streams within Alabama. The program consists of a randomly generated list of two-hundred fifty stations throughout the state. Fifty stations are sampled annually in August. A five year cycle will complete the sampling of all 250 stations (ADEM 2000b). Two sub-watersheds (030 and 070) had stations that were sampled as part of the 2000 ALAMAP sampling efforts (Table 6c and Appendices E-1 and F-6) (Figure 4c).

***Reservoir Water Quality Monitoring Program (RWQMP)*:** The same watershed strategy (5 year basin rotation) mentioned in the introduction applies to the RWQMP. Therefore, sampling stations were located on the Tallapoosa River and it's tributaries at various locations on the respective reservoirs (Thurlow, Yates, Martin and Harris). Three sub-watersheds (020, 030 and 040) within the Lower Tallapoosa Cataloging Unit were sampled during the 2000 reservoir sampling (Figure 4c)(Appendix E-1). The RWQMP sampling period was from April 2000 through October 2000. During monthly sampling visits water chemistry samples were collected from the photic zone and temperature, dissolved oxygen, specific conductivity and pH from the water column at multiple depths.

Historical Data/Studies: A review of existing data indicated that assessments have been conducted recently within six of the Cataloging Units eighteen sub-watersheds (Appendix E-2) (Figure 5). All six sub-watersheds (030, 050, 070, 100,120 and 140) were assessed during ADEM's 1996 CWS sampling efforts (Appendix E-2) (ADEM 1999a). The Chewacla Creek sub-watershed (050) was sampled in 1998 as part of the State Parks Water Quality study conducted by ADEM (Appendices E-2 and F-5) (ADEM 1999d). Historical aquatic macroinvertebrate stations are located in 030, 050 and 140 (Appendix E-2).

Figure 4c. Lower Tallapoosa Additional and Historical Assessment Stations

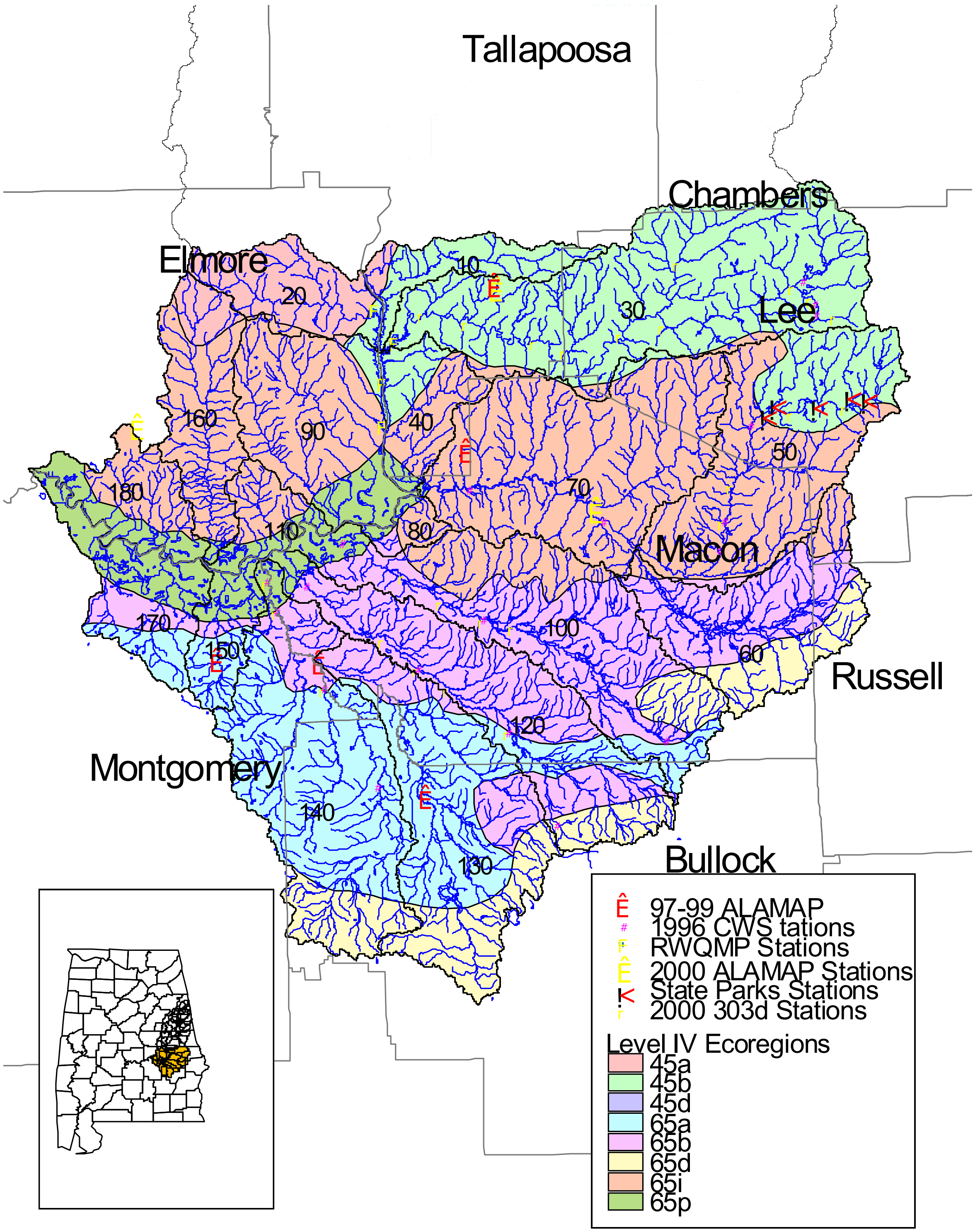


Table 2c. Land use percentages for the Lower Tallapoosa cataloging unit (0315-0110) from EPA landuse categories (EPA 1997) and local SWCD Conservation Assessment Worksheet landuse estimates (ASWCC 1998).

Subwatershed	Percent Total Landuse													
	Open Water		Urban		Mines		Forest		Pasture		Row Crops		Other	
	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA	SWCD	EPA
Lower Tallapoosa (0315-0110)														
010	2	3	0	1			89	88	9	3		2	0	4
020	1	2	6	1			70	86	24	7	0	4		3
030	1	<1	7	2		<1	83	86	8	6	1	3	0	2
040	2	3	2	1			61	58	31	18	4	17	0	4
050	1	<1	8	3	0	<1	76	73	14	6	1	10	1	7
060	1	<1	0	<1	0		86	74	10	3	4	7	2	15
070	0	<1	3	1	0	<1	69	68	15	11	9	11	3	7
080	1	<1		1	0		81	67	8	12	7	12	2	7
090	5	2	16	1	0		54	57	10	18	15	15		7
100	0	<1	2	1	0	<1	74	70	15	5	5	11	6	13
110	1	2	4	<1	1		71	66	8	11	15	13		8
120	0	<1	0	1	1	<1	80	72	11	5	4	9	3	14
130	1	1	1	1	0		63	58	30	11	3	19	1	12
140	0	<1	0	1	2	<1	40	52	42	18	3	18	13	13
150	2	3	10	1	10	<1	33	41	35	22	6	22	3	12
160	0	<1	7	1		<1	73	80	17	6	3	9		5
170	1	3	50	6	3	<1	15	35	16	18	10	20	6	17
180	0	2	29	1		<1	44	64	13	12	14	12		11

Table 3c. Estimations of animal concentrations, animal units (A.U.), and percent of acres where pesticides/herbicides applied in the Lower Tallapoosa Cataloging Unit (0315-0110). Numbers of animals and pesticides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed									
		10	20	30	40	50	60	70	80	90	100
County (s)		Lee* Tallapoosa	Elmore	Chambers* Lee Macon* Tallapoosa	Macon* Tallapoosa	Lee Macon	Lee Macon Russell	Lee Macon Tallapoosa*	Macon	Elmore	Bullock* Macon
Acres Reported (% of Total)		94	100	96	92	100	100	96	100	100	98
Pesticides Applied	Est. % Total Reported Acres	*	0	0	*	1	1	3	4	15	2
Cattle	# / Acre	0.03	0.03	0.02	0.09	0.05	0.02	0.04	0.01	0.12	0.05
	A.U./Acre	**0.03**	**0.03**	**0.02**	**0.09**	**0.05**	**0.02**	**0.04**	**0.01**	**0.12**	**0.05**
Dairy	# / Acre	---	---	---	---	---	---	---	---	0.01	0.00
	A.U./Acre	---	---	---	---	---	---	---	---	**0.02**	**0.00**
Swine	# / Acre	---	---	0.00	---	---	0.00	---	---	---	---
	A.U./Acre	---	---	**0.00**	---	---	**0.00**	---	---	---	---
Poultry - Broilers	# / Acre	---	---	---	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---	---	---
Poultry - Layers	# / Acre	---	---	---	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---	---	---
Catfish	# Acres/ Acre	0.00	---	0.00	0.01	---	---	0.00	---	---	---
Total	A.U./Acre	**0.03**	**0.03**	**0.02**	**0.09**	**0.05**	**0.02**	**0.04**	**0.01**	**0.14**	**0.05**
Potential for NPS Impairment		Low	Low	Low	Low	Low	Low	Low	Low	Mod	Low

* No data reported for this portion of the subwatershed; nd = no data

Table 3c, cont. Estimations of animal concentrations, animal units (A.U.), and percent of acres where pesticides/herbicides applied in the Lower Tallapoosa Cataloging Unit (0315-0110). Numbers of animals and pesticides/herbicides listed by acreage and subwatershed were provided by the local SWCDs on Conservation Assessment Worksheets completed in 1998.

		Subwatershed								
		110	120	130	140	150	160	170	180	Total
County (s)		Elmore	Bullock Macon Montgomery*	Bullock Macon	Bullock Macon Montgomery	Montgomery	Elmore	Montgomery	Elmore Montgomery*	
Acres Reported (% of Total)		100	99	97	100	99	100	100	100	98
Pesticides Applied	Est. % Total Reported Acres	15	3	1	2	*	*	5	14	3
Cattle	# / Acre	0.02	0.04	0.06	0.12	0.10	0.00	0.04	0.01	0.05
	A.U./Acre	**0.02**	**0.04**	**0.06**	**0.12**	**0.10**	**0.00**	**0.04**	**0.01**	**0.05**
Dairy	# / Acre	---	---	---	---	---	---	---	---	0.00
	A.U./Acre	---	---	---	---	---	---	---	---	**0.00**
Swine	# / Acre	---	---	---	---	---	---	---	---	0.00
	A.U./Acre	---	---	---	---	---	---	---	---	**0.00**
Poultry - Broilers	# / Acre	---	---	0.88	---	---	---	---	8.48	0.30
	A.U./Acre	---	---	**0.01**	---	---	---	---	**0.07**	**0.00**
Poultry - Layers	# / Acre	---	---	---	---	---	---	---	---	---
	A.U./Acre	---	---	---	---	---	---	---	---	---
Catfish	# Acres/ Acre	---	---	0.00	0.00	---	---	---	---	0.00
Total	A.U./Acre	**0.02**	**0.04**	**0.07**	**0.12**	**0.10**	**0.00**	**0.04**	**0.07**	**0.05**
Potential for NPS Impairment		Low	Low	Low	Mod	Low	Low	Low	Low	Low

* No data reported for this portion of the subwatershed; nd = no data

Table 4c. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Lower Tallapoosa cataloging unit (0315-0110) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (* Indicates not reported)

Subwatershed	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**80**	**90**	**100**
Forest Condition										
% of Subwatershed Needing Forest Improvement	29	*	7	34	13	16	29	39	*	38
Sediment Contributions (Tons/Acre)										
Cropland		0.0	0.0	0.0	0.0	0.1	0.3	0.3	0.2	0.2
Sand & Gravel Pits	0.1		0.0	0.4		0.0	0.7	0.8		0.7
Mined Land					0.1				0.1	
Developing Urban Land	0.1	1.0	3.0	0.0	3.2	0.2	0.2		1.0	0.1
Critical Areas	0.1		0.1	0.2	0.1	0.1	0.1	0.5		0.1
Gullies	0.0		0.0	0.1	0.1	0.1	0.7	1.6		0.2
Stream Banks	0.1		0.2	0.1	0.1	0.1	0.3	0.7	0.0	0.4
Dirt Roads and Roadbanks	0.1	0.0	0.2	0.1	0.2	0.3	0.4	2.0	0.0	0.4
Woodlands	0.4	0.2	0.6	0.0	0.5	0.7	3.5	0.5	0.5	0.4
Total Sediment	0.7	1.2	4.1	0.8	4.3	1.6	6.2	6.3	1.8	2.5
Potential for Sediment NPS	Low	Low	Mod	Low	Mod	Low	Mod	Mod	Low	Low
Septic Tanks										
# Septic Tanks per acre*	0.01	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.05	0.01
# Septic Tanks Failing per acre*		0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00
# of Alternative Septic Systems						10				
Resource Concerns in the Subwatershed										
Excessive Erosion on Cropland			X	X		X	X			X
Gully Erosion on Agricultural Land	X		X	X		X	X	X		
Road and Roadbank Erosion	X		X	X	X	X	X			X
Poor Soil Condition (cropland)				X		X	X			
Excessive Animal Waste Applied to Land									X	
Excessive Pesticides Applied to Land			X		X	X	X			
Excessive Sediment from Cropland				X		X	X			
Excessive Sediment From Roads/Roadbanks	X		X	X	X	X	X			X
Excessive Sediment from Urban Development	X	X	X		X		X			
Inadequate Management of Animal Wastes									X	
Nutrients in Surface Waters			X	X	X	X		X		
Pesticides in Surface Waters				X	X	X	X	X		
Bacteria and other organisms in surface waters				X		X				
Low dissolved oxygen in surface waters						X				
Livestock are overgrazing pastures	X		X	X		X	X			X
Livestock Commonly have Access to Streams	X	X	X	X	X	X	X	X	X	X

Table 4c, cont. Sedimentation estimates by source, forest condition, septic tank information and resource concerns by subwatershed in the Lower Tallapoosa cataloging unit (0315-0110) as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998). (*Indicates not reported)

Subwatershed	**110**	**120**	**130**	**140**	**150**	**160**	**170**	**180**
Forest Condition								
% of Subwatershed Needing Forest Improvement	*	15	1	3	2	*	0	*
Sediment Contributions (Tons/Acre)								
Cropland	0.4	0.1	0.1	0.1	0.1	0.1	0.1	0.4
Sand & Gravel Pits	2.2	2.1	0.4	3.8	14.5		4.2	1.2
Mined Land								
Developing Urban Land	7.5	0.0	0.1	0.1	0.8	0.7	1.2	4.2
Critical Areas	0.5	0.1	0.1	0.2	0.1		0.1	0.3
Gullies	1.5	0.3	0.3	0.2				3.4
Stream Banks		0.3	0.3	0.2	0.0	0.0	0.2	0.0
Dirt Roads and Roadbanks	0.0	0.3	0.2	0.1		0.0		0.0
Woodlands	0.4	0.3	0.1	0.1	0.0	4.4	0.0	0.3
Total Sediment	12.6	3.6	1.5	4.7	15.6	5.2	5.8	9.8
Potential for Sediment NPS	Mod	Low	Low	Mod	Mod	Mod	Mod	Mod
Septic Tanks								
# Septic Tanks per acre	0.01	0.01	0.02	0.01	0.02		0.02	0.1
# Septic Tanks Failing per acre	0.00	0.0	0.00	0.0	0.0		0.0	0.0
# of Alternative Septic Systems		50	500	300				
Resource Concerns in the Subwatershed								
Excessive Erosion on Cropland		X		X	X			
Gully Erosion on Agricultural Land			X					
Road and Roadbank Erosion		X	X	X				
Poor Soil Condition (cropland)				X	X			
Excessive Animal Waste Applied to Land								
Excessive Pesticides Applied to Land								
Excessive Sediment from Cropland				X	X			
Excessive Sediment From Roads/Roadbanks		X	X	X				
Excessive Sediment from Urban Development	X					X	X	X
Inadequate Management of Animal Wastes								
Nutrients in Surface Waters				X				
Pesticides in Surface Waters		X						
Bacteria and other organisms in surface waters				X				
Low dissolved oxygen in surface waters				X				
Livestock are overgrazing pastures		X	X	X	X		X	
Livestock Commonly have Access to Streams	X	X	X	-3	X	X	X	X

Table 5c. Estimation of Potential Sources of NPS Impairment for subwatersheds in the Lower Tallapoosa cataloging unit (0315-0110). Source categories are based upon information provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets completed in 1998, and from Construction Stormwater Authorization information provided by the Mining and NPS Unit of ADEM. *Rural landuse sources were used to develop the NPS potential. The presence of a CWA 303(d) stream segment within a subwatershed raised the subwatershed to the top of the prioritization ranking.

Subwatershed	Rank in Tallapoosa Basin* 1 = Highest Potential	Potential NPS Impairment	Potential Sources of Impairment								
			Rural Landuses						Urban / Suburban / Residential Landuses		
			Animal Husbandry	Row Crops	Pasture Runoff	Mining	Forestry Practices	Sedimentation	Urban	Development	Septic Tank Failure
010	41	L	L	L	L	L	M	L	L	L	
020	49	L	L	L	M	L	L	L	M	M	L
030	32	L	L	L	L	L	M	M	M	H	L
040	26	M	L	L	M	L	M	L	L	L	
050	25	M	L	L	M	L	M	M	M	H	L
060	41	L	L	L	L	L	M	L	L	L	L
070	24	M	L	M	M	L	M	M	L	M	L
080	7	H	L	M	L	L	H	M	L	L	M
090	45	L	M	M	L	L	L	L	M	L	L
100	5	L	L	L	M	L	M	L	L	L	L
110	31	M	L	M	L	M	L	M	M	M	L
120	4	M	L	L	L	M	M	L	L	L	L
130	40	L	L	L	M	L	L	L	L	L	L
140	1	H	M	L	H	M	L	M	L	L	L
150	11	M	L	L	M	H	L	M	M	M	L
160	45	L	L	L	M	L	L	M	M	M	
170	8	H	L	M	M	H	L	M	H	H	L
180	37	L	L	M	L	L	L	M	H	H	L

Table 6c. Physical characteristics and habitat quality of sites assessed in the Lower Tallapoosa River basin.

		LOBL-1**	PPLL-1**	PPLL-3**	PPLL-5**	SOGL-1**	SOGL-4**	SOGL-6**	CHWL-1**	CHWL-3**	CHWL-4**
Subwatershed #		030	030	030	030	030	030	030	050	050	050
Date (YYMMDD)		000530	000518	000518	000518	000530	000518	000518	000518	000517	000517
Ecoregion/ Subregion		45b	45b	45b	45b	45b	45b	45b	65i	65i	65i
Drainage area (mi^2)											
Width (ft)		15	7	20	15	15	50	50	15	60	60
Canopy Cover*		S	MO	S	MO	MO	MO	MO	50 / 50	O	O
Depth (ft)	Riffle	…..	0.3	0.8	…..	…..	0.5	0.5	…..	0.5	0.5
	Run	1.5	0.5	1.5	1.0	1.0	1.0	1.0	1.5	1.0	1.5
	Pool	3.0	1.0	2.5	1.5	3.5	2.5	3.5	3.0	2.5	2.5
Substrate (%)	Bedrock	…..	2	5	3	28	20	5	…..	38	15
	Boulder	…..	2	52	…..	…..	5	5	1	10	35
	Cobble	…..	2	10	1	…..	…..	3	5	15	15
	Gravel	…..	10	10	3	…..	10	2	5	15	15
	Sand	72	78	15	87	55	55	75	75	1	2
	Silt	8	2	5	4	10	3	5	4	15	15
	Detritus	14	2	3	2	4	6	5	5	5	3
	Clay	…..	2	…..	…..	2	1	…..	5	1	…..
	Org. Silt	6	…..	…..	…..	…..	…..	…..	…..	…..	…..
Geomorphology		GP	RR	RR	GP	GP	RR	RR	GP	RR	RR
Habitat Survey (% maximum)											
Instream Habitat Quality		30	42	92	25	50	60	45	42	92	87
Sediment Deposition		55	45	62	47	60	40	25	55	80	70
Sinuosity		32	90	77	57	80	32	37	45	92	90
Bank and Vegetative Stability		67	85	72	70	82	65	75	47	90	90
Riparian Measurements		82	32	57	25	95	100	90	100	90	70
Habitat Assessment Score		146	142	177	120	170	158	154	144	211	194
% Maximum		66	64	73	54	77	65	64	65	87	80
Assessment		G	G	G	F	E	G	G	E	E	E

** 303(d) Station

Table 6c. Physical characteristics and habitat quality of sites assessed in the Lower Tallapoosa River basin.

		CLBM-1**	CLBM-4**	TALM-32	TA5U4-25^	CUBM-2**	CUBM-3**	CUBM-4**	OAKM-2**	OAKM-3**
Subwatershed #		100	100	100	100	120	120	120	130	130
Date (YYMMDD)		000517	000511	000511	000802	000511	000511	000511	005010	000510
Ecoregion/ Subregion		65b	65b	65b	65b	65b	65b	65b	65b	65b
Drainage area (mi^2)				8						
Width (ft)		15	25	3	4	15	23	25	25	50
Canopy Cover*		MS	MO	S	O	50 / 50	S	O	O	O
Depth (ft)	Riffle	…..	0.5	…..	…..	…..	…..	0.4	0.5	…..
	Run	1.0	1.5	0.1	0.5	2.0	1.0	1.5	1.0	1.0
	Pool	2.5	5.0	0.5	…..	…..	2.5	3.0	3.0	3.0
Substrate (%)	Bedrock	…..	45	…..	…..	…..	…..	35	15	…..
	Boulder	…..	…..	…..	…..	…..	…..	….	…..	…..
	Cobble	…..	2	…..	…..	…..	…..	2	…..	5
	Gravel	5	8	…..	20	…..	…..	15	30	10
	Sand	67	40	90	58	80	75	43	45	37
	Silt	2	3	3	20	5	10	3	6	5
	Detritus	25	2	7	2	10	10	2	4	2
	Clay	1	…..	…..	…..	5	5	…..	….	40
	Org. Silt	…..	…..	…..	…..	…..	…..	…..	…..	1
Geomorphology		GP	RR	GP	GP	GP	GP	RR	RR	GP
Habitat Survey (% maximum)										
Instream Habitat Quality		45	65	23	35	30	37	85	60	40
Sediment Deposition		50	57	64	7	57	50	60	55	45
Sinuosity		57	52	43	20	62	40	80	45	30
Bank and Vegetative Stability		55	80	21	0	60	22	80	20	80
Riparian Measurements		60	90	38	10	100	75	80	75	55
Habitat Assessment Score		123	170	82	44	148	117	185	156	126
% Maximum		55	70	38	20	67	53	77	65	57
Assessment		E	E	P	P	E	G	E	E	G

** 303(d) Station

^ ALAMAP Station

Table 7c. Bioassessment results conducted in the Lower Tallapoosa River Basin (0315-0110).

Sub-watershed / Station	030 LOBL-1**	030 PPLL-1**	030 PPLL-3**	030 PPLL-5**	030 SOGL-1**	030 SOGL-4**	030 SOGL-6**	050 CHWL-1**	050 CHWL-3**	050 CHWL-4**
Macroinvertebrate community										
Date	000530	000518	000518	000518	000530	000518	000518	000518	000517	000517
# EPT families	8	2	2	2	7	10	10	8	2	6
Assessment	F	P	P	P	F	G	G	F	P	F
Fish community										
Date										
Time (min)										
Richness measures										
# species										
# darter species										
# minnow species										
# sunfish species										
# sucker species										
# intolerant species										
Composition measures										
% sunfish										
% omnivores and herbivores										
% insectivourous cyprinids										
% top carnivores										
Population measures										
Individuals										
# collected per hour										
% disease and anomalies										
IBI Score										
Assessment										

** 303(d) Station

Table 7c, Cont. Bioassessment results conducted in the Lower Tallapoosa (0315-0110) River.

Sub-watershed	100	100	100	120	120	120	130	130
Station	CLBM-1**	CLBM-4**	TALM-32	CUBM-2**	CUBM-3**	CUBM-4**	OAKM-2**	OAKM-3**
Macroinvertebrate community								
	000517	000511	000511	000511	000511	000511	005010	000510
# EPT families	6	10	5	9	9	12	10	8
Assessment	F	E	F	E	E	E	E	G
Fish community								
Time (min)								
Richness measures								
# species								
# darter species								
# minnow species								
# sunfish species								
# sucker species								
# intolerant species								
Composition measures								
% sunfish								
% omnivores and herbivores								
% insectivourous cyprinids								
% top carnivores								
Population measures								
Individuals								
# collected per hour								
% disease and anomalies								
IBI Score								
Assessment								

** 303(d) Station

Table 8. List of previous water quality assessments (by cataloging unit) conducted on streams within the Tallapoosa River basin from 1986-2000. Chemical assessments are indicated when biological assessments were not conducted.

Waterbody	*Date(s)*	*Assessment Type**	*Reference*
Upper Tallapoosa (0315-0108)			
Tallapoosa River Cleburne Co. Rd. 17	1996	C	1999a
Sanders Creek Cleburne Co.	1999	C,B	2000c
Unnamed Tributary to Cane Creek	1997	C	2000b
Green Creek Randolph Co.	1999	C,B	2000b
Middle Tallapoosa (0315-0109)			
Tallapoosa River @ Harris Dam tailrace	1996	C	1999a
Tallapoosa River @ AL Hwy 77	1996	C	1999a
Cornhouse Creek Randolph Co. T22S/R10E/S12	1996	C	1999a
Cornhouse Creek Randolph Co. T21S/R10E/S12	1996	C	1999a
Crooked Creek Clay Co. Rd. 31	1996	C	1999a
Crooked Creek @ Berwick	1996	C	1999a
Hunter Creek Randolph Co.	1997	C	2000b
Hurricane Creek Randolph Co.	1999	C,B	2000c
Chatahospee Creek Chambers Co.	1999	C	2000c
UT Chapman Creek Coosa Co.	1999	C	2000c
UT Crooked Creek Clay Co.	1999	B	2000c
Crooked Creek Clay Co.	1999	B	2000c
Hurricane Creek Randolph Co.	1995,1997,1998	B	2000a
Lower Tallapoosa (0315-0110)			
Sougahatchee Creek @ Opelika Treatment Plant	1996	C	1999a
Pepperell Branch @ US Hwy 280	1996	C	1999a
Pepperell Branch @ US Hwy 29	1996	C	1999a
Chewacla Creek @ Lee Co. Rd. 26	1996	C	1999a
Chewacla Creek @ US Hwy 80	1996	C	1999a
Chewacla Creek @ Lee Co. Rd. 22	1996	C	1999a
Uphapee Creek @ Macon Co. Rd. 53	1996	C	1999a
Uphapee Creek @ AL Hwy 49	1996	C	1999a
Calebee Creek Unnamed Macon Co. Rd. N. of Roba	1996	C	1999a
Calebee Creek @ Unnamed Macon Co. Rd. N. of Rob	1996	C	1999a
Calebee Creek @ Macon Co. Rd. 73	1996	C	1999a
Calebee Creek @ Macon Co. Rd. 40	1996	C	1999a
Line Creek @ AL Hwy 110	1996	C	1999a
Line Creek @ Macon Co. Rd. 4	1996	C	1999a
Line Creek @ US Hwy 80	1996	C	1999a
Line Creek @ Brassell RR Bridge (Macon Co.)	1996	C	1999a
Cubahatchee Creek @ US Hwy 29	1996	C	1999a
Cubahatchee Creek @ Macon Co. Rd. 2	1996	C	1999a
Cubahatchee Creek @ Macon Co. Rd. 19	1996	C	1999a
Cubahatchee Creek @ US Hwy 80	1996	C	1999a
UT Wauxamaka Creek Macon Co.	1997	C	1999a
Slaughter Creek Bullock Co.	1997	C	2000b
Old Town Creek Macon Co.	1999	C	2000b
Miller Creek Montgomery Co.	1999	C	2000b
UT Ledbetter Creek Tallapoosa Co.	1999	C	2000b
Line Creek Bullock Co.	1999	C,B	2000c
Froggy Bottom Creek Montgomery Co.	1999	C,B	2000c
Parkerson Mill Creek Lee Co.	1997	B	2000b
Robinson Creek Lee Co.	1998	B	2000b
Nash Creek Lee Co.	1998	B	2000b

* B= Biological Assessment (either fish or aquatic macroinvertebrate) C= Chemical Assessment

Table 9. Summary of the number of current Construction/Stormwater Authorizations, Noncoal <5 Acres/Stormwater Authorizations, NPDES Permits, and CAFO Registrations issued within each subwatershed of the Tallapoosa River Basin. Those subwatersheds with more than five authorizations, permits or registrations in a category are in bold.

Cataloging Unit and Subwatershed	# of Authorizations / #NPDES permits							
	Total Number of Permits and Authorizations	Construction/ Stormwater Authorizations (a)	Non-Coal Mining <5 Acres / Stormwater Authorizations (a)	Mining NPDES (c)	Municipal NPDES (b)	Semi Public/ Private NPDES (b)	Industrial Process Wastewater - NPDES Majors (b)	CAFO Registrations (c)
Upper Tallapoosa (0315-0108)								
050	5	3				1		1
060	1	1						
070	3	1						2
080	1	1						
090	1	1						
100	2	2						
110	1	1						
120	2	1			1			
130	2	1						1
140	3	2						1
150	3	2						1
160	1	1						
170	1	1						
200	2	1						1
220	3	1		1				1
240	2							2
250	5	1						4
260	2				2			
270								
Middle Tallapoosa (0315-0109)								
010	1	1						
020	1	1						
030	3	1			2			
040								
050								
060	3	3						
070	5	4			1			
080	2	2						
090								
100	3	2			1			
110	2	2						
120	2	1		1				
130	2	2						
140	2	1	1					
150	5	4	1					
160	3	2				1		
170	2	2						
180	3	3						
190	9	6			2	1		
200	11	6	3		2			
210	6	4	1			1		
220	5	3		1		1		
Lower Tallapoosa (0315-0110)								
010	2	1				1		
020	3	3						
030	29	21	3		3	1	1	
040	3	2		1				

Table 9, cont. Summary of the number of current Construction/Stormwater Authorizations, Noncoal <5 Acres/Stormwater Authorizations, NPDES Permits, and CAFO Registrations issued within each subwatershed of the Tallapoosa River Basin. Those subwatersheds with more than five authorizations, permits or registrations in a category are in bold.

Cataloging Unit and Subwatershed	# of Authorizations / #NPDES permits							
	Total Number of Permits and Authorizations	Construction/ Stormwater Authorizations (a)	Non-Coal Mining <5 Acres / Stormwater Authorizations (a)	Mining NPDES (b)	Municipal NPDES (b)	Semi Public/ Private NPDES (b)	Industrial Process Wastewater - NPDES Majors (b)	CAFO Registrations (c)
Lower Tallapoosa (0315-0110), cont.								
050	33	27	1	1	1	3		
060	3			3				
070	14	8	1	2	1	2		
080	1				1			
090	5	2		1	2			
100	8	1		2	1	4		
110	2	2						
120	3	1	1	1				
130	1	1						
140	9	2	1	6				
150	7	3		2		2		
160	5	5						
170	47	38	2	6		1		
180	14	11	1	2				

(a) Source: ADEM Mining and Nonpoint Source Unit, Field Operations, database retrieval (7/18/00)
(b) Source: 1996 CWS Report (ADEM 1999a)
(c) Source: ADEM Mining and Nonpoint Source Unit, Field Operations, database retrieval (08/11/00)

Table 10. List of stations assessed or attempted as part of the surface water quality NPS screening assessment within each cataloging unit of the Tallapoosa River Basin.

Stream Name	Station	Basin Size (sq. mi.)	Assessment Type*	Subwatershed Number	Sub-Ecoregion **	County	T / R / S	Latitude	Longitude
Upper Tallapoosa (0315-0108)									
Cedar Cr	CDRC-15	4	M, H, C	110	45a	Cleburne	T17S/R10E/S3	33.57654	-85.57780
UT to Tallapoosa R	UTTC-14	3	M, H	110	45a	Cleburne	T16S/R11E/S21	33.61358	-85.49800
Verdin Cr	VDNC-13	5	M, H	110	45a	Cleburne	T16S/R11E/234	33.58063	-85.46590
Lost Cr	LSTC-12	12	M, H	220	45a	Cleburne	T17S/R12E/S13	33.54489	-85.33320
Little Lost Cr	LTLC-11	4	M, H, C	220	45a	Cleburne	T17S/R12E/S14	33.53687	-85.35790
UT to Lost Cr	UTLC-10	3	M, H	220	45a	Cleburne	T17S/R12E/S22	33.52284	-85.36500
Bear Cr	BEAR-2	19	M, H, C	240	45a	Randolph	T19S/R11E/S13	33.37664	-85.44380
Cane Cr	CNER-3	8	M, H	240	45a	Randolph	T19S/R12E/S6	33.39805	-85.42350
Cutrose Cr	CUTR-4	14	M, H	240	45a	Randolph	T18S/R12E/S27	33.42542	-82.37440
Henson Branch	HENR-1	4	M, H	240	45a	Randolph	T19S/R11E/S14	33.36388	-85.46570
Shoal Cr	SHLR-5	18	M, H	240	45a	Randolph	T18S/R12E/S23	33.44028	-85.36040
Cohobiah Cr	COHR-8	22	M, H, C	250	45a	Randolph	T18S/R12E/S7	33.46778	-85.43460
Knokes	KNSR-9	16	M, H	250	45a	Randolph	T18S/R12E/S10	33.47123	-85.37710
Pineywoods Cr	PNYR-6	24	M, H, C	250	45a	Randolph	T18S/R11E/S29	33.43413	-85.51280
Wolf Cr	WLFR-7	5	M, H	250	45a	Randolph	T19S/R11E/S2	33.39184	-85.45540
Middle Tallapoosa (0315-0109)									
Fox Cr	FOXC-16	15	M, H	010	45a	Clay	T19S/R9E/S12	33.33448	-85.72990
Fox Cr	FOXC-17	37	M, H	010	45a	Clay	T19S/R9E/S16	33.32358	-85.65660
Cornhouse Cr (also ref sta)	CHSR-19	29	M, H, C	040	45a	Randolph	T21S/R11E/S8	33.21210	-85.51810
Cornhouse Cr	CHSR-20	56	M, H, C	040	45a	Randolph	T21S/R11E/S11	33.20943	-85.47600
Cornhouse Cr	CHSR-21	12	M, H	040	45a	Randolph	T21S/R11E/S1	33.22059	-85.45540
Wildcat Cr	WDTR-18	14	M, H	040	45a	Randolph	T20S/R11E/S32	33.23983	-85.52880
Beaverdam Cr	BVDR-23	13	M, H	050	45a	Randolph	T21S/R10E/S7	33.13184	-85.44380
No Business Cr	NBSR-22	6	M, H	050	45a	Randolph	T21S/R10E/S13	33.19425	-85.56360
Galloway Cr	GLYT-27	5	M, H	090	45a	Tallapoosa	T23N/R10E/S3	33.00873	-85.63130
Hodnett Mill Cr	HTMT-26	9	M, H	090	45a	Tallapoosa	T24N/R10E/S25	33.03656	-85.59840
Laney Cr	LNYC-25	3	M, H	090	45a	Chambers	T22S/R10E/S19	33.05852	-85.59100
UT to Tallapoosa R	UTTC-24	4	M, H	090	45a	Chambers	T22S/R10E/S8	33.08625	-85.57010
Lower Tallapoosa (0315-0110)									
Calebee Cr	CALM-33	NA	N/A	100	65b	Macon	T15N/R24E/S25	----	----
Prairie Cr	PREM-34	NA	N/A	100	65b	Macon	T15N/R24E/S21	----	-----
Persimmon Cr	PSMM-31	NA	N/A	100	65i	Macon	T16N/R23E/S24	----	----
Tallassee Cr	TALM-32	8	M, H	100	65e	Macon	T15N/R24E/S9	32.3034	-85.6451
Mathew's Cr	MTHM-30	NA	N/A	140	65a	Montgomery	T15N/R20E/S13	----	----
Panther Cr	PANB-29	NA	N/A	140	65a	Bullock	T15N/R21E/S21	----	----

* Assessment Type: C=Chemical Assessment; H= Habitat Assessment; M=Aquatic Macroinvertebrate; F=Fish Assessment;
NA= Not Assessed (dry/not flowing/beaver dam, etc)

+ data collected as part of another study

** Level IV Ecoregions of Alabama (Griffith, etal 1999)

Table 11a. List of the seven waterbody segments within the Tallapoosa River Basin on ADEM's 1998 §303(d) list due to unknown or nonpoint source impacts. Sources and causes of impairment are listed (ADEM 1999c). Three segments (in italics) are included on the 303(d) list with urban/industrial sources. (*Segments added by EPA; some information not yet available)

Waterbody	Sub-watershed	Miles impaired	Use	Support Status	Nonpoint Sources	Causes of Impairment
Upper Tallapoosa (0315-0108)						
Tallapoosa R	110	4.3	F&W	Partial	Industrial, Municipal Nonirrigated crop prod. Pasture grazing Flow reg/Mod	Organic Enrichment/ Dissolved Oxygen
Wolf Cr	250	4.0	F&W	Partial	Int. animal feeding oper.	Ammonia OE/DO Pathogens
Middle Tallapoosa (0315-0109)						
Pepperell Branch	*030*	*	*A&I*	*Unknown*	*Industrial*	*Nutrients*
Tallapoosa River	*050*	*3.0*	*F&W*	*Partial*	*Dam construction* *Flow reg/mod*	*Flow alteration*
Sugar Creek	*190*	*	*F&W*	*Unknown*	*Municipal*	*Metals (Cu), Chlorides* *Nutrients, Color*
Lower Tallapoosa (0315-0110)						
Yates Reservoir	*010*	*224*	*PWS/* *S/F&W*	*Partial*	*Industrial* *Municipal* *Nonirrigated crop prod.* *Pasture grazing*	*Organic enrichment/DO* *Nutrients*
Calebee Creek	100	*	F&W	Non	Unknown source	Siltation Other habitat alteration
Cubahatchee Creek	120	*	S/ F&W	Non	Unknown source	Siltation Other habitat alteration
Oakfuskee Creek	140	10.0	F&W	Partial	Unknown source	Siltation Flow alteration Other habitat alteration
Oakfuskee Creek	140	5.1	F&W	Partial	Unknown source	Siltation

Table 12b. Land Use Percentages from EPA Landuse data layers (EPA 1997) and local Soil and Water Conservation District (SWCD) Conservation Assessment Worksheets (ASWCC 1998) for the Tallapoosa River Basin.

			Percent Total Landuse						
Cataloging Unit	Size sq. mi.	Source	Open Water	Urban	Mining	Forest	Pasture/ Hay	Row Crops	Other
Upper Tallapoosa 0315-0108	742	EPA	1	1	0	84	10	3	1
		SWCD	*1*	*1*	*0*	*77*	*16*	*3*	*2*
Middle Tallapoosa 0315-0109	1,588	EPA	4	1	0	84	6	3	2
		SWCD	*7*	*4*	*0*	*78*	*10*	*1*	*1*
Lower Tallapoosa 0315-0110	1,693	EPA	1	1	0	67	10	11	10
		SWCD	*1*	*6*	*1*	*67*	*18*	*5*	*3*

* The sum of total Landuse for each cataloging unit may range from 99% to 101% due to rounding.

Table 13. Animal concentration estimates by animal type and estimates of the percent of acres where pesticides/herbicides applied for cataloging units in the Tallapoosa River Basin. Values are based upon information included in 1998 local SWCD Conservation Assessment Worksheets. Acres assessed are based on the total number of acres submitted on worksheets. *Percent of Acres in CU where pesticides/herbicides were applied were estimated based upon acreages and pesticides/herbicides listed on worksheets.

Cataloging Unit	# Acres Assessed (% of Total*)	Animal Concentration Per Acre* (Animal Units Per Acre+)							Reported* percent of acres where pesticides/ herbicides applied
		Cattle	Dairy	Swine	Poultry-Broilers	Poultry-Layers	Catfish	Total AU/Acre (Impairment Potential)	
Upper Tallapoosa 0315-0108	454,957 (98%)	0.06 (0.06)	--- (---)	--- (---)	49.92 (0.40)	0.88 (0.01)	0.00 (---)	0.47 (Mod)	0% ~0 Acres
Middle Tallapoosa 0315-0109	970,813 (95%)	0.04 (0.04)	0.00 (0.00)	0.00 (0.00)	1.07 (0.01)	0.53 (0.00)	0.00 (---)	0.05 (Low)	0% ~1,500 Acres
Lower Tallapoosa 0315-0110	1,064,522 (98%)	0.05 (0.05)	0.00 (0.00)	0.00 (0.00)	0.30 (0.00)	--- (---)	0.00 (---)	0.05 (Low)	3% ~30,000 Acres

* Subwatersheds less than 5000 acres were not assessed. Assessments were not received on all subwatersheds >5000 acres.
+ Animal Unit concentration estimates were calculated using Animal Unit conversion factors from Concentrated Animal Feeding Operation (CAFO) Rules (ADEM Administrative Code Ch. 335-6-7) (ADEM 1999b).

Table 14. Sedimentation estimates by source category for cataloging units in the Tallapoosa River Basin as provided by the local Soil and Water Conservation Districts (SWCD) on Conservation Assessment Worksheets (ASWCC 1998).

Cataloging Unit	# Acres Assessed (% of Total*)	Sediment Contributions *(Tons/Acre/Year)*									
		Crop Land	Sand & Gravel Pits	Mined Land	Developing Urban Land	Critical Areas	Gullies	Stream Banks	Dirt Roads	Woodlands	**Total** (Impairment Potential)
Upper Tallapoosa 0315-0108	454,957 (98%)	0.02	2.21	0.15	0.04	0.70	2.72	2.39	3.44	0.16	11.83 (Mod)
Middle Tallapoosa 0315-0109	970,813 (95%)	0.01	0.40	0.00	0.39	0.41	1.65	0.82	2.30	0.45	6.43 (Mod)
Lower Tallapoosa 0315-0110	1,064,522 (98%)	0.11	1.20	0.01	1.11	0.10	0.32	0.18	0.22	0.83	4.07 (Mod.)

* Subwatersheds less than 5000 acres were generally not assessed. Assessments were not received on all subwatersheds >5000 acres.

Table 15. Estimation of potential sources of NPS impairment for cataloging units in the Tallapoosa River Basin. Source categories are based upon information provided by the local Soil and Water Conservation Districts (SWCD) Conservation Assessment Worksheets completed in 1998, and from Construction Stormwater Authorization information provided by the Mining and NPS Unit of the ADEM. The overall potential for NPS impairment for each cataloging unit was determined utilizing ranked sums of the individual rural landuse categories.

Cataloging Unit	Cataloging Unit Potential for NPS Impairment	Potential Sources of Impairment								
		Rural Landuses						Urban / Suburban / Residential Landuses		
		Animal Husbandry	Row Crops	Pasture Runoff	Mining	Forestry Practices	Sedimentation	Development	Urban	Septic Tank Failure
Upper Tallapoosa 0315-0108	M	M	L	M	L	L	M	L	L	L
Middle Tallapoosa 0315-0109	L	L	L	L	L	M	M	L	M	L
Lower Tallapoosa 0315-0110	M	L	L	M	M	M	M	M	M	L

Table 16. Summary of Assessments conducted as part of the Tallapoosa Basin Nonpoint Source Screening Assessment Project. Includes data collected as a part of the Tallapoosa Basin NPS project and other available biological and chemical data collected since 1995.

Subwatershed	Station Number	*Habitat*	*Macroinv.*	*Fish*	*Chemical Data Available*	Overall Assessment
Upper Tallapoosa (0315-0108)						
110	CDRC-15	Fair	Good	Fair-Good	X	Fair
110	UTTC-14	Fair	Good	---	---	Good
110	VDNC-13	Good	Good	---	---	Good
110	TALC-1**	Good	Excel	---	X	Excel
130	TALC-5**	Good	Fair	---	X	Fair
220	LSTC-12	Good	Good	---	---	Good
220	LTLC-11	Fair	Fair	Fair-Good	X	Fair
220	UTLC-10	Good	Good	---	---	Good
240	BEAR-2	Good	Fair	Fair	X	Fair
240	CNER-3	Good	Good	---	---	Good
240	CUTR-4	Good	Fair	Fair-Good	X	Fair
240	HENR-1	Excel	Excel	---	---	Excel
240	SHLR-5	Good	Good	---	---	Good
250	COHR-8	Excel	Fair	Fair	X	Fair
250	KNSR-9	Good	Good	---	---	Good
250	PNYR-6	Fair	Good	Fair	X	Fair
250	WLFR-7	Excel	Excel	---	---	Excel
Middle Tallapoosa (0315-0109)						
10	FOXC-16	Good	Good	---	---	Good
10	FOXC-17	Good	Excel	---	---	Excel
40	CHSR-19	Excel	Good	---	X	Good
40	CHSR-20	Fair	Good	Fair-Good	X	Fair
40	CHSR-21	Good	Good	---	---	Good
40	WDTR-18	Excel	Good	---	---	Good
50	BVDR-23	Good	Good	---	---	Good
50	NBSR-22	Excel	Excel	---	---	Excel
90	GLYT-27	Good	Good	---	---	Good
90	HTMT-26	Excel	Good	---	---	Good
90	LNYC-25	Excel	Excel	---	---	Excel
90	UTTC-24	Good	Good	---	---	Good
Lower Tallapoosa (0315-0110)						
100	CALM-33	---	---	---	---	---
100	PREM-34	---	---	---	---	---
100	PSMM-31	---	---	---	---	---
100	TALM-32	Fair	Fair	---	---	Fair
140	MTHM-30	---	---	---	---	---
140	PANB-29	---	---	---	---	---

* Reference Site
** 303(d) station

Table 17. Priority listing of subwatersheds assessed as part of the Tallapoosa River Basin Nonpoint Source Screening Assessment Project.

Priority^	Subwatershed Number	Subwatershed Name	Station Assessment (Mod. Imp. / Sev. Imp.)	Suspected Cause(s)
Upper Tallapoosa (0315-0108)				
L	110	Tallapoosa River	Mod. Imp.	Sedimentation
L	220	Lost Creek	Mod. Imp.	Nutrient/Biological enrichment
L	240	Upper Little Tallapoosa R.	Mod. Imp.	Biological enrichment
L	250	Cohobadiah Creek	Mod. Imp.	unkown
Middle Tallapoosa (0315-0109)				
L	040	Cornhouse Creek	Mod. Imp.	Sedimentation/Biological enrichment
Lower Tallapoosa (0315-0110)				
M	100	Calebee Creek	Mod. Imp.	Nutrient/Biological enrichment

^ H = High Priority; M = Medium Priority; L = Low Priority

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APPENDICES

Appendix Aa.

EPA Region IV Land Cover Data Set
South-Central Portion

VERSION 1

INTRODUCTION

The main objective of this project was to generate a generalized and consistent (i.e. seamless) land cover data layer for the South-central portion of EPA Region IV, which includes most of Alabama, Western Georgia, Eastern Mississippi, and the Florida Panhandle. This data set was developed by personnel at the EROS Data Center (EDC), Sioux Falls, SD. The project was initiated during the summer of 1997, and a first draft product was completed in November, 1997 (Version 1). The write-up that follows pertains to Version 1. Questions about the data set can be directed to Terry Sohl (EDC; email sohl@edcmail.cr.usgs.gov; telephone 605-594-6537).

GENERAL PROCEDURES

Data sources:

The primary source of data for this project was leaves-off (primarily spring) Landsat TM data, acquired in 1988, 1990, 1991, 1992 and 1993. While most of the leaves-off data sets were acquired in spring, a few were from late autumn due to the difficulties in acquiring cloud-free TM data. These data sets were referenced to Albers Conical Equal Area coordinates (see table 1). Additionally, leaves-on (summer) TM data sets were acquired and referenced. The south-central and north-central portions of Region IV were processed as one unit and later split for distribution purposes; in total, 40 TM scenes were analyzed. Data sets used are provided in Table 2. In addition, other intermediate scale spatial data were acquired and utilized. These included 3-arc second Digital Terrain Elevation Dataset (DTED) and derivative DTED products (slope, shaded relief, and relative elevation), population density and housing units density data at the census block level, USGS land use and land cover data (LUDA), National Wetlands Inventory (NWI) data, and STATSGO soils information (available water and organic carbon).

Methods:

The general procedure of this project was to (1) mosaic multiple spring TM scenes and classify them using an unsupervised classification algorithm, (2) interpret and label classes into sixteen land cover categories using aerial photographs as reference data, (3) resolve confused classes using the appropriate ancillary data source(s), and (4) incorporate land cover information from leaves-on TM data, NWI data, and other data sources to refine and augment the "basic" classification developed above.

The entire area (north-central and south-central portions of Region IV) was analyzed as one large mosaic consisting of 20 leaves-off scenes. For mosaicking purposes, a base scene was selected, and other scenes were normalized to mimic spectral properties of the base scene following histogram equalization using pixels in regions of spatial overlap.

Following mosaicking, mosaicked scenes were clustered into 100 spectrally distinct classes using the Cluster algorithm developed by Los Alamos [1]. Clusters were assigned into

Anderson level 1 and 2 land cover classes using National High Altitude Photography program (NHAP) aerial photographs as reference information. Almost invariably, individual spectral classes were confused between/among two or more "targeted" land cover classes. Separation of spectral classes into meaningful land cover units was accomplished using ancillary data. Briefly, for a given confused spectral class, digital values of the various ancillary data layers were compared to determine: (1) which data layers were the most effective for splitting the confused class into the appropriate land cover units, and (2) the appropriate thresholds for splitting the classes. Models were then developed using one to several data sets to split each confused class into the desired land cover categories. As an example, a spectral class might be confused between row crop and high-intensity residential areas. In order to split this particular class into more meaningful land cover units, population density and housing units density data were assessed to determine if they could be used to split the class into the respective categories, and if so, to define the appropriate thresholds to be used in the class splitting model.

Following the above class splitting steps, a "first order" classification product was constructed from the clustered leaves-off data. Leaves-on data were then clustered with the goal of refining certain land cover features not easily discriminated using leaves-off TM data. Land cover classes that were spatially but not spectrally distinct in the leaves-off data (barren areas, clearcuts) were digitized off the screen from the leaves-on data. These digitized data layers were used in conjunction with clustered leaves-on data to define barren and cleared areas which were then incorporated into the classification product. A digitized layer outlining wetland areas was also used to refine the wetlands information. "Other grasses", consisting largely of parks, urban lawns, and golf courses, were defined at this point by using hand-digitized information and LUDA urban information to separate "other grasses" from "hay/pasture". Similarly, high-intensity residential and high-intensity commercial/industrial areas were separated by using a threshold in the population density data.

The resulting classification (Version 1) includes the following. Please note not all classes were used for this region:

Water
- 11 Open Water
- 12 Perennial Ice/Snow

Developed
- 21 Low Intensity Residential
- 22 High Intensity Residential
- 23 High Intensity Commercial/Industrial/Transportation

Barren
- 31 Bare Rock/Sand
- 32 Quarries/Strip Mines/Gravel Pits
- 33 Transitional

Natural Forested Upland (non-wet)
- 41 Deciduous Forest
- 42 Evergreen Forest
- 43 Mixed Forest

Natural Shrubland

51 Deciduous Shrubland
52 Evergreen Shrubland
53 Mixed Shrubland
Non-Natural Woody
61 Planted/Cultivated (orchards, vineyards, groves)
Herbaceous Upland Natural/Semi-Natural Vegetation
71 Grassland/Herbaceous
Herbaceous Planted/Cultivated
81 Pasture/Hay
82 Row Crops
83 Small Grains
84 Bare Soil
85 Other Grasses (Urban/recreational; e.g. parks, lawns, golf courses)
Wetlands
91 Woody Wetlands
92 Herbaceous Wetlands

Current definitions of the classes are as follows; percentages given must be viewed as guidelines.

Water - All areas of open water or permanent ice/snow cover

11. Water - all areas of open water, generally with less than 25% cover of vegetation/land cover.

12. Perennial Ice/Snow - all areas characterized by year-long surface cover of ice and/or snow.

Developed - areas characterized by high percentage (approximately 30% or greater) of construction materials (e.g. asphalt, concrete, buildings, etc).

21. Low Intensity Residential - Land includes areas with a mixture of constructed materials and vegetation or other cover. Constructed materials account for 30-80 percent of the total area.

These areas most commonly include single-family housing areas, especially suburban neighborhoods. Generally, population density values in this class will be lower than in high intensity residential areas.

22. High Intensity Residential - Includes heavily built-up urban centers where people reside.

Examples include apartment complexes and row houses. Vegetation occupies less than 20 percent of the landscape. Constructed materials account for 80-100 percent of the total area. Typically, population densities will be quite high in these areas.

23. High-Intensity Commercial/Industrial/Transportation - Includes all highly developed lands not classified as High Intensity Residential, most of which is Commercial/Industrial/Transportation.

Barren - Bare rock, sand, silt, gravel, or other earthen material with little or no vegetation regardless of its inherent ability to support life. Vegetation, if present, is more widely spaced and scrubby than that in the vegetated categories.

31. Bare Rock / Sand - Includes areas of bedrock, desert pavement, scarps, talus, slides, volcanic material, glacial debris, and other accumulations of rock without vegetative cover.

32. Quarries / Strip Mines / Gravel Pits - Areas of extractive mining activities with significant surface expression.

33. Transitional - Areas dynamically changing from one land cover to another, often because of land use activities. Examples include forest lands cleared for timber, and may include both freshly cleared areas as well as areas in the earliest stages of forest regrowth.

Natural Forested Upland (non-wet) - A class of vegetation dominated by trees generally forming > 25 percent canopy cover.

41. Deciduous Forest - Areas dominated by trees where 75 percent or more of the tree species shed foliage simultaneously in response to an unfavorable season.

42. Evergreen Forest - Areas dominated by trees where 75 percent or more of the tree species maintain their leaves all year. Canopy is never without green foliage.

43. Mixed Forest - Areas dominated by trees where neither deciduous nor evergreen species represent more than 75 percent of the cover present.

Natural Shrubland - A class of vegetation defined by areas dominated by shrubs generally less than 6 meters tall with individuals or clumps not touching to interlocking. The species may include true shrubs or trees and shrubs that are small or stunted because of environmental conditions. Shrub canopy cover is generally greater than 25 percent when tree canopy is less than 25 percent. Shrub cover may be less than 25 percent if cases when the cover of each other life form (herbaceous, tree) is less than 25 percent and shrubs exceed the cover of the other life forms. Not currently represented in the central portion of the EPA Region IV data set.

51. Deciduous Shrubland - Areas dominated by shrubs where 75 percent or more of the shrub species shed foliage simultaneously in response to an unfavorable season.

52. Evergreen Shrubland - Areas dominated by shrubs where 75 percent or more of the shrub species maintain their leaves all year. Canopy is never without green foliage.

53. Mixed Shrubland - Areas dominated by shrubs where neither deciduous or evergreen species represent more than 75 percent of the cover present.

Non-Natural Woody - Areas dominated by non-natural woody plant species such as orchards, vineyards, and groves. The classification of Non-Natural Woody is subject to availability of sufficient ancillary data to differentiate from natural woody vegetation. Not currently represented in the central portion of the EPA Region IV data set.

61. Planted / Cultivated - Orchards, Vineyards, and tree plantations planted for the production of fruit, nuts, fiber (wood), or ornamental.

Herbaceous Upland Natural/Semi-Natural Vegetation - Areas comprised of natural or semi-natural upland herbaceous vegetation.

71. Grassland/Herbaceous - A class of vegetation dominated by natural upland grasslands, i.e. neither planted or cultivated by humans, as well as other non-woody

plants known as herbs (graminoids, forbs, and ferns). The grasses/herbs generally form at least 25 percent cover. Trees and shrubs generally have less than 25 percent cover. In rare cases, herbaceous cover is less than 25 percent but exceeds the combined cover of other life forms present.

Herbaceous Planted / Cultivated - Areas dominated with vegetation which has been planted in its current location by humans, and/or is treated with annual tillage, a modified conservation tillage, or other intensive management or manipulation. The majority of vegetation in these areas is planted and/or maintained for the production of food, feed, fiber, or seed.

81. Pasture / Hay - Grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops.
82. Row Crops - All areas used for the production of crops, such as corn, soybeans, vegetables, tobacco, and cotton.
83. Small Grains - All areas used for the production of graminoid crops such as wheat and rice. Not represented in the central portion of the EPA Region IV data set.
84. Bare Soil - Areas within planted or cultivated regions that have been tilled or plowed and do not exhibit any visible cover of vegetation. Not represented in the central portion of the EPA Region IV data set.
85. Other Grasses - Vegetation planted in developed settings for recreation, erosion control, or aesthetic purposes. Examples include parks, lawns, and golf courses.

Wetlands - Non-woody or woody vegetation where the substrate is periodically saturated with or covered with water as defined by Cowardin et al. [2].

91. Woody Wetlands - Areas of forested or shrubland vegetation where the soil or substrate is periodically saturated with or covered with water as defined by Cowardin et al. [2].
92. Emergent Woodlands - Non-woody vascular perennial vegetation where the soil or substrate is periodically saturated with or covered with water as defined by Cowardin et al. [2].

CAVEATS AND CONCERNS

While we believe that the approach taken has yielded a very good general land cover classification product for a very large region, it is important to indicate to the user where there might be some potential problems. The biggest concerns are listed below:

1) Quantitative accuracy checks have yet to be conducted. We plan to make comparisons with existing data sets in order to develop a general overview regarding the quality of the land cover data set developed. Feedback from users of the data will be greatly appreciated.

2) Some of the leaves-off data sets were not temporally ideal. In this project, leaves-off data sets are heavily relied upon for discriminating between hay/pasture and row crop, and also for discriminating between forest classes. The success of discriminating between these classes

using leaves-off data sets hinges on the time of data acquisition. When hay/pasture areas are non-green, they are not easily distinguishable from other agricultural areas using remotely sensed data. However, there is a temporal window during which hay and pasture areas green up before most other vegetation (excluding evergreens, which have different spectral properties); during this window these areas are easily distinguishable from other crop areas. The discrimination between evergreen and deciduous forest is likewise optimized by selecting data in a temporal window where deciduous vegetation has yet to leaf out. Due to double-cropping practices and the long-growing season in this portion of the country, it's difficult to acquire a single-date of imagery that adequately differentiates between both deciduous/conifer and hay-pasture/row crop.

3) The data sets used cover a range of years, and changes that have taken place across the landscape over the time period may not have been captured. While this is not viewed as a major problem for most classes, it is possible that some land cover features change more rapidly than might be expected (e.g. hay one year, row crop the next).

4) Wetlands classes are extremely difficult to extract from Landsat TM spectral information alone. The use of ancillary information such as National Wetlands Inventory (NWI) data is highly desireable. NWI data were not available in digital format for much of this area. Manual digitizing was used in combination with spectral information to derive much of the wetlands information, a procedure that isn't able to provide the level of detail of NWI data. It is suspected that forested wetlands are underestimated in areas where NWI wasn't available.

5) Accurate definition of the transitional barren class was extremely difficult. The majority of pixels in this class correspond to clear-cut forests in various stages of regrowth. Spectrally, fresh clear-cuts are very similar to row-crops in the leaves-off data. Manual correction of coding errors was performed to improve differentiation between row-crops and clear-cuts, but some errors may still be found. As regrowth occurs in a clear-cut region, the definition of transitional barren verses a forested class becomes problematic. An attempt was made to classify only fresh clear-cuts or those in the earliest stages of regrowth, but there are likely forested regions classed as transitional barren and vice versa.

6) Due to the confusion between clear-cuts, regrowth in clear-cuts, forested areas, and shrublands, no attempts were made to populate the shrubland classes. Any shrubland areas that exist in this area are classed in their like forest class, i.e. deciduous shrubland is classed as deciduous forest, etc.

ACKNOWLEDGMENTS

This work was performed by the Hughes STX Corporation under U.S. Geological Survey Contract 1434-92-C-40004.

REFERENCE

Appendix Aa.

[1] Kelly, P.M., and White, J.M., 1993. Preprocessing remotely sensed data for efficient analysis and classification, Applications of Artificial Intelligence 1993: Knowledge-Based Systems in Aerospace and Industry, Proceedings of SPIE, 1993, 24-30.

[2] Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe, 1979. Classification of Wetlands and Deepwater Habitats of the United States, Fish and Wildlife Service, U.S. Department of the Interior, Washington, D.C.

Table 1. Projection Information

The initial Landsat TM mosaics, all ancillary data sets, and the final classification product are all map- registered to an Albers Conical Equal Area projection. The following represents projection information for the final classification product:

Projection: Albers Conical Equal Area

Datum: NAD83
Spheroid: GRS80
Standard Parallels: 29.5 degrees North Latitude
45.5 degrees North Latitude
Central Meridian: 96 degrees West Longitude
Origin of the Projection: 23 degrees North Latitude
False Easting: 0 meters
False Northing: 0 meters
Number of Lines: 17220 Number of Samples: 21773 Number of Bands: 1
Pixel size: 30 X 30 meters

Upper Left Corner:	591953 meters (X),	1301000 meters (Y)
Upper Right Corner:	1245113 meters (X),	1301000 meters (Y)
Lower Left Corner:	591953 meters (X),	784430 meters (Y)
Lower Right Corner:	1245113 meters (X),	784430 meters (Y)

Table 2. MRLC Landsat thematic mapper (TM) data sets used to develop north-central and south-central portions of the EPA Region IV data set.

No asterisk represents scenes used in south-central portion only
* Represents scenes used in north-central portion only.
** Represents scenes used in both the north-central and south-central portion

Path/Row	Date	EOSAT-ID
19/33	12/14/90	5019033009034810*
19/33	09/20/94	5019033009426310*
19/34	10/03/93	5019034009327610*

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19/34	11/20/93	5019034009332410*
19/35	11/12/90	5019035009031610*
19/35	09/30/92	5019035009227410*
19/36	09/28/91	5019036009127110**
19/36	11/17/92	5019036009232210**
19/37	03/09/93	5019037009306810
19/37	10/03/93	5019037009327610
19/38	02/16/91	5019038009104710
19/38	10/03/93	5019038009327610
19/39	02/16/91	5019039009104710
19/39	10/03/93	5019039009327610
20/33	08/02/91	5020033009121410*
20/33	11/22/91	5020033009132610*
20/34	11/29/88	5020034008833410*
20/34	08/02/91	5020034009121410*
20/35	11/29/88	5020035008833410*
20/35	10/07/92	5020035009228110*
20/36	03/11/91	5020036009107010**
20/36	07/22/93	5020036009320310**
20/37	11/29/88	5020037008833410
20/37	10/23/92	5020037009229710
20/38	02/10/92	5020038009204110
20/38	10/23/92	5020038009229710
20/39	01/22/91	5020039009102210
20/39	11/06/91	5020039009131010
21/34	04/05/92	5021034009209610*
21/34	10/14/92	5021034009228810*
21/35	04/05/92	5021035009209610*
21/35	08/30/93	5021035009324210*
21/36	09/10/91	5021036009125310**
21/36	12/15/91	5021036009134910**
21/37	02/03/93	5021037009303410
21/37	10/01/93	5021037009327410
21/38	02/14/91	5021038009104510
21/38	10/12/91	5021038009128510
21/39	09/26/91	5021039009126910
21/39	02/01/92	5021039009203210

APPENDIX B-1.

ADEM-FIELD OPERATIONS-ECOLOGICAL STUDIES
RIFFLE/RUN HABITAT ASSESSMENT FIELD DATA SHEET

Name of Waterbody ______________________ Date: ______________

Station Number ______________ Investigators ______________________

Habitat Parameter	Category			
	Optimal	Suboptimal	Marginal	Poor
1 **Instream Cover**	>50% mix of boulder, cobble, submerged logs, undercut banks, or other stable habitat.	50-30% mix of boulder, cobble, or other stable habitat; adequate habitat.	30-10% mix of boulder, cobble, or other stable habitat; habitat availability less than desirable.	<10% mix of boulder, cobble, or other stable habitat; lack of habitat is obvious.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2 **Epifaunal surface**	Well developed riffle and run; riffles as wide as stream and length extends 2x the width of stream; abundance of cobble.	Riffle is as wide as stream but length is <2 times width; abundance of cobble; boulders and gravel common.	Run area may be lacking; riffle not as wide as stream and its length is <2 times the stream width; gravel or large boulders and bedrock prevalent; some cobble present.	Riffles or run virtually non existent; large boulders and bedrock prevalent; cobble lacking.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3 **Embeddedness**	Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment.	Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment.	Gravel, cobble and boulder particles are 50-75% surrounded by fine sediment.	Gravel, cobble and boulder particles are >75% surrounded by fine sediment.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4 **Velocity/Depth Regimes**	All 4 velocity/depth regimes present (slow-deep, slow-shallow, fast-shallow, fast-deep).	Only 3 of 4 regimes present. (if fast-shallow is missing, score lower.)	Only 2 of 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low).	Dominated by 1 velocity/depth regime (usually slow-deep).
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5 **Channel Alteration**	No Channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization (>20 years) may be present, but not recent.	New embankments present on both banks; and 40 - 80% of stream reach is channelized and disrupted.	Banks shored with gabion or cement; >80% of the stream reach channelized and disrupted.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6 **Sediment Deposition**	Little or no enlargement of islands or point bars and less than 5 % of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from coarse gravel; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel coarse sand on old and new bars; 30-50% of the bottom affected; sediment deposits at obstruction, constriction,, and bends; moderate deposition of pools prevalent.	Heavy deposits of fine material, increased bar development; > 50% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7 **Frequency of Riffles**	Occurrence of riffles relatively frequent; distance between riffles divided by stream width equals 5-7; variety of habitat.	Occurrence of riffles relatively infrequent; distance between riffles divided by the stream width equals 7-15.	Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided stream width is 15-25.	Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by stream width >25.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8 **Channel flow Status**	Water reaches base of both lower banks and minimal amount t of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
9 **Condition of Banks**	Banks stable; no evidence of erosion or bank failure.	Moderately stable; infrequent, small areas of erosion mostly healed over.	Moderately unstable; up to 60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent Along straight section and bends; on side slopes, 60-100% of bank has erosional scars.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
10 **Bank Vegetative Protection**	>90% of the stream bank surfaces covered by vegetation.	90-70% of the streambank surfaces covered by vegetation.	70-50% of the stream bank surfaces covered by vegetation.	<50% of the streambank surfaces covered by vegetation.
Score (LB) ______	10 9 8	7 6	5 4 3	2 1 0
Score (RB) ______	10 9 8	7 6	5 4 3	2 1 0
11 **Grazing or other disruptive pressure**	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally.	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of stream bank vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.
Score (LB) ______	10 9 8	7 6	5 4 3	2 1 0
Score (RB) ______	10 9 8	7 6	5 4 3	2 1 0
12 **Riparian vegetative zone (each bank)**	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 18-12 meters; human activities have impacted zone only minimally.	Width of riparian zone 12-6 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters;: little or no riparian vegetation due to human activities.
Score (LB) ______	10 9 8	7 6	5 4 3	2 1 0
Score (RB) ______	10 9 8	7 6	5 4 3	2 1 0

APPENDIX B-2.

ADEM-FIELD OPERATIONS-ECOLOGICAL STUDIES
GLIDE/POOL HABITAT ASSESSMENT FIELD DATA SHEET

Name of Waterbody ______________________ Date: ______________

Station Number ______________ Investigators ______________________

Habitat Parameter	Category			
	Optimal	Suboptimal	Marginal	Poor
1 **Instream Cover**	> 50% mix of snags, submerged logs, undercut banks, or other stable habitat; rubble, gravel may be present.	50-30% mix of stable habitat; adequate habitat for maintenance of populations.	30-10% mix of stable habitat; habitat availability less than desirable.	<10% stable habitat; lack of habitat is obvious.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
2 **Pool Substrate Characterization**	Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common.	Mixture of soft sand, mud, or clay; mud may be dominant ; some root mats and submerged vegetation present.	All mud or clay or sand bottom; little or no root mat; no submerged vegetation.	Hard-pan clay or bedrock; no root mat or vegetation.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
3 **Pool Variability**	Even mix of large-shallow, large-deep, small-shallow, small-deep pools present.	Majority of pools large-deep; very few shallow.	Shallow pools much more prevalent than deep pools.	Majority of pools small-shallow or pools absent.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4 **Channel Alteration**	No Channelization or dredging present.	Some channelization present, usually in areas of bridge abutments; evidence of past channelization (>20 years) may be present, but not recent.	New embankments present on both banks; channelization may be extensive, usually in urban or agriculture lands; and > 80% of stream reach is channelized and disrupted.	Extensive channelization; banks shored with gabion or cement; heavily urbanized areas; instream habitat greatly altered or removed entirely.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
5 **Sediment Deposition**	<20% of bottom affected; minor accumulation of fine and coarse material at snags and submerged vegetation; little or no enlargement of islands or point bars.	20-50% affected; moderate accumulation; substantial sediment movement only during major storm event; some new increase in bar formation.	50-80% affected; major deposition; pools shallow, heavily silted; embankments may be present on both banks; frequent and substantial sediment movement during storm events.	Channelized; mud, silt, and/or sand in braided or non-braided channels; pools almost absent due to deposition.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
6 **Channel Sinuosity**	Bends in stream increase stream length 3 to 4 times longer than if it was in a straight line.	Bends in stream increase stream length 2 to 3 times longer than if it was in a straight line.	Bends in stream increase the stream length 2 to 1 times longer than if it was in a straight line.	Channel straight; waterway has been channelized for a long distance.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
7 **Channel flow Status**	Water reaches base of both lower banks and minimal amount t of channel substrate is exposed.	Water fills >75% of the available channel; or <25% of channel substrate is exposed.	Water fills 25-75% of the available channel and/or riffle substrates are mostly exposed.	Very little water in channel and mostly present as standing pools.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8 **Condition of Banks**	Banks stable; no evidence of erosion or bank failure; <5% affected.	Moderately stable; infrequent, small areas of erosion mostly healed over; 5-30% affected.	Moderately unstable; 30-60% of banks in reach have areas of erosion.	Unstable; many eroded areas; "raw" areas frequent Along straight section and bends; on side slopes, 60-100% of bank has erosional scars.
Score ______	20 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
9 **Bank Vegetative Protection (each bank)**	> 90% of the stream bank surfaces covered by vegetation.	90-70% of the streambank surfaces covered by vegetation.	70-50% of the stream bank surfaces covered by vegetation.	<50% of the streambank surfaces covered by vegetation.
Score (LB) ______	10 9 8	7 6	5 4 3	2 1 0
Score (RB) ______	10 9 8	7 6	5 4 3	2 1 0
10 **Grazing or other disruptive pressure (each bank)**	Vegetative disruption, through grazing or mowing, minimal or not evident; almost all plants allowed to grow naturally.	Disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining.	Disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining.	Disruption of stream bank vegetation is very high; vegetation has been removed to 2 inches or less in average stubble height.
Score (LB) ______	10 9 8	7 6	5 4 3	2 1 0
Score (RB) ______	10 9 8	7 6	5 4 3	2 1 0
11 **Riparian vegetative zone Width (each bank)**	Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clearcuts, lawns, or crops) have not impacted zone.	Width of riparian zone 18-12 meters; human activities have impacted zone only minimally.	Width of riparian zone 12-6 meters; human activities have impacted zone a great deal.	Width of riparian zone <6 meters; little or no riparian vegetation due to human activities.
Score (LB) ______	10 9 8	7 6	5 4 3	2 1 0
Score (RB) ______	10 9 8	7 6	5 4 3	2 1 0

APPENDIX C.

ADEM-FIELD OPERATIONS-ECOLOGICAL STUDIES
PHYSICAL CHARACTERIZATION / WATER QUALITY FIELD DATA SHEET-Wadeable Streams

Station # ________ -- ________ Collector Names ____________________

Reach Description: ____________________

WATERSHED CHARACTERISTICS

Watershed Land Use: Forest Pasture Ag. Residential Commercial Ind. Other: ________

Local Watershed Erosion: None Slight Moderate Heavy

Local Watershed NPS Pollution: No Evidence Potential sources Obvious Sources

REACH CHARACTERISTICS

Land Use at Reach: Pasture Crops Residential Forest Commercial Ind. Other: ________

Est. Stream Width: ______ ft Depth: Riffle: ______ ft Run: ______ ft Pool: ______ ft

Length of Reach: ______ ft Stream Gradient: ______ ft drop in 25 feet (representative seg..) Channelized: Y N

Rosgen Stream Type: ______ Bank Height: ______ ft High Water Mark: ______ ft Dam Present: Y N

Prev. 7 day precip: Fl. Flood Heavy Mod. light none

Canopy Cover: Open 0-20% Mostly Open 20-40% Est. 50/50 40-60% Mostly Shaded 60-80% Shaded 80-100% Canopy Type: ________

SEDIMENT / SUBSTRATE CHARACTERISTICS

Odors: Normal Sewage Petroleum Chemical Anaerobic Other: ________

Oils: Absent Slight Moderate Profuse

Deposits: Sludge Sawdust Paper-Fiber Sand Relict Shells Other: ________

Are the undersides of stones not deeply embedded, black? Y N N/A

WATER QUALITY CHARACTERISTICS

Water Odors: Normal Sewage Petroleum Chemical Other: ________

Water Surface Oils: None Slick Sheen Globs Flecks

Water Color: Clear Sl. Tannic Mod. Tannic Dk Tannic Green Gray Other: ________

Weather Conditions: Clear P/C Mostly Cloudy Cloudy Raining

Biological Indicators: Periphyton Macrophytes Fish Filamentous Slimes Others

PHOTOS Roll # ______

Picture # ______ Description ________ Picture # ______ Description ________

EST. % COMPOSITION IN SAMPLING AREA Inorganic + Organic = 100% Type	Diameter	Percent	*PEBBLE COUNT (100 Count)*	*WATER QUALITY*		
				Time	______	hrs
Bedrock		______ %				
Boulder	>10 in.	______ %		T-Air	______	C
Cobble	2.5 - 10 inches	______ %		T-H2O	______	C
Gravel	0.1 - 2.5 inches	______ %				
Sand	gritty	______ %		pH	______	s.u.
Silt		______ %				
Clay	slick	______ %		Cond.	______	umhos
Detritus	Stick, Wood	______ %			______	umhos @ 25c
	CPOM	______ %				
Mud-Muck	fine organic	______ %		D.O.	______	mg/l
Marl	Gray Shell Frag.	______ %		Turb.	______	ntu

Appendix D-1. Results of physical and chemical measurements and water quality samples collected from stations included as part of the nonpoint source watershed screening of the Tallapoosa Basin, 2000.

Sub-Watershed Number	Station Number	Date (YYMMDD)	Time (24hr)	Water Temp. (C)	Dissolved Oxygen (mg/l)	pH (s.u.)	Conductivity (umhos)	Turbidity (ntu)	Flow (cfs)	Fecal Coliform (col/100ml)	TSS (mg/l)	TDS (mg/l)	NO2/ NO3 (mg/l)	NH_3-N (mg/l)	T-PO4 (mg/l)	TKN (mg/l)	BOD-5 mg/l	Alkalinity (mg/l)	Hardness mg/l
Upper Tallapoosa (0315-0108)																			
220	LTLC-11	00914	0840	22	6.2	6.7	66	60		1467	88	62	0.485	0.218	0.1	0.878	1.3	3	12.9
220	LTLC-11du	00914	0840	21.5	6.1	6.7	65	65		1533	11	27	0.246	<0.015	0.03	0.289	1.2	5	6.9
240	BEAR-2	00913	1420	24	7.1	7.6	42	7	1.5	310	2	43	0.135	<0.015	0.05	0.766	1.8	11	8.1
240	CUTR-4	00913	0730	21	6.2	6.6	45	7	0.2	153	9	42	0.201	<0.015	0.04	0.349	0.6	5	9.34
250	COHR-8	00913	1610	21	8.1	7	40	3	0.8	103	3	38	0.043	<0.015	0.02	0.203	0.6	15	12.2
250	PNYR-6	00913	1500	23	7.7	7	31	8		310	11	34	0.485	0.172	0.09	1.19	1.7	4	13
Middle Tallapoosa (0315-0109)																			
040	CHSR-19	00913	1145	22	7.2	6.5	53	7		87	3	50	0.032	0.07	0.01	0.227	0.3	12	16.3
040	CHSR-20	00913	1240	24	7.3	6.8	48	6	0.7	23	2	41	0.03	<0.015	0.01	0.17	2	10	12.7
060	HCR-1*	00913	1100	21	8.5	6.4	25	7	1.5	43	9	42	0.054	<0.015	0.04	<0.15	0.6	5	9

* Reference Site

Appendix D-2. Results of water quality samples collected for metals analysis from stations included as part of the nonpoint source watershed screening of the Tallapoosa Basin, 2000.

Sub-Watershed Number	Station Number	Date (YYMMDD)	Time (24hr)	Aluminum (mg/l)	Calcium (mg/l)	Iron (mg/l)	Magnesium (mg/l)	Manganese (mg/l)
Upper Tallapoosa (0315-0108)								
220	LTLC-11	00914	0840	<0.2	2.79	0.593	1.43	0.025
220	LTLC-11dup	00914	0840	<0.2	1.33	1.05	0.87	0.054
240	BEAR-2	00913	1420	<0.2	1.43	0.767	1.1	0.21
240	CUTR-4	00913	0730	<0.2	1.96	0.9	1.08	0.04
250	COHR-8	00913	1610	<0.2	2.74	0.386	1.31	<0.020
250	PNYR-6	913	1500	<0.2	2.82	1.18	1.43	0.03
Middle Tallapoosa (0315-0109)								
040	CHSR-19	00913	1145					
040	CHSR-20	00913	1240	<0.2	2.5	1.03	1.56	0.49
060	HCR-1*	00913	1100					

Appendix D-3. Field Parameters collected from stations included as part of the nonpoint source watershed screening of the Tallapoosa Basin, 2000.

Sub-Watershed Number	Station Number	Date (YYMMDD)	Time (24hr)	T-Air C°	T-H_2O C°	pH *s.u.*	Dissolved Oxygen *mg/l*	Conductivity *umhos @25c*	Turbidity *NTU*
Upper Tallapoosa (0315-0108)									
110	CDRC-15	000607	1555	25	23	7.0	8.7	51	11
110	UTTC-14	000613	1130	25	22	6.5	8.2	35	4.6
110	VDNC-13	000607	1500	24	21	7.2	8.7	51	5.8
220	LSTC-12	000607	0820	25	20	7.1	8.1	37	11.4
220	LTLC-11	000607	1030	22	21	6.9	7.7	46	9.7
220	UTLC-10	000607	1330	24	20	6.8	8.5	49	5.8
240	BEAR-2	000531	0930	25	23	6.7	8.6	32	7.4
240	CNER-3	000531	0000	30	23	6.6	8.4	33	8.2
240	CUTR-4	000531	1245	32	25	6.5	8.5	32	6.5
240	HENR-1	000531	0800	21.5	20	6.7	8.7	29	10.9
240	SHLR-5	000531	1400	30	27	6.6	7.9	42	7.9
250	COHR-8	000601	1110	29	22	6.8	8.6	37	3.3
250	KNSR-9	000531	1600	32	26	6.8	8.5	31	5.9
250	PNYR-6	000601	0815	22	20	6.4	8.2	26	14.3
250	WLFR-7	000601	0945	22	20	6.7	8.9	23	8.2
Middle Tallapoosa (0315-0109)									
010	FOXC-16	000606	1420	24	22	7.3	7.9	40	11.7
010	FOXC-17	000606	1615	22	22	7.3	8.1	33	9.2
010	CHSR-19	000530	1345	26	26	7.0	8.6	43	5.3
040	CHSR-20	000530	1545	28	27	6.8	8.5	41	6
040	CHSR-21	000530	1730	31	26	6.8	7.7	43	4.5
040	WDTR-18	000517	1320	34	22	6.8	9.0	29	6.7
050	NBSR-22	000517	1130	27.5	22	7.1	9.2	23	4.6

Appendix D-3. Field Parameters collected from stations included as part of the nonpoint source watershed screening of the Tallapoosa Basin, 2000.

Sub-Watershed Number	Station Number	Date (YYMMDD)	Time (24hr)	T-Air C°	T-H_2O C°	pH *s.u.*	Dissolved Oxygen	Conductivity *umhos @25c*	Turbidity *NTU*
050	BVDR-23	000517	0725	20	19	6.7	7.8	45	14
090	HTMT-26	000516	1100	22	20	6.7	9.4	39	6.3
090	LNYC-25	000516	1725	22	20	7.0	8.2	42	7.2
090	UTTC-24	000516	1510	28	22	7.0	9.1	45	4
090	GLYT-27	000516	0930	24	17	6.3	8.6	44	6
Middle Tallapoosa (0315-0110)									
110	TALM-32	000511	1415	31	25	7.1	5.8	207	21

Appendix E-1. Location Descriptions for stations where data was collected in 2000 as part of studies not associated with the Tallapoosa River Basin NPS Project.

Sub-watershed	County	Station Number	Purpose	Waterbody Name	Station Description	Latitude	Longitude
Upper Tallapoosa (0315-0108)							
100	Cleburne	HFWW-1	303(d)	Heflin WWTP Outfall	Heflin WWTP outfall to Tallapoosa River	33.60020	-85.5986
100	Cleburne	TALC-1	303(d)	Tallapoosa River	Abandoned bridge at the end of dirt road in NE1/4, Sec. 28, T16S, R10E (Sweet Time Hunting Preserve and Sporting Clays)	33.60590	-85.5886
110	Cleburne	TALC-2	303(d)	Tallapoosa River	Cleburne County Rd. 19, NE1/4, Sec. 4, T17S, R10E (One lane iron bridge)	33.58220	-85.5915
110	Cleburne	TALC-3	303(d)	Tallapoosa River	Approximately 200 yards upstream of Tyson WWTP discharge, SW1/4, Sec. 9, T17S, R10E (Access this site using a canoe)	33.55610	-85.6041
110	Cleburne	TALC-4	303(d)	Tallapoosa River	Approximately 100 feet upstream of mill dam NE1/4, Sec. 17, T17S, R10E (Access this site using a canoe)	33.55300	-85.6097
110	Cleburne	TALC-5	303(d)	Tallapoosa River	Cleburne County Rd. 36, NE1/4, Sec. 17, T17S, R10E.	33.55140	-85.61
130	Cleburne	TALC-6	303(d)	Tallapoosa River	U.S. Highway 431 in Cleburne County NW1/4 Sec. 32, T17S, R10E.	33.50940	-85.6248
160	Randolph	Harris-3	RWQMP	Tallapoosa River	Randolph County Highway 82	33.41002	85.5939
170	Randolph	Harris-6	RWQMP	Tallapoosa River	Mad Indian Creek embayment	33.34139	85.6064
170	Randolph	Harris-2	RWQMP	Tallapoosa River	immediately upstream of Tallapoosa R./Little Tallapoosa R. confluence	33.31843	85.5811
260	Randolph	Harris-5	RWQMP	Tallapoosa River	Wedowee Creek embayment	33.34083	85.5097
260	Randolph	TA7U4-33	ALAMAP	Green Creek	T20S, R11E, S12	33.29291	85.4476
270	Randolph	Harris-4	RWQMP	Tallapoosa River	Little Tallapoosa R. at Randolph County Rd 29	33.34314	85.5444
Middle Tallapoosa (0315-0109)							
010	Randolph	Harris-1	RWQMP	Tallapoosa River	Harris Dam forebay	33.26406	85.6127
030	Clay	HRSC-1	303(d)	Horsetrough Creek	Upstream of the Ashland WWTP Outfall, NE1/4, Sec. 21, 20S, R8E.	33.27480	-85.81080
030	Clay	HRSC-2	303(d)	Horsetrough Creek	200 yards downstream of the Ashland WWTP outfall, NE1/4, Sec. 21, 20S, R8E.	33.27410	-85.80840
030	Clay	HRSC-3	303(d)	Horsetrough Creek	Country Club Road, SW1/4, Sec. 23, 20S, R8E.	33.26870	-85.79510
030	Clay	HRSC-4	303(d)	Horsetrough Creek	Unpaved road in E1/2, Sec. 14, T20S, R8E	33.28760	-85.77580
030	Clay	HRSC-5	303(d)	Horsetrough Creek	Upstream of Mellow Valley Road, SW1/4, Sec. 13, T20S, R8E.	33.27970	-85.77040
150	Clay	TA8U4-36	ALAMAP	Tributary to Lynch Creek	T21S, R7E,S2	33.22645	85.8836
150	Clay	TA6U4-18	ALAMAP	Enitachopcp Creek	T24N, R22E, S3	33.10066	85.8427
170	Tallapoosa	TA4U4-18	ALAMAP	Oaktasasi Creek	T23N, R20E, S12	32.99360	86.0169
170	Tallapoosa	Martin-6	RWQMP	Tallapoosa River	Hillibee Creek embayment	32.96500	85.8444
180	Tallapoosa	Martin-9	RWQMP	Tallapoosa River	Manoy Creek embayment	32.83389	85.8414
190	Tallapoosa	Martin-5	RWQMP	Tallapoosa River	upstream of Coley Creek	32.93361	85.8669
190	Tallapoosa	Martin-7	RWQMP	Tallapoosa River	Coley Creek embayment	32.92639	85.8778
190	Tallapoosa	Martin-4	RWQMP	Tallapoosa River	upstream of Wind Creek State Park	32.87747	85.9013
190	Tallapoosa	Martin-8	RWQMP	Tallapoosa River	Elkahatchee Creek embayment	32.87806	85.9436
200	Tallapoosa	Martin-10	RWQMP	Tallapoosa River	Sandy Creek embayment	32.80389	85.8539
210	Tallapoosa	Martin-11	RWQMP	Tallapoosa River	Blue Creek embayment	32.74194	85.8531

Appendix E-1, cont. Location Descriptions for stations where data were collected as part of studies not associated with the 2000 Tallapoosa River Basin NPS Project.

Sub-watershed	County	Station Number	Purpose	Waterbody Name	Station Description	Latitude	Longitude
Middle Tallapoosa Con't (0315-0109)							
220	Tallapoosa	Martin-1	RWQMP	Tallapoosa River	Martin Dam forebay	32.68647	85.9107
220	Tallapoosa	Martin-2	RWQMP	Tallapoosa River	upstream of Blue Creek	32.73437	85.8874
220	Tallapoosa	Martin-3	RWQMP	Tallapoosa River	Alabama Highway 63	32.74278	85.9649
220	Tallapoosa	TA3U4-9	ALAMAP	Tributary to Lake Martin	T21N, R21E, S8	32.81871	85.9867
Lower Tallapoosa (0315-0110)							
020	Tallapoosa	Yates-3	RWQMP	Tallapoosa River	Channahatchee Creek embayment	32.64320	85.8969
030	Tallapoosa	Yates-2	RWQMP	Tallapoosa River	Sougahatchee Creek embayment	32.61315	85.8766
030	Tallapoosa	TA1U4-4	ALAMAP	Tributary to Ledbetter Cr	T19N, 23E, S5	32.66437	85.7668
030	Lee	PPLL-1	303(d)	Pepperell Branch	Thomason Road, between Secs. 13 and 14, T19N, R26E.	32.63280	-85.4051
030	Lee	PPLL-2	303(d)	Pepperell Branch	U.S. Highway 29, SE1/4, Sec. 15, T19N, R26E.	32.63470	-85.4254
030	Lee	PPLL-3	303(d)	Pepperell Branch	U.S. Highway 280, SE1/4, Sec. 10, T19N, R26E.	32.64460	-85.4257
030	Lee	PPLL-4	303(d)	Pepperell Branch	New street upstream of Waverly Parkway, SE1/4, Sec. 10, T19N, R26E.	32.64940	-85.4298
030	Lee	LOBL-1	303(d)	Loblockee Creek	Lee County Rd. 54, NW1/4, Sec. 32, T20N, R25E.	32.68410	-85.5719
030	Lee	SOGL-1	303(d)	Sougahatchee Creek	Lee County Rd. 188 at USGS gaging station, NW1/4, Sec. 19, 19N, R25E.	32.62670	-85.5880
030	Lee	SOGL-2	303(d)	Sougahatchee Creek	Lee County Rd. 65 (Old iron bridge), NE1/4, Sec. 22, T19N, R24E.	32.61940	-85.6336
030	Lee	SOGL-3	303(d)	Sougahatchee Creek	Roxana Road in W1/2, Sec. 30, T19N, R24E.	32.60500	-85.6930
030	Tallapoosa	SOGL-4	303(d)	Sougahatchee Creek	Hayes Hill Road in SW1/4, Sec. 23, T19N, R23E	32.61480	-85.7268
030	Tallapoosa	SOGL-5	303(d)	Sougahatchee Creek	Alabama Hwy. 49, NW1/4, Sec. 18, T19N, R23E.	32.63180	-85.7983
030	Tallapoosa	SOGL-6	303(d)	Sougahatchee Creek	Lovelady Road in SW1/4, Sec. 10, T19N, R22E	32.64020	-85.8446
040	Tallapoosa	Yates-1	RWQMP	Tallapoosa River	Yates Dam forebay	32.57668	85.8897
040	Tallapoosa	Thurlow-1	RWQMP	Tallapoosa River	Thurlow Dam forebay	32.53763	85.8893
050	Lee	CHWL-1	303(d)	Chewacla Creek	Lee County Rd. 4, NE1/4, Sec. 13, T18N, 26E.	32.55200	-85.3945
050	Lee	CHWL-2	303(d)	Chewacla Creek	Nixon Road (Lee County Rd. 027), SW1/4, Sec. 11, T18N, R26E.	32.55570	-85.4128
050	Lee	CHWL-3	303(d)	Chewacla Creek	Upstream of Moores Mill Creek at Chewacla State Park, NE1/4, Sec. 18, T18N, R26E.	32.54700	-85.4518
050	Lee	CHWL-4	303(d)	Chewacla Creek	Wrights Mill Road (Lee County Rd. 33) at	32.53610	-85.4967
050	Macon	CHWL-5	303(d)	Chewacla Creek	Lee County Rd. 26 upstream of Parkerson Mill	32.48200	-85.5174
050	Macon	CHWL-6	303(d)	Chewacla Creek	U.S. Highway 80, NE1/4, Sec. 22, T17N, R25E.	32.45060	-85.5296
050	Lee	MMWW-1	303(d)	Martin Marietta Outfall	Martin Marietta outfall to Chewacla Creek	32.54660	-85.4783
070	Macon	TA5U4-25	ALAMAP	Tributary to Choctafaula	T17N, R24E, S17	32.46296	85.6634
100	Macon	CLBM-1	303(d)	Calebee Creek	Macon County Rd. 67 upstream of Tuskegee	32.35710	-85.7523
100	Macon	CLBM-2	303(d)	Calebee Creek	Macon County Rd. 73, SE1/4, Sec. 18, T16N, R23E.	32.36360	-85.7846
100	Macon	CLBM-3	303(d)	Calebee Creek	U.S. Highway 80, SW1/4, Sec. 11, T16N, R22E.	32.37970	-85.8286
100	Macon	CLBM-4	303(d)	Calebee Creek	Macon County Rd. 40, NW1/4, Sec. 26, T17N, R21E.	32.40370	-85.8686
120	Macon	CUBM-1	303(d)	Cubahatchee Creek	Macon County Rd. 2, NE1/4, Sec. 28, T15N,	32.26220	-85.7593
120	Macon	CUBM-2	303(d)	Cubahatchee Creek	Macon County Rd. 13, SE1/4, Sec. 33, T16N,	32.30160	-85.8225
120	Macon	CUBM-3	303(d)	Cubahatchee Creek	Macon County Rd. 7, NW1/4, Sec. 23, T16N,	32.32000	-85.8546

Appendix E-1, cont. Location Descriptions for stations where data were collected as part of studies not associated with the 2000 Tallapoosa River Basin NPS Project.

Sub-watershed	County	Station Number	Purpose	Waterbody Name	Station Description	Latitude	Longitude
Lower Tallapoosa (0315-0110) Con't							
120	Macon	CUBM-4	303(d)	Cubahatchee Creek	U.S. Highway 80, SE1/4, Sec. 5, T16N, R21E.	32.34640	-85.8902
140	Macon	OAKM-1	303(d)	Oakfuskee Creek (Line	Montgomery County Rd. 2, Between Secs. 4 and	32.30290	-85.9543
140	Macon	OAKM-2	303(d)	Oakfuskee Creek (Line	U.S. Highway 80, NE1/4, Sec. 13, 16N, R20E.	32.37300	-86.0046
140	Macon	OAKM-3	303(d)	Oakfuskee Creek (Line Creek)	Brassell Railroad Bridge, NW1/4, Sec. 1, T16N, R20E.	32.39970	-86.0136

Appendix E-2. Historical location descriptions for stations within the Tallapoosa River Basin.

Sub-watershed	County	Station Number	Purpose	Waterbody Name	Station Description	Latitude	Longitude
Upper Tallapoosa (0315-0108)							
050	Cleburne	TA 002	Trend Station	Tallapoosa River	State Line	33.7327222	85.37216667
050	Cleburne	SRC01	1999 303(d)	Sanders Creek		33.75732	85.36294
090	Cleburne	TA01A1	1997 ALAMAP				
140	Cleburne	TA06	1996 CWS	Tallapoosa River	Cleburne County Road 17	33.51025	85.62269
Middle Tallapoosa (0315-0109)							
020	Randolph	TA07	1996 CWS	Tallapoosa River	Harris Dam Tailrace	33.255472	85.616305
060	Randolph	TA08	1996 CWS	Tallapoosa River	Al Hwy 77	33.118916	85.56242
040	Randolph	TA09	1996 CWS	Cornhouse Creek	Unnmaed Randolf Co. Rd. S12/T22S/R10E	33.22025	85.45497
040	Randolph	TA10	1996 CWS	Cornhouse Creek	Unnmaed Randolf Co. Rd. S12/T21S/R10E	33.210722	85.57172
030	Clay	TA11	1996 CWS	Crooked Creek	Clay Co. Rd. 31	33.30625	85.781
030	Clay	TA12	1996 CWS	Crooked Creek	Unnamed Co. Rd. @ Berwick	33.277166	85.67044
100	CHAMBERS	LCC 001	7/15/92	Little Chattahospee		32.9076111	85.511
030	CLAY	CRCC 001	6/8/1999 WQDS	Crooked Creek		33.2766111	85.74716667
030	CLAY	CRCC 002	6/8/1999 WQDS	Crooked Creek		33.2794444	85.72825
030	CLAY	LS 001	6/8/1999 WQDS	Unn Trib to Crooked Creek		33.2982222	85.74872222
030	CLAY	LS 002	6/8/1999 WQDS	Unn Trib to Crooked Creek		33.2940556	85.74791667
030	CLAY	LS 003	6/8/1999 WQDS	Unn Trib to Crooked Creek		33.28775	85.74041667
190	TALLAPOO	S 001	8/7/84	Sugar Creek		32.9104444	85.96036111
200	TALLAPOO	SCC 003	7/18/90	Sandy Creek		32.7821111	85.64722222
Lower Tallapoosa (0315-0110)							
030	Lee	TA01	1996 CWS	Pepperell Branch	US Hwy 29	32.6345	85.42575
030	Lee	TA02	1996 CWS	Pepperell Branch	Us Hwy 280	32.644667	85.42603
030	Lee	TA03	1996 CWS	Chewacla Creek	Lee Co. Rd. 26	32.535654	85.49655
050	Macon	TA04	1996 CWS	Chewacla Creek	US Hwy 80	32.450352	85.5259
050	Macon	TA05	1996 CWS	Chewacla Creek	Co. Rd. 22	32.422806	85.53108
070	Macon	TA13	1996 CWS	Uphapee Creek	at Co. Rd. 53	32.450777	85.65465
070	Macon	TA14	1996 CWS	Uphapee Creek	Al Hwy 49	32.481235	85.79838
100	Macon	TA15	1996 CWS	Calebee Creek	Unnamed Macon Co. Rd. N of Roba	32.252548	85.591111
100	Macon	TA16	1996 CWS	Calebee Creek	Co. Rd.73	32.363432	85.78477
100	Macon	TA17	1996 CWS	Calebee Creek	Co. Rd. 40	32.43361	85.93417
140	Bullock	TA18	1996 CWS	Line Creek	Al Hwy 110	32.213124	85.89797

Appendix E-2.Con't Historical location descriptions for stations within the Tallapoosa River Basin.

Sub-watershed	County	Station Number	Purpose	Waterbody Name	Station Description	Latitude	Longitude
Lower Tallapoosa (0315-0110)							
140	Macon	TA19	1996 CWS	Line Creek	Macon Co. Rd. 4	32.302689	85.95439
140	Macon	TA20	1996 CWS	Line Creek	US Hwy 80	32.37292	86.00472
140	Macon	TA21	1996 CWS	Line Creek	Brassell RR Bridge	32.39972	86.0136
120	Bullock	TA22	1996 CWS	Cubahatchee Creek	US Hwy 29	32.1775	85.707778
120	Macon	TA23	1996 CWS	Cubahatchee Creek	Co. Rd. 2	32.26194	85.75928
120	Macon	TA24	1996 CWS	Cubahatchee Creek	Co. Rd. 19	32.319722	85.854444
120	Macon	TA25	1996 CWS	Cubahatchee Creek	US Hwy 80	32.395	85.972222
030	Lee	TA26	1996 CWS	Sougahatchee Creek	Opelika Treatment Plant	32.66475	85.438139
140	BULLOCK	LINB 001	5/4/95	Line Creek		32.2088056	85.8975
050	LEE	CHWT 001	State Parks	Chewacla Creek	T18N, R26E, S18	32.5348056	85.46802778
050	LEE	CHWT 003	State Parks	Chewacla Creek	T18N, R27E, S7	32.5511389	85.36722222
050	LEE	MMLT 001	State Parks	Moores Mill Creek	T19N, R26E, S33	33.3338889	86.75113889
050	LEE	MMLT 001	State Parks	Moores Mill Creek	T18N, R26E, S8	32.5506944	85.467
050	LEE	NAST 001	State Parks	Nash Creek	T18N, R26E, S10	32.5505	85.41758333
050	LEE	PM 001	10/15/97	Parkerson Mill Creek		32.5371111	85.50622222
050	LEE	PM 003	10/15/97	Parkerson Mill Creek		32.5342778	85.50155556
050	LEE	ROBT 001	State Parks	Robinson Creek	T18N, R26E, S12	32.5513333	85.38397222
030	LEE	SO 001	6/27/80	Sougahatchee Creek		32.6595278	85.45044444
050	MACON	LBM 001	6/24/92	Long Branch Creek		32.4131944	85.48119444

§303(d) Waterbody Monitoring Project

***Lead agency*:** ADEM

***Purpose*:** In accordance with Section 303(d) of the Federal Clean Water Act, each state must identify its polluted water bodies that do not meet surface water quality standards and submit this list to the USEPA. In an effort to address water quality problems within Alabama, some water bodies were included on ADEM's §303(d) list are only suspected to have water quality problems based on evaluated assessment data. ADEM conducts monitored assessments of priority water bodies to support §303(d) listing and de-listing decisions. This project includes intensive chemical, habitat, and biological data collected using ADEM's SOPs and QA/QC manuals.

Appendix F-5. Physical/ chemical data

References: ADEM. 2000c. Water quality monitoring data collected by ADEM in support of CWA §303(d) listing and de-listing decisions 1999-2000 (unpublished). Field Operations Division, Alabama Department of Environmental Management, Montgomery, AL.

Appendix F-1. Physical / chemical data collected during the 2000 303(d) Stream Sampling conducted by ADEM (ADEM 2000).

Station Number	Date	Time (24hr)	Air Temp. (C)	Water Temp. (C)	pH (su)	Conductivity (umhos @25C)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow (cfs)	Fecal Coliform	TSS (mg/l)	TOC (mg/l)	T-PO4 (mg/l) DL 0.004	NO2/NO3 (mg/l) DL 0.003	CBOD-5 (mg/l) DL 0.1	NH3 (mg/l) DL 0.015	TKN (mg/l) DL 0.15	Hardness (mg/l)
CHWL001	000510	1440	30	23.6	7.7	180	8	10.6	----	48	39	----	0.004	0.304	2.10	0.060	0.56	81
CHWL001	000705	1130	34	26.6	8.15	250	9	10.5	2.4	45	1	----	0.004	0.325	0.20	0.040	0.75	114
CHWL001	000725	1140	38	26.6	7.83	250	8	3.26	0.3	173	26	----	0.010	0.162	0.30	0.250	0.35	115
CHWL001	000822	1045	35	25.7	8.14	230	8	3.62	3.2	430	24	----	0.004	0.290	0.40	0.015	0.18	129
CHWL001	000518	940	24.5	20.5	7.5	148	8	8.84	----	----	----	----	----	----	----	----	----	----
CHWL001	001212	1100	9	9.8	6.48	125	12	6.23	0.4	33	4	----	0.085	0.265	1.70	0.015	0.17	88
CHWL001	010125	940	8	5.6	5.03	70	10	9.36	----	26	4	----	0.040	0.326	1.40	0.060	0.48	49
CHWL001	001128	1200	20	15		120	12.5	12.3	0.7	57	10	----	0.010	0.456	2.90	0.015	0.15	82
CHWL002	000510	1510	30	23.1	7.5	140	7	12.5	----	> 770	11	----	0.004	0.290	2.30	0.050	0.40	58
CHWL002	000705	1055	40	27.4	7.76	250	7	13.4	2.6	90	15	----	0.040	0.602	1.20	0.021	0.94	105
CHWL002	000822	1120	34	26.1	7.92	230	7	14.2	2.8	690	14	----	0.004	0.160	0.30	0.021	0.15	122
CHWL002	000725	1040	35	27.1	7.47	250	6	12.5	0.1	>600	9	----	0.030	0.096	0.20	0.093	0.53	114
CHWL002	001212	1015	10	11.5	7.27	105	10	6.11	12.7	1500	13	----	0.071	0.272	1.60	0.015	0.15	81
CHWL002	001128	1057	18	11		100	13	11.4	10.7	180	2	----	0.040	0.272	3.10	0.015	0.15	71
CHWL002	010124	1050	11	7.6	6.52	70	10	8.7	14.7	93	4	----	0.100	0.388	0.50	0.060	0.49	41
CHWL003	000510	1250	28	23.1	8.29	250	10	11.6	----	9	40	----	0.004	0.703	0.60	0.015	0.25	132
CHWL003	000706	1010	30	23.6	8.25	250	10	8.28	----	2	8	----	0.010	0.471	0.40	0.015	0.80	127
CHWL003	000726	1040	31	23	8.33	260	10	6.31	----	73	7	----	0.004	0.751	0.90	0.095	0.31	128
CHWL003	000823	1100	34	23.6	8.25	24.3	8	6.45	----	59	23	----	0.004	1.040	0.40	0.015	0.15	137
CHWL003	000517	1215	31	24.5	8.4	264	10	4.57	----	----	----	----	----	----	----	----	----	----
CHWL003	010124	1230		13.3	8.02	200	10	4.44	----	20	2	----	0.004	1.580	0.50	0.110	0.41	138
CHWL003	001213	1030	7	10.8	8.3	200	9.2	7	----	10	7	----	0.009	1.760	0.90	0.320	0.15	135
CHWL003	001129	1100	14	18.7	7.52	250	11.6	7.15	----	3	20	----	0.010	1.100	1.80	0.080	0.18	139
CHWL004	000511	1050	32	24.7	8.1	220	9	10.3	----	10	37	----	0.004	0.508	1.60	0.015	0.31	109
CHWL004	000705	1330	34	27.8	8.41	260	10	3.3	----	5	5	----	0.004	0.393	1.10	0.022	0.35	119
CHWL004	000726	1100	29	23.7	8.5	280	10	4.39	----	31	9	----	0.004	0.661	1.00	0.064	0.53	128
CHWL004	000823	1130	34	24.2	8.29	217	10	5.21	----	60	31	----	0.004	0.940	0.70	0.031	0.15	134
CHWL004	000517	1325	31	25	8.4	230	10	6.15	----	----	----	----	----	----	----	----	----	----
CHWL004	001213	1000	7	9.6	8	160	11.5	9.57	----	10	5	----	0.019	1.190	1.20	0.015	0.17	104
CHWL004	010124	1200		10.9	7.91	130	10	50.7	----	41	17	----	0.140	0.786	0.40	0.080	0.69	80
CHWL004	001129	1000	12	17.8	7.93	200	0	16.4	----	14	10	----	0.030	0.939	2.10	0.190	0.25	122
CHWL005	000510	1025	28	23.2	7.72	210	8	12	8.4	20	9	----	0.004	0.437	0.70	0.015	0.62	108
CHWL005	000823	915	35	25.8	7.98	229	7	4.01	2.5	66	11	----	0.004	0.670	0.20	0.015	0.15	107
CHWL005	000726	930	29	25.4	8.08	220	8	3.68	2.5	143	9	----	0.004	0.412	0.70	0.061	0.81	99
CHWL005	000706	1100	34	27.3	8.04	270	10	4.74	2.2	4	5	----	0.004	0.385	0.80	0.038	0.15	122
CHWL005	001213	915	6	8.2	7.58	150	9.5	6.21	----	5	5	----	0.045	1.180	1.70	0.130	0.15	96
CHWL005	001129	910	10	12.8	8.27	150	10	18.5	----	4	10	----	0.030	0.560	2.10	0.030	0.15	86
CHWL005	010125	910	7	6.9	8.28	110	10	27.3	----	120	13	----	0.100	0.696	0.90	0.090	0.76	76
CHWL006	000511	910	30	23.4	8.1	200	6	10.5	12.6	47	18	----	0.004	2.660	0.70	0.240	0.46	73
CHWL006	000822	930	26.2	26.2	7.34	179	7	12.2	21.6	>600	44	----	0.022	1.670	0.40	0.022	0.21	75
CHWL006	000705	955	36	27.4	7.34	300	7	9.09	5.3	23	9	----	0.100	3.090	0.80	0.015	0.33	84
CHWL006	000725	1000	30	26.9	7.2	200	7	19.9	15.8	170	26	----	0.120	1.090	1.00	0.053	1.20	66
CHWL006	001212	925	8	11.8	7.32	220	10	6.67	34.4	80	6	----	0.179	3.820	1.20	0.015	0.28	68
CHWL006	001128	930	9	11.5		140	11	13.6	29.6	60	9	----	0.100	2.540	3.00	0.070	0.15	69
CHWL006	010124	930	9	7.2	7.27	80	10	17.7	----	54	8	----	0.130	1.350	0.80	0.050	0.66	40
CLBM001	000517	922	24	22	7	110.5	5	16.7	----	----	----	----	----	----	----	----	----	----

Appendix F-1 Con't. Physical / chemical data collected during the 2000 303(d) Stream Sampling conducted by ADEM (ADEM 2000).

Station Number	Date	Time (24hr)	Air Temp. (C)	Water Temp. (C)	pH (su)	Conductivity (umhos @25C)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow (cfs)	Fecal Coliform	TSS (mg/l)	TOC (mg/l)	T-PO4 (mg/l) DL 0.004	NO2/NO3 (mg/l) DL 0.003	CBOD-5 (mg/l) DL 0.1	NH3 (mg/l) DL 0.015	TKN (mg/l) DL 0.15	Hardness (mg/l)
CLBM004	000511	815	22.5	23	6.7	78.1	6	11.4	----	----	----	----	----	----	----	----	----	----
CUBM002	000511	1200	29	23	6.9	150	3	19.2	----	----	----	----	----	----	----	----	----	----
CUBM003	000511	1020	29	24	6.8	132	4	16.3	----	----	----	----	----	----	----	----	----	----
CUBM004	000511	1400	31	27	7.1	99.2	8	13.4	----	----	----	----	----	----	----	----	----	----
CUBW030	000503	1020	25	18	6.9	241	4	11.5	----	----	----	----	----	----	----	----	----	----
HFWW001	000502	1130	26	21	7.5	1803	6.5	21.6	700gal/min	2400	48	----	10.600	0.100	13.40	0.300	12.00	44
HFWW001	000912	1245	33.5	25	7.1	2465	6.2	40.5	----	>50000	60	----	12.600	0.137	9.30	12.200	15.50	42
HFWW001	001120	1400	13	10	7.2	2440	7.5	34.6	----	>49900	42	----	11.800	0.060	37.50	10.700	16.40	34
HFWW001	000606	1200	25	25	6.9	1933	3.8	29.5	----	370	68	----	16.700	0.068	18.00	15.200	15.80	38
HFWW001	000801	1150	31	26.7	6.8	2108	1.3	28.5	----	667	61	----	13.700	0.080	24.00	11.000	16.00	42
HFWW001	001003	1300	27	26	8.1	2578	6.65	60	----	65000	64	----	14.800	0.142	8.70	10.400	16.50	40
HFWW001	001213	945	6	8	7.3	2360	7.5	23.7	----	est 1700	40	----	11.900	0.009	20.00	12.800	17.20	36
HFWW001	010307	1310	13	13	7.3	1128	9.1	12.1	----	900	10	----	6.670	0.093	12.00	10.100	14.20	37
HRSC001	000725	1115	22.5	19.48	6.69	53	1	21	----	160	5	----	0.033	0.003	0.40	0.212	0.10	36
HRSC001	000425	1330	17.5	14.9	7.23	35.9	7	9.88	----	88	9	----	0.005	0.663	0.10	0.062	0.27	32
HRSC001	000510	1145	23	18.5	6.25	38.8	6	10.4	----	256	6	----	0.019	0.342	0.60	0.015	0.43	40
HRSC001	010117	1115	14.2	8.43	7.3	56	8.76	10.2	----	132	1	----	0.004	0.292	2.30	0.015	0.43	36
HRSC001	000913	1230	20.5	18.82	6.41	42	5.23	12.6	----	----	3	----	0.015	0.674	0.10	0.127	0.07	28
HRSC001	000914	1010	18	19.26	5.78	50	3.76	25.4	----	1130	33	----	0.010	0.453	1.20	0.050	0.28	40
HRSC001	000913	900	20	19.18	6.6	52	4.61	26.9	----	----	3	----	0.004	0.649	0.50	0.014	0.08	24
HRSC001	000912	1325	22	19.92	5.96	48	6.25	12.3	----	----	----	----	----	----	----	----	----	----
HRSC001	010214	1100	16.5	11.18	6.68	73	9.28	7.5	----	42	4	----	0.004	0.268	2.70	0.015	0.43	34
HRSC001	001025	1115	17.5	15.3	5.91	68	3.12	22.3	----	28	1	----	0.009	0.406	0.20	0.002	0.08	28
HRSC001	010307	1110	6.06	9.73	6.81	47	11.54	22.4	----	49	4	----	0.004	0.436	0.40	0.015	0.33	28
HRSC002	000725	1000	24	23.3	7.48	937	8	6.2	----	256	11	----	15.283	20.736	0.30	0.178	0.15	70
HRSC002	000606	940	23	21.5	7	371	7	24.3	----	----	----	----	----	----	----	----	----	----
HRSC002	000606	1145	23	22.5	7.4	207	8	12.7	----	----	----	----	----	----	----	----	----	----
HRSC002	000425	1315	18	15.1	7.15	216.4	9	11.5	4.6	100	10	----	2.548	7.088	0.40	0.064	0.60	32
HRSC002	000510	1100	27.6	20.6	7.02	260	6	12.3	3.8	140	9	----	5.109	8.913	1.10	0.015	0.10	56
HRSC002	010117	1140	14.2	8.5	6.45	255	9.28	8.6	6.3	188	2	----	3.680	7.890	8.90	0.015	0.85	62
HRSC002	000913	1245	21	23.35	6.72	918	7.27	5.1	----	----	5	----	17.520	26.900	5.60	0.037	0.15	70
HRSC002	000913	930	19.5	22.59	6.61	850	7.45	6.8	----	----	7	----	17.740	27.650	1.10	0.042	0.15	68
HRSC002	000914	1030	18.5	22.97	6.72	910	6.94	8.7	----	224	15	----	17.940	26.110	1.20	0.043	0.15	74
HRSC002	000912	1340	21	2343	6.67	904	8.92	5.6	----	----	----	----	----	----	----	----	----	----
HRSC002	010214	1130	16.8	11.3	6.53	199	8.82	7.7	7.0	37	5	----	3.080	6.230	1.70	0.015	0.66	34
HRSC002	001025	1130	17.5	17.91	6.23	936	5.85	17.7	----	194	96	----	19.380	30.020	3.40	0.015	0.15	56
HRSC002	010307	1135	6.24	10.15	6.57	145	12.21	14.1	12.2	46	7	----	1.933	4.618	1.60	0.015	0.58	36
HRSC003	000726	1115	22	22.07	7.62	606	9	12	----	134	9	----	9.815	12.405	0.50	0.098	0.15	40
HRSC003	000426	1130	17.8	13.9	7.09	147.9	9	10.4	----	136	6	----	2.329	5.477	1.30	0.447	0.32	46
HRSC003	000510	1430	27.1	19.6	7.03	179.2	7	8.3	----	208	3	----	3.399	5.987	0.70	0.015	0.15	52
HRSC003	010118	1115	17	9.49	6.41	186	8.99	20.1	----	168	18	----	4.130	5.530	4.90	0.015	0.64	46
HRSC003	000913	1350	19	21.98	6.94	745	6.97	7.4	----	----	3	----	12.730	19.300	1.20	0.062	0.15	60
HRSC003	000913	1030	22	21.32	7.04	731	6.93	3.1	----	----	3	----	12.760	19.430	0.70	0.023	0.15	62
HRSC003	000914	1140	20	21.72	6.82	645	6.58	15.2	----	480	7	----	11.330	16.070	0.70	0.021	0.15	70
HRSC003	000912	1440	22	21.66	7.06	752	8.67	9.2	----	----	----	----	----	----	----	----	----	----
HRSC003	010215	1050	18.2	13.18	6.35	157	8.16	7.6	----	80	5	----	1.980	3.618	0.30	0.015	0.45	34
HRSC003	001026	930	17.5	15	6.66	834	6.69	3.3	----	92	8	----	11.800	20.020	0.30	0.015	0.15	60

Appendix F-1 Con't. Physical / chemical data collected during the 2000 303(d) Stream Sampling conducted by ADEM (ADEM 2000).

Station Number	Date	Time (24hr)	Air Temp. (C)	Water Temp. (C)	pH (su)	Conductivity (umhos @25C)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow (cfs)	Fecal Coliform	TSS (mg/l)	TOC (mg/l)	T-PO4 (mg/l) DL 0.004	NO2/NO3 (mg/l) DL 0.003	CBOD-5 (mg/l) DL 0.1	NH3 (mg/l) DL 0.015	TKN (mg/l) DL 0.15	Hardness (mg/l)
HRSC003	010308	1045	9.6	9.56	6.61	128	11.22	11.2	----	50	5	----	1.300	3.157	2.60	0.015	0.51	36
HRSC004	000510	1415	24	20.1	7.08	172.9	6	6.3	----	300	2	----	1.904	4.090	0.60	0.015	0.40	44
HRSC004	000726	1045	22	21.64	7.77	470	9	12.3	----	124	1	----	6.521	8.278	0.40	0.100	0.05	34
HRSC004	000426	1115	20.2	14.9	7.1	23.7	9	7.43	----	128	6	----	1.533	4.148	1.20	0.015	0.15	36
HRSC004	010118	1045	16.4	9.43	6.35	125	9.48	9.6	----	82	4	----	1.450	3.230	3.40	0.015	0.67	44
HRSC004	000913	1330	20	21.36	7.09	588	7.96	10.3	----	----	5	----	9.030	14.560	1.00	0.015	0.15	46
HRSC004	000913	1015	21	20.63	7.1	588	7.15	12.6	----	----	4	----	9.400	15.130	0.20	0.015	0.15	72
HRSC004	000914	1125	18.5	20.96	6.96	562	7.43	11	----	270	5	----	9.040	13.390	0.80	0.015	0.15	66
HRSC004	000912	1420	21	20.52	7.2	544	9.9	9.7	----	----	----	----	----	----	----	----	----	----
HRSC004	010215	1030	18.3	13.11	6.54	110	8.39	6.1	----	124	1	----	1.216	2.398	0.10	0.015	0.16	36
HRSC004	001025	1215	18	15.14	6.6	604	8.17	4.5	----	88	1	----	7.600	14.390	0.90	0.015	0.15	36
HRSC004	010308	1030	8.84	8.84	6.49	88	11.68	10.3	----	340	6	----	0.806	2.214	2.50	0.058	0.19	32
HRSC005	000510	1325	24.2	19.9	7.25	160.1	6	5.3	7.7	120	2	----	1.708	3.664	0.90	0.015	0.19	48
HRSC005	000726	1030	20.5	21.98	7.8	492	9	7.5	----	3	4	----	6.575	8.523	1.10	0.038	0.05	36
HRSC005	000426	945	18.6	13.1	7.15	111.2	10	7.13	7.9	136	2	----	1.450	3.826	1.10	0.015	0.15	44
HRSC005	000913	1000	21	20.91	7.22	524	7.93	30.2	----		1	----	7.870	13.080	0.10	0.015	0.15	66
HRSC005	010118	1000	16.3	9.27	6.3	125	9.94	6.4	----	124	1	----	1.389	4.000	3.50	0.015	0.42	44
HRSC005	000913	1310	20	21.96	7.23	521	8.25	12.6	----		1	----	7.680	12.950	0.50	0.015	0.15	50
HRSC005	000914	1100	18.5	20.99	7.01	536	7.74	28.4	----	38	2	----	7.980	12.210	0.60	0.015	0.15	52
HRSC005	000912	1410	20.5	21.45	7.35	433	9.7	14.5	----	----	----	----	----	----	----	----	----	----
HRSC005	000913	1000	21	20.91	7.22	524	7.93	30.2	13.8	----	----	----	----	----	----	----	----	----
HRSC005	010215	930	18.1	13.01	6.71	109	9.15	5.5	17.7	77	4	----	1.241	2.459	0.20	0.015	0.13	30
HRSC005	001025	1205	17.5	15	6.49	438	7.5	12.5		18	1	----	5.400	8.890	0.70	0.015	0.15	34
HRSC005	010308	945	7.6	8.76	6.74	84	11.27	9.2	27.2	86	8	----	0.741	2.016	1.70	0.015	0.30	34
LOBL001	000530	1055	28.5	23	7.1	78	7	22.5	----	----	----	----	----	----	----	----	----	----
LOBL001	000509	927	24	20	7.7	88	8	18	7.7	57	7	----	0.004	0.185	0.40	0.080	0.01	28
LOBL001	000607	1000	23	20	7.6	80	8	23.1	2.8	197	12	----	0.004	0.228	0.20	0.070	0.32	32
LOBL001	000406	1010	24	19	7.35	50	9	1.1	----	147	13	----	0.050	0.287	0.80	0.080	0.53	268
LOBL001	000926	951	18	19	8.5	100	7.7	17.5	3.1	240	----	----	----	----	----	----	----	----
OAKM001	000523	1000	34	22	7.23	164	2	35.5	----	59	56	----	0.250	0.008	7.20	0.140	1.74	70
OAKM001	000503		27	23.2	7.4	192	7	25.2	----	49	18	----	0.004	0.065	0.40	0.015	1.02	61
OAKM001	000622		34	26.7	7.11	192	3	42.9	----	440	198	----	0.381	0.010	3.20	0.190	4.61	81
OAKM001	001019	930					0		----	----	----	----	----	----	----	----	----	----
OAKM001	001115	905	12	11	7.8	235	7.6	19.2	----	260	11	----	0.150	0.005	1.50	0.140	1.44	45
OAKM001	010301	920	19	15.5	7.2	127	8.9	23.1	----	300	19	----	0.140	0.030	1.80	0.040	1.58	48
OAKM001	010215	1300	26	13.9	7.1	148	11.7	11	----	60	15	----	0.100	0.042	1.20	0.140	0.23	59
OAKM002	000503	1000	26	27.6	7.6	195	8	19.9	4.1	18	19	----	0.050	0.003	3.10	0.015	0.34	65
OAKM002	000523	1120	36	27.5	7.53	172	6	10.7	10.1	14	11	----	0.020	0.003	1.30	0.100	1.14	65
OAKM002	000621	1145	36	30.8	7.75	148	8	16.5	2.0	37	18	----	0.004	0.010	0.60	0.076	0.89	16
OAKM002	000720		39	31	7	135.9	5	5.42	----	73	10	----	0.004	0.003	0.90	0.110	1.29	41
OAKM002	000510	1000	27	27	7.36	165.3	7	9.89	----	----	----	----	----	----	----	----	----	----
OAKM002	001019	1030	28	20.1	8.2	121	6.3	9.09	----	3	16	----	0.090	0.017	2.20	0.015	0.78	45
OAKM002	001115	1015	13	12.8	7.2	102	7.1	15.1	11.3	60	11	----	0.190	0.045	2.50	0.030	0.89	42
OAKM002	010215	1025	25	13.4	7.1	159	12.9	15.8	102.4	48	14	----	0.130	0.062	1.30	0.040	0.08	68
OAKM002	010301	1025	21	16.2	7.3	145	9.4	29.4	----	220	25	----	0.240	0.042	2.10	0.030	1.48	57
OAKM003	000503	1300	34	28	7.2	170	8	14.1	3.2	300	13	----	0.080	0.061	1.90	0.110	0.95	52
OAKM003	000720	1330	37	31	6.4	62	8	9.99	3.3	21	15	----	0.050	0.003	0.90	0.110	0.48	15

Appendix F-1 Con't. Physical / chemical data collected during the 2000 303(d) Stream Sampling conducted by ADEM (ADEM 2000).

Station Number	Date	Time (24hr)	Air Temp. (C)	Water Temp. (C)	pH (su)	Conductivity (umhos @25C)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow (cfs)	Fecal Coliform	TSS (mg/l)	TOC (mg/l)	T-PO4 (mg/l) DL 0.004	NO2/NO3 (mg/l) DL 0.003	CBOD-5 (mg/l) DL 0.1	NH3 (mg/l) DL 0.015	TKN (mg/l) DL 0.15	Hardness (mg/l)
OAKM003	000523	1145	36	27.6	7.38	127	8	8.13	10.8	17	9	----	0.020	0.003	1.10	0.040	0.79	55
OAKM003	000621	1350	36	31.1	7	65	6	17	2.5	14	10	----	0.056	0.003	1.70	0.038	0.55	56
OAKM003	000510	1300	29	26	6.84	125.4	7	12.4	----	----	----	----	----	----	----	----	----	----
OAKM003	001019	1315	29	21.1	6.9	49	6.9	11	----	43	7	----	0.050	0.018	0.90	0.015	0.38	9
OAKM003	001116	1315	17	14.9	7.4	97	8	14	14.4	52	8	----	0.160	0.056	0.80	0.040	0.73	38
OAKM003	010215	925	24	13.9	7.4	190	10.8	16.3	106.4	34	13	----	0.110	0.013	1.70	0.015	0.32	66
OAKM003	010301	1305	25	17.5	7.4	143	9.6	28.7	----	260	28	----	0.230	0.051	1.30	0.020	1.51	56
PPL 001	010214	1000	16	12.2	7.18	165	10.27	7.49	2.6	520	5	----	0.060	0.738	2.20	0.050	0.24	67
PPLL001	000503	1520	30	22.9	7.6	223	9	6.15	----	490	7	----	0.060	0.550	0.80	0.015	0.45	69
PPLL001	000719	945	33	24.3	7.3	166	6	5.72	0.2	360	9	----	0.004	0.173	1.20	0.053	0.45	58
PPLL001	000621	920	31	23.8	7.38	170	6	7.39	0.7	585	5	----	0.005	0.310	0.70	0.046	0.34	65
PPLL001	000523	1355	38	24.9	7.5	168	7	5.16	0.9	320	14	----	0.004	0.288	1.10	0.015	0.80	67
PPLL001	000518	1125	26	25	7.4	188	8	4.81	----	----	----	----	----	----	----	----	----	----
PPLL001	001018	940	24	14.6	6.88	194	6.7	4.21	0.3	43	7	----	0.040	0.230	1.10	0.070	0.15	68
PPLL001	001116	940	14	10.1	7.5	213	10.5	6.04	0.8	87	2	----	0.030	0.547	0.60	0.015	0.35	78
PPLL001	010227	940	21	14	7.3	188	9.6	7.46	3.2	220	5	----	0.050	0.774	0.70	0.015	0.87	67
PPLL002	000719	1005	34	25.5	8.4	3970	2	13.2	----	120	23	----	2.260	0.096	5.60	1.100	18.10	42
PPLL002	000523	1430	38	26.6	8.15	2280	4	12	----	410	17	1514	0.770	0.129	6.40	0.320	5.17	42
PPLL002	000621	955	32	25.5	8.24	3230	3	7.19	----	240	10	----	1.410	0.260	3.20	0.580	7.45	47
PPLL002	000503	1435	30	29.9	8.1	1642	5	17.2	----	97	18	----	0.670	0.323	4.00	1.340	4.11	45
PPLL002	001018	1010	27	16.9	8.03	3832	4.3	14	----	320	23	----	1.340	0.113	87.90	0.098	11.10	46
PPLL002	001116	1030	14	12.1	7.8	3011	7.5	9.52	----	1180	15	----	0.740	0.248	3.90	0.370	7.60	52
PPLL002	010214	1055	18	12.6	7.7	1104	10.1	15.6	----	93	11	----	0.420	0.314	6.70	0.230	4.43	53
PPLL002	010227	955	23	14.4	7.7	813	9.3	8.84	----	260	10	----	0.270	0.456	5.60	0.180	2.97	50
PPLL003	000719	1040	33	25	8.34	3656	5	11.3	3.2	220	11	----	2.270	0.615	1.40	0.380	15.60	41
PPLL003	000524	1320	34	25.2	8.09	2275	5		4.0	140	21	----	1.030	0.483	4.00	0.240	5.80	47
PPLL003	000621	1040	32	24.6	8.18	2795	5	4.77	3.8	250	11	----	1.210	0.720	1.60	0.020	6.71	44
PPLL003	000504	945	27	20.3	7.9	1386	5	7.78	2.9	16.3	27	----	0.780	0.682	10.00	1.000	3.39	45
PPLL003	000518	1200	30	24	8	1790	5	9.06	----	----	----	----	----	----	----	----	----	----
PPLL003	001018	1055	28	16.3	8.3	3035	5.3	6.24	4.7	600	7	----	0.940	0.274	8.20	0.479	7.66	41
PPLL003	001116	1055	15	11.8	7.9	2700	7.9	6.63	2.9	550	18	----	0.630	0.377	2.70	0.270	7.38	47
PPLL003	010214	1125	20	12.9	7.7	1018	11.9	11.6	5.9	143	18	----	0.370	0.355	5.20	0.190	3.77	48
PPLL003	010227	1028	27	14.3	7.6	515	9.6	10.4	8.9	110	7	----	0.150	0.504	3.90	0.140	1.98	46
PPLL004	000621	1100	33	24.4	8.17	2640	6	6.31	----	153	10	----	1.190	0.820	1.20	0.088	12.00	48
PPLL004	000719	1120	35	24.7	8.35	3515	6	7.54	----	77	15	----	2.340	0.795	1.00	0.034	12.30	42
PPLL004	000524	1050	33	23	8.05	2061	6		----	410	15	----	0.900	0.535	4.00	0.160	5.51	45
PPLL004	000504	1030	28	19.7	7.9	1535	6	5.56	----	169	11	----	0.900	0.933	1.20	0.500	2.48	49
PPLL004	001018	1350	29	18.2	8.2	2984	6.7	5.88	----	342	11	----	1.070	0.275	7.00	0.075	7.24	40
PPLL004	001116	1130	16	11.6	8.2	2562	8.5	10.9	----	350	10	----	0.640	0.407	2.40	0.190	11.20	46
PPLL004	010214	1310	21	13.4	7.8	981	10.2	11.3	----	117	10	----	0.330	0.395	7.30	0.150	3.50	47
PPLL004	010227	1100	25	14.5	7.7	538	10.8	8.65	----	173	7	----	0.150	0.487	4.40	0.130	2.31	45
PPLL005	000621	1340	36	27.4	8.3	1984	9	5.79	4.3	153	2	----	0.811	0.850	1.10	0.027	7.16	46
PPLL005	000524	1015	32	23.7	7.96	1185	6		6.0	160	16	----	0.430	0.564	1.80	0.100	3.42	49
PPLL005	000504	1115	28	21.7	7.9	916	9	4.74	5.1	97	8	----	0.570	1.020	0.90	0.140	3.03	49
PPLL005	000719		38	29.3	8.7	2802	14	4.17	3.2	133	14	----	2.520	0.254	2.40	0.046	9.10	40
PPLL005	001018	1315	26	18.9	8.4	2817	8.9	4.24	5.6	590	7	----	3.920	0.123	4.60	0.015	6.10	42
PPLL005	001116	1310	14	11.2	8.3	1800	7.6	5.29	3.5	147	5	----	0.450	0.452	2.60	0.090	2.90	45

Appendix F-1 Con't. Physical / chemical data collected during the 2000 303(d) Stream Sampling conducted by ADEM (ADEM 2000).

Station Number	Date	Time (24hr)	Air Temp. (C)	Water Temp. (C)	pH (su)	Conductivity (umhos @25C)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow (cfs)	Fecal Coliform	TSS (mg/l)	TOC (mg/l)	T-PO4 (mg/l) DL 0.004	NO2/NO3 (mg/l) DL 0.003	CBOD-5 (mg/l) DL 0.1	NH3 (mg/l) DL 0.015	TKN (mg/l) DL 0.15	Hardness (mg/l)
PPLL005	010214	1355	21	14	8.1	614	11.5	6.4	12.1	143	5	----	0.190	0.750	4.60	0.160	3.40	46
PPLL005	010227	1300	24	16	7.8	374	10.5	6.89	16.7	510	8	----	0.150	0.660	3.50	0.060	1.95	41
SHRT001	000531	830	22	24	7.9	1010	7	5.98	----	----	----	----	----	----	----	----	----	----
SHRT001	000503	945	31	23	8	1070	8.1	6.67	15.3	EST18	10	----	4.810	1.278	0.40	0.015	1.49	152
SHRT001	000607	1000	22	21	7.5	1736	8.1	4.01	8.6	610	7	1003	15.400	0.301	0.40	0.015	2.26	137
SHRT001	000913	815	24.5	25	7.5	1621	7	3.82	8.8	100	925	----	4.790	1.950	0.30	0.015	1.21	142
SHRT001	000802	930	31	25	7.46	1336	6.87	2.78	5.9	47	8	807	4.760	1.420	0.30	1.200	1.55	130
SHRT001	001121	845	3	10.1	8	1674	10.6	2.92	5.9	59	2	172	2.960	2.070	0.90	0.015	1.45	130
SHRT001	001004	915	22	22	8.1	2260	6.95	4.39	4.8	est 53	8	1410	11.100	3.630	2.50	0.015	2.64	126
SHRT001	001213	1155	6	5	8	1367	11	3.07	12.8	120	7	759	6.840	1.850	1.30	0.060	1.03	128
SHRT001	010308	1005	13	12	7.8	645	11.2	3.92	37.8	>270	5	415	1.660	1.780	0.80	0.030	1.36	136
SOGL001	000530	900	23	23	7.5	372	6	19.4	----	----	----	----	----	----	----	----	----	----
SOGL001	000510	925	25	22	7.7	410	7	12.5	----	35	16	----	0.050	0.416	0.30	0.015	0.15	39
SOGL001	000406	930	23	21	7.05	135	10	1	----	174	33	----	0.090	0.128	1.10	0.040	0.84	236
SOGL001	000607	1017	24	20	7.7	110	7	11.4	----	47	12	----	0.242	0.599	0.50	0.050	1.21	45
SOGL001	000926	1034	18	21	8.3	440	8.3	10.1	----	163	----	----	----	----	----	----	----	----
SOGL002	000607	1040	23	23	8	360	8	11.4	31.8	31	12	----	0.255	0.536	0.20	0.060	0.77	36
SOGL002	000509	1030	25	23	7.8	270	8	8.6	43.4	24	9	----	0.100	0.348	0.50	0.015	0.61	31
SOGL002	000406	1038	23	21	7.15	85	10	1.1	----	70	21	----	0.070	0.238	1.10	0.090	0.52	233
SOGL002	000926	1050	19	23	8	240	7.9	27.9	32.8	93	----	----	----	----	----	----	----	----
SOGL003	000406	1242	29	23	7.51	70	10	1.2	----	93	10	----	0.050	0.218	1.00	0.120	0.62	
SOGL003	000510	1056	27	23	7.3	240	8	5.94	----	35	7	----	0.004	0.224	0.70	0.190	0.23	29
SOGL003	000607	1140	25	23	7.7	285	9	5.92	----	19	6	----	0.096	0.355	0.70	0.015	0.83	32
SOGL003	000926	1135	19	22	8.1	305	8	10.2	----	133	----	----	----	----	----	----	----	----
SOGL004	000518	1210	29	25.5	8.1	290.8	10	4.47	----	----	----	----	----	----	----	----	----	----
SOGL004	000406	1318	27	22	7.37	70	10	1.3	----	117	18	----	0.050	0.232	0.90	0.140	0.94	
SOGL004	000608	1031	27	24	7.9	305	9	5.75	30.5	80	3	----	0.113	0.351	1.30	0.015	0.38	33
SOGL004	000509	1128	30	24	7.9	200	9.4	4.58	33.9	25	8	----	0.004	0.163	0.50	0.015	0.37	31
SOGL004	000927	937	20	18	8.1	195	8.2	19.3	----	66	----	----	----	----	----	----	----	----
SOGL005	000510	1210	29	23	7.7	190	8	12.4	----	48	14	----	0.004	0.104	1.30	0.015	0.15	28
SOGL005	000406	1402	32	24	7.4	70	10	1.4	----	90	14	----	0.050	0.229	1.10	0.190	0.76	
SOGL005	000608	908	25	23	8	260	8	16.3	----	38	13	----	0.060	0.202	0.80	0.020	0.56	32
SOGL005	000927	1019	18	20	8	270	8.6	17.7	----	77	----	----	----	----	----	----	----	----
SOGL006	000518	950	26	24	7.6	233.7	8	6.24	----	----	----	----	----	----	----	----	----	----
SOGL006	000608	931	27	24	7.8	250	9	6.55	40.2	13	10	----	0.037	0.211	1.20	0.015	0.30	33
SOGL006	000406	1429	28	24	7.49	70	10	1.2		162	25	----	0.050	0.522	1.40	0.140	2.87	290
SOGL006	000509	1223	30	25	7.9	190	8	5.95	62.8	7	6	----	0.004	0.082	0.70	0.015	0.43	27
SOGL006	000927	1042	20	20	8	200	8	17.7	17.2	>62	----	----	----	----	----	----	----	----
TALC001	000608	1100	25	24	6.9	41	8	14.1	----	----	----	----	----	----	----	----	----	----
TALC001	000912	1200	31.5	25	6.1	45	6.4	14.8	28.2	est. 50	11	----	0.040	0.123	0.90	0.073	0.37	12
TALC001	001120	1325	13	11.4	6.6	39	11.4	29	-----	260	27	----	0.060	0.185	0.70	0.015	0.39	14
TALC001	000606	1240	23	22	5.8	39	7.4	17.6	127	120	27	----	0.021	0.186	0.70	0.040	0.15	12
TALC001	000502	1210	28	19	7	38	9.4	11.3	----	26	20	----	0.004	0.044	1.10	0.015	0.77	14
TALC001	000801	1220	31	26	5.97	44	6.83	22	131.7	>2360	16	----	0.010	0.040	0.30	0.160	0.45	11
TALC001	001003	1210	27	24	6.8	45.7	8.25	14.4	23.8	47	16	----	0.010	0.022	2.60	0.015	0.15	12
TALC001	001212	1550	10	10	6.6	54.3	11.6	8.88	----	103	14	----	0.064	0.058		0.020	0.15	14
TALC001	010307	1245	13	10	6.5	31	13.1	20.5	----	70	18	----	0.040	0.245	1.00	0.080	0.09	11

Appendix F-1 Con't. Physical / chemical data collected during the 2000 303(d) Stream Sampling conducted by ADEM (ADEM 2000).

Station Number	Date	Time (24hr)	Air Temp. (C)	Water Temp. (C)	pH (su)	Conductivity (umhos @25C)	Dissolved Oxygen (mg/l)	Turbidity (NTU)	Flow (cfs)	Fecal Coliform	TSS (mg/l)	TOC (mg/l)	T-PO4 (mg/l) DL 0.004	NO2/NO3 (mg/l) DL 0.003	CBOD-5 (mg/l) DL 0.1	NH3 (mg/l) DL 0.015	TKN (mg/l) DL 0.15	Hardness (mg/l)
TALC002	000912	1115	29.5	24	6.1	94	4.6	20.8	----	220	7	----	0.330	0.169	3.00	0.342	0.79	13
TALC002	001120	1150	13	7.5	6.6	43	11.5	27.4	----	>680	28	----	0.090	0.196	1.20	0.120	0.66	15
TALC002	000606	1310	26	22	5.8	44	7.4	20.4	----	140	24	----	0.053	0.185	0.20	0.060	0.15	13
TALC002	000502	1250	29	19	6.9	37	9.4	13.7	----	49	12	----	0.004	0.050	1.00	0.015	0.70	15
TALC002	000801	1250	35	26	5.96	52	5.97	13.5	----	>2080	21	----	0.070	0.040	0.60	0.075	0.90	12
TALC002	001003	1151	26	22	6.7	101.6	6.3	18.1	----	210	22	----	0.310	0.064	2.40	0.151	0.73	13
TALC002	001212	1540	10	10	6.5	63.4	11.6	8.07	----	est 33	12	----	0.116	0.111	1.50	0.090	0.58	14
TALC002	010307	1205	13	10	6.2	32	13.4	19.5	----	130	18	----	0.070	0.247	2.10	0.030	0.58	11
TALC003	000912	1030	25	23	6	59	5.7	8.73	----	67	8	----	0.070	0.148	1.20	0.015	0.54	11
TALC003	000606	1400	26	23	5.8	46	5.7	27.5	----	120	29	----	0.053	0.181	1.00	0.120	0.93	13
TALC003	001120	1120	11	7.1	6.9	45	11.6	23.9	----	>1150	13	----	0.090	0.201	0.90	0.020	0.15	16
TALC003	000502	1345	36	21	6.7	47.9	7.8	14.1	----	EST19	20	----	0.004	0.053	1.10	0.710	0.86	17
TALC003	000801	1340	37	27	6.4	83	7.9	12.3	----	est18	16	----	0.100	0.010	2.20	0.230	0.67	14
TALC003	001003	1110	22	21	6.2	78.6	5.65	13.2	----	38	8	----	0.070	0.171	2.10	0.066	0.32	12
TALC003	001212	1105	6	6	6.6	48	11.7	16.5	----	est 47	14	----	0.089	0.124	1.10	0.060	0.44	14
TALC003	010307	1115	16	9	6	32	12.3	18.1	----	190	15	----	0.110	0.244	1.30	0.015	0.68	11
TALC004	000912	1010	25	23	5.9	109	4.1	8.57	----	33	7	----	0.550	3.080	2.00	0.167	0.68	23
TALC004	000606	1430	26	23	5.8	50	5.3	26.5	----	37	33	----	0.064	0.286	0.60	0.110	1.00	13
TALC004	001120	1100	12	7.1	6.9	47	11.6	24.5	----	>810	16	----	0.100	0.244	1.20	0.050	0.61	16
TALC004	000502	1430	29	21	6.8	48.3	7.8	21.7	----	23	20	----	0.004	0.168	1.10	0.015	0.80	15
TALC004	000801	1400	34	27	6.3	87	6.9	9.45	----	est14	12	----	0.090	0.110	1.20	0.240	0.67	15
TALC004	001003	1045	26	20	6.1	97	4.4	13.4	----	est18	10	----	0.380	1.960	4.60	0.047	0.58	20
TALC004	001212	1045	6	6	7.4	46	11.5	18.4	----	est 57	16	----	0.174	0.332	1.90	0.070	0.18	15
TALC004	010307	1050	16	9	5.7	33	10.9	15.8	----	160	19	----	0.100	0.407	1.40	0.030	0.71	12
TALC005	000613	945	25	25	6.7	59	7	19.5	----	----	----	----	----	----	----	----	----	----
TALC005	001120	1020	11	7.1	6.9	27	12.5	21.2	----	450	9	----	0.100	0.267	1.40	0.015	0.55	15
TALC005	000912	930	25	23	5.7	94	6.7	9.52	----	44	8	----	0.350	1.800	1.70	0.122	0.62	19
TALC005	000606	1515	27	23	6	49	7.7	31.2	----	70	35	----	0.087	0.293	0.50	0.100	0.67	13
TALC005	000502	1530	25	21	6.7	50.9	8.05	22.7	----	27	26	----	0.040	0.221	0.50	0.080	0.87	14
TALC005	000801	1440	30	27	6.3	102	7.7	12.4	----	17	15	----	0.250	0.990	1.40	0.190	0.67	20
TALC005	001003	1000	25	20	6.2	83	7.7	14.9	----	est 16	11	----	0.004	1.170	2.20	0.096	0.80	17
TALC005	001212	1000	6	6	6.7	70.6	10.8	12	----	est 47	12	----	0.205	0.525	1.30	0.060	0.34	16
TALC005	010307	950	12	9.5	6	33	12	23	----	173	15	----	0.090	0.351	1.50	0.015	0.56	12
TALC006	001120	1000	10	7.2	6.8	48	12.6	24.7	----	540	15	----	0.100	0.274	0.90	0.070	0.15	16
TALC006	000912	900	23	24	5.2	86	5.5	17.3	----	140	12	----	0.210	1.230	2.10	0.126	0.33	17
TALC006	000606	1545	22	24	6	51	7.1	24.9	----	97	27	----	0.090	0.453	1.10	0.110	1.99	13
TALC006	000502	1610	27	25	6.9	49.2	8.9	17.7	----	70	23	----	0.150	0.174	3.20	0.015	0.92	15
TALC006	000801	1455	30	27	6.28	95	6.9	20.3	----	97	23	----	0.160	0.870	0.60	0.200	0.67	20
TALC006	001003	940	25	20	6.1	81	6.3	19.5	----	60	14	----	0.180	1.070	1.70	0.019	0.15	17
TALC006	001212	940	6	6	6.6	65.7	11.3	10.5	----	est 37	8	----	0.172	0.460	1.00	0.090	0.10	16
TALC006	010307	930	8	9.5	6.6	33	11.1	23.1	----	200	12	----	0.100	0.327	1.30	0.015	0.64	12

State Parks Monitoring Project

Lead agency**:** ADEM

Purpose**:** The objectives of this project were to assess water quality of flowing streams in sub-watersheds located within Alabama's state parks, to identify current and potential causes and sources of impairments, and to identify non- or minimally-impaired streams that may be considered for water use classification upgrade to Outstanding Alabama Water (OAW) (ADEM 1999). Intensive monitoring assessments, including chemical, physical, habitat, and biological data, were conducted at 34 sites in or near 9 state parks during 1998. All samples and in-situ measures were collected in accordance with ADEM Standard Operating Procedures and Quality Assurance/Quality Control manuals (ADEM 1999d).

Appendix F-2. Chemical/physical data

References: ADEM. 1999d. Monitoring of Watersheds associated with Alabama State Parks utilizing chemical, physical and biological assessments. Environmental Indicators Section, Field Operations Division, Alabama Department of Environmental Management.

Appendix F-2. Physical / chemical data of stations within the Tallapoosa River Basin collected from May to September 1998 as part of the monitoring associa with Alabama State Parks (ADEM 1999b).

Cu & Sub-Watershed	Stream Name	Station	Date	Water Temp.	Dissolved Oxygen	pH	Conductivity	Turbidity	Stream Flow	Fecal Coliform	BOD-5	TSS	TDS	Total Alkalinity	Hardness	NH3	NO2/ NO3	TKN	T-PO4	CL
#		#	*yymmdd*	*C*	*mg/l*	*s.u.*	*umhos @25c*	*NTU*	*cfs*	*col/100ml*	*mg/L*	*mg/L*	*mg/L*	*mg/l*	*mg/l*	*mg/L*	*mg/L*	*mg/L*	*mg/l*	*mg/l*
Middle Tallapoosa (0315-0109)																				
060		HCR 001	980512	19.5	9.1	5.63	18.7	3.34	18.43	25	0.50	2	39	4	4.1	<0.015	0.050	<0.15	<0.004	3.26
			980629	22.3	7.75	6.52	13	2.32	7.1608	32	1.10	2	25	23	<1	<0.015	0.070	<0.15	<0.004	3.24
			980901	21.4	8.99	6.26	19	57.1	9.6457	600	0.90	16	40	10	5.9	<0.015	0.230	<0.15	0.051	3.86
Lower Tallapoosa (0315-0110)																				
050		CHWT001	980513	22	9	7.55	185.7	12.8	22.33	17	0.10	4	134	69	76.5	1.590	2.140	2.17	<0.004	4.26
			980701	24.2	8.49	7.91	218	5.12	10.6927	64	0.90	1	137	95	105.0	<0.015	0.590	<0.15	<0.004	4.32
			980902	22.1	9.28	7.89	360	1.89	1.8399	27	0.30	<1	210	84	150.0	3.470	8.580	3.75	0.04	5.01
050		CHWT003	980513	22.5	7.4	6.6	85.9	20	5.124	270	1.00	10	60	35	30.0	<0.015	0.060	0.22	0.02	4.78
			980701	26.3	6.03	7.07	118	16	1.5478	110	1.10	8	92	49	48.6	<0.015	0.200	<0.15	0.01	4.78
			980902	23.2	6.15	7.07	191	9.68	0.5134	80	0.40	4	116	22	98.0	<0.015	0.130	<0.15	0.04	5.53
050		MMLT001a	980513	23	8.6	7.26	96	21.6	3.426	210	0.80	4	94	32	33.4	<0.015	0.280	<0.15	<0.004	4.67
			980701	26.8	8.53	7.47	116	11	0.6357	150	1.00	2	80	45	46.7	<0.015	0.340	<0.15	<0.004	4.97
			980902	23.5	7.98	7.27	125	9.84	0.2636	11	0.60	<1	80	120	50.6	<0.015	0.180	<0.15	0.04	5.59
050		MMLT001c	980513	19	8.6	6.75	101.2	18	7.213	195	0.20	6	88	30	35.7	<0.015	0.200	<0.15	<0.004	4.62
			980701	25.3	7.29	7.65	121	10	1.9662	57	0.70	2	78	47	49.8	<0.015	0.180	<0.15	<0.004	4.67
			980902	23.3	7.07	7.08	128	7.32	0.7338	55	0.80	<1	79	41	50.8	<0.015	0.050	<0.15	0.04	5.89
050		NAST001	980513	21	8.8	6.92	55.6	10.8	3.664	>1120	0.50	2	66	34	11.1	<0.015	0.170	<0.15	0.02	4.20
			980701	25.4	7.83	7.61	50	8.05	0.8885	52	1.10	3	60	20	15.0	<0.015	0.180	<0.15	0.02	4.18
			980902	23.3	8.45	7.07	57	4.92	0.2706	36	0.20	3	58	10	20.1	<0.015	0.100	<0.15	0.04	4.92
050		ROBT001	980513	19	8.9	6.82	52.2	8.47	4.251	215	0.50	3	71	13	11.9	<0.015	0.160	<0.15	0.008	4.35
			980701	24.1	7.74	7.05	49	11	1.6253	173	0.90	1	52	20	14.1	<0.015	0.120	<0.15	0.009	4.28
			980902	22.7	7.72	6.78	55	22.2	0.3991	39	0.10	5	62	23	17.0	<0.015	0.050	<0.15	0.05	5.02

ALAMAP (Alabama Monitoring and Assessment Program)

***Lead agencies*: ADEM and USEPA**

***Purpose*:** Statewide monitoring effort under development to provide data that can be used to estimate the current status of all streams within Alabama. Evaluated assessment data, including chemical, physical, and habitat parameters are collected once at 250 stations, randomly selected by USEPA-Gulf Breeze over a 5-year period using *ADEM's SOPs and QA/QC manuals* (ADEM 1997a).

Appendix F-8. Physical/ chemical data

Appendix F-9. Habitat assessment data

References: ADEM. 2000b. Alabama Monitoring and Assessment Program (ALAMAP) data collected by ADEM 1997 to 2000 (unpublished). Field Operations Division, Alabama Department of Environmental Management, Montgomery, AL.

Appendix F-3. Physical / chemical data collected from August 1997-2000 in the Tallapoosa Basin as part of the Alabama Monitoring and Assessment Program (ALAMAP)

Sub-Watershed	Stream Name	Station	Date	Time	Air Temp.	Water Temp.	Dissolved Oxygen	pH	Conductivity	Turbidity	Stream Flow	Fecal Coliform	BOD-5	TDS	TSS	NO2/ NO3	T-PO4	Cl-
#		*#*	*yymmdd*	*24hr*	*C*	*C*	*mg/l*	*s.u.*	*umhos @25c*	*NTU*	*cfs*	*col/100ml*	*mg/L*	*mg/L*	*mg/L*	*mg/L*	*mg/l*	*mg/l*
Upper Tallapoosa (0315-0108)																		
260	Green Creek	TA7U4-33	000802	0750	23	24	7.9	7.56	54.1	11.4	0.7	87	0.9	37	8	0.27	0.06	5.42
090	tributary to Cane Creek	TA01A1	970814	1040	30	24	7.3	6.4	51	9.84	1.02J	150	1.4	272	11	0.06	0.04	3.85
Middle Tallapoosa (0315-0109)																		
150	Tributary to Lynch Cr.	TA8U4-36	000801	Not sampled due to no flow.														
150	Enitachopco Creek	TA6U4-27	000801	1510	31	27	8.8	6.27	32	8.9	10.8	107	0.5	36	10	0.13	<0.004	3.94
170	Oaktasasi Creek	TA4U4-18	000801	1330	27	22	6.82	6.06	79	19.1	0.2	590	0.6	70	10	0.02	0.04	4.12
220	Tributary to Lake Martir	TA3U4-9	000801	1210	27	23	8.5	6.13	34	9.4	0.2	93	0.3	49	10	0.02	0.05	3.74
220	Tributary to Chapman C	TA01U3-16	990803	1345	31.5	24	7.2	6.1	40	4.55	0.1J	est. 4	0.8	51	2	0.1	0.005	4.44
100	Chatahospee Creek	TA05U3-17	990805	940	25	20	8.0	5.9	53	4.07	0	103	0.7	96	3	0.06	<0.004	4.38
Lower Tallapoosa (0315-0110)																		
030	Tributary to Ledbetter C	TA1U4-4	000801	1020	28	22	6.8	6.16	71	7.29	<1.0	31	0.5	58	4	0.01	<0.004	3.87
070	Tribuatry to Chotafaula Cr	TA5U4-25	000802	1405	26	29	7.6	6.65	179	228	0.3	>3080	4.7	155	145	1.39	0.27	12.76
030	tributary to Ledbetter Creek	TA02U1	970805	1223	35.5	22	8.5	6.6	61	3.96	0.18J	650J	0.3	104	1K	0.07	0.13	4.32
070	tributary to Wauxamaka Creek	TA03U1	970805	953	32	26	7.7	6.0	31	17.6	0.10J	120J	0.7	78	7	0.06	0.13	4.2
130	Slaughter Creek	TA04U1	970806	930	25.5	25	4.9	6.7	124	21.6	0.41J	47J	1.3	102	10	0.08	0.21	6.47
150	Miller Creek	TA02U3-22	990803	839	No stream flow													
130	Old Town Creek	TA03U3-19	990803	1056	No stream flow													
010	Tributary to Ledbetter Creek	TA04U3-4	990803	1426	No stream flow													

Appendix F-4. Physical characteristics and habitat quality of sites assessed in 1997-1999 as part of the ALAMAP program in the Tallapoosa River Basin.

		Upper Tallapoosa (03150108)	Middle Tallapoosa (03150109)		Lower Tallapoosa (03150110)		
		TA01A1	TA05U3-17	TA1U3-16	TA02U1	TA03U1	TA04U1
Subwatershed #		90	100	220	030	070	130
Date (YYMMDD)		970814	990805	990803	970805	970805	970805
Ecoregion/ Subregion		45d	45b	45a	45b	65i	65a
Width (ft)		10	3	4	6	2	12
Canopy Cover*		S	S	S	MS	MS	S
Depth (ft)	Riffle	0.5	0.1	0.1	0.3	0.2	…..
	Run	1.0	0.15	0.5	0.5	0.2	1.0
	Pool	2.5	0.1	0.8	…..	0.5	…..
Substrate (%	Bedrock	…..	…..	…..	…..	…..	…..
	Boulder	…..	…..	2	…..	…..	…..
	Cobble	20	10	72	31	30	…..
	Gravel	20	20	2	35	30	…..
	Sand	30	66	20	30	23	40
	Silt	17	1	2	2	15	30
	Detritus	10	3	2	2	2	10
	Clay	3	…..	…..	…..	…..	20
	Org. Silt	…..	…..	…..	…..	…..	…..
Geomorphology		RR	RR	RR	RR	RR	GP
Habitat Survey (% maximum)							
Instream Habitat Quality		85	60	90	90	80	25
Sediment Deposition		65	80	85	60	80	60
Sinuosity		80	90	85	90	90	75
Bank and Vegetative Stability		20	80	75	70	65	40
Riparian Measurements		80	100	60	70	50	80
Habitat Assessment Score		154	184	177	163	156	129
% Maximum Assessment		64	77	74	67	65	59

Clean Water Strategy Project
Lead Agency: ADEM

Purpose: Intensive water quality monitoring was conducted to evaluate the condition of the state's surface waters, identify or confirm problem areas, and to serve as a guide from which to direct future sampling efforts. Sampling stations were chosen where problems were known or suspected to exist, or where there was a lack of existing data. Data was collected monthly, June through October, 1996. All samples and in-situ measures were collected in accordance with ADEM Standard Operating Procedures and Quality Assurance/Quality Control manuals (ADEM 1999a).

Appendix F-10. Physical/ chemical data

References: ADEM. 1999a. Alabama Clean Water Strategy Water Quality Assessment Report (1996). Alabama Department of Environmental Management, Montgomery, AL

Appendix F-5 Clean Water Strategy water quality collected by ADEM during 1996 from selected locations in the Tallapoosa River Basin

Station		TA01	TA01	TA02	TA02	TA03	TA03	TA04	TA04	TA05	TA05	TA06	TA06
Sampling Date		7/2/96	8/20/96	7/2/96	8/20/96	8/14/96	9/4/96	8/14/96	9/4/96	8/14/96	9/4/96	7/2/96	8/21/96
Sampling Time		9:35 AM	9:20 AM	10:15 AM	9:45 AM	12:01 PM	2:50 PM	11:08 AM	2:05 PM	12:50 PM	1:30 PM	3:50 PM	2:00 PM
Total Water Depth	ft	---	10		2	2	1.5	2.5	6.9	1.3	2		4
Depth of Sample	ft	0	0	0	1	1	1	1	3	0	1	5	2
Air Temperature	°C	28	28	28	29	30	---	26	34	25	32	32	30
Water Temperature	°C	26	26	26	26	24	26.3	25	26.2	24.3	26	30	29
pH	s.u.	7.69	8	7.78	8	8.09	8.12	7.61	7.58	7.52	6.51	7.05	7.15
Dissolved Oxygen	mg/L	5.2	4.1	7.7	5.6	8.8	9.6	7.4	9.6	7.4	7.8	7.5	7.2
Conductivity	mmhos	2000	1400	1900	1200	170	120	150	110	130	100	55	60
Cond at 25 °C	mmhos	1963	1374	1864	1178	173	117	150	108	132	98	50	56
Turbidity	ntu	---	---	---	---	10	7	16	16	16	22	---	---
BOD5	mg/L	2	4.3	1.6	3.5	0.6	1.7	0.9	1.4	0.9	1.5	1.7	0.9
NH3-N	mg/L	0.16	0.13		0.05	0.015K	0.015K	0.015K	0.015K	0.015K	0.015K	---	0.015K
TKN	mg/L	2.63	3.52	1.68	2.88	0.29	0.15K	0.18	0.15K	0.17	0.15K	---	0.15K
NO2+NO3-N	mg/L	8.06	0.37	6.8	0.6	0.57	0.04	1.49	0.79	1.03	0.63	0.3	0.37
PO4-P	mg/L	9.82	10.38	7.81	8.85	0.04	0.004K	0.14	0.13	0.11	0.14	0.06	0.13
Fe	mg/L	---	---	---	---	---	0.374	---	0.92	---	1.53	---	---
Mn	mg/L	---	---	---	---	---	0.037	---	0.108	---	0.165	---	---
TSS	mg/L	---	---	---	---	4	6	17	19	15	29	---	---

Station Locations are located in Appendix E-2

Appendix F-5 Clean Water Strategy water quality collected by ADEM during 1996 from selected locations in the Tallapoosa River Basin

Station		TA07	TA07	TA08	TA08	TA09	TA09	TA10	TA10	TA11	TA11	TA12	TA12
Sampling Date		7/3/96	8/21/96	7/2/96	8/20/96	7/2/96	8/20/96	7/2/96	8/20/96	7/3/96	8/21/96	7/3/96	8/21/96
Sampling Time		11:35 AM	10:35 AM	1:30 PM	10:55 AM	2:50 PM	12:30 PM	2:00 PM	11:55 AM	10:00 AM	9:44 AM	11:00 AM	10:15 AM
Total Water Depth	ft	---	3	---	4	---	2	---	2	---	1	---	3
Depth of Sample	ft	5	1.5	5	2	1.5	1	1.5	1	0	0	2	1.5
Air Temperature	°C	30	31	31	31	32	31	30	30	28	30	28	31
Water Temperature	°C	25	26	28	25	28	24	27	25	26	25	26	25
pH	s.u.	6.77	6.28	7.71	7.23	6.97	7.16	7.1	7.27	6.85	7.09	6.74	7.07
Dissolved Oxygen	mg/L	8.5	7.7	8.8	7.7	8	7.7	7.9	8	7.1	7.6	8.5	7.6
Conductivity	mmhos	40	50	54	45	50	50	50	40	40	30	90	80
Cond at 25 °C	mmhos	40	49	51	45	47	51	48	40	39	30	88	80
BOD5	mg/L	1.2	1.1	1.8	5.6	1.2	0.9	2	1.1	0.9	0.9	0.8	1
NH3-N	mg/L	---	0.015K	---	0.015K	---	0.015K	---	0.015K	---	0.015K	---	0.015K
TKN	mg/L	---	0.15K	---	0.15	---	0.15K	---	0.15	---	0.15K	---	0.15K
NO2+NO3-N	mg/L	0.16	0.1	0.15	0.09	0.1	0.11	0.07	0.12	0.09	0.11	1.28	0.1
PO4-P	mg/L	0.03	0.09	0.02	0.2	0.03	0.11	0.03	0.11	0.03	0.11	0.08	0.18
Fe	mg/L	---	---	---	---	---	---	---	---	---	---	---	---
Mn	mg/L	---	---	---	---	---	---	---	---	---	---	---	---
TSS	mg/L	---	---	---	---	---	---	---	---	---	---	---	---

Station Locations are located in Appendix E-2

Appendix F-5 Clean Water Strategy water quality collected by ADEM during 1996 from selected locations in the Tallapoosa River Basin

Station		TA13	TA13	TA14	TA14	TA14	TA15	TA15	TA16	TA16	TA16
Sampling Date		8/14/96	9/4/96	7/18/96	8/14/96	9/4/96	8/21/96	9/12/96	7/11/96	8/21/96	9/12/96
Sampling Time		10:45 AM	1:00 PM	12:12 PM	9:30 AM	12:02 PM	10:30 AM	11:15 AM	10:45 AM	9:45 AM	10:05 AM
Total Water Depth	ft	0.85	2.71	1.1	1.6	2.6	1	4	---	1	3
Depth of Sample	ft	0	1	0	1		0.5	2	---	0.5	1.5
Air Temperature	°C	36	34	46.2	31	30	30	29	46	29	25
Water Temperature	°C	25.4	26.2	31.4	25.6	27.3	25	25	26.9	26	23
pH	s.u.	7.84	7.43	7.84	7.35	7.16	6.49	6.7	6.57	6.95	6.59
Dissolved Oxygen	mg/L	9.7	8.2	8.8	8.2	8.8	1.2	5.3	5.5	3.7	5.3
Conductivity	mmhos	100	90	80	90	85	70	50	---	120	110
Cond at 25 °C	mmhos	99	88	71	89	81	70	50	---	118	114
Turbidity	ntu	14	36	---	22	58	110	16	20	16	20
BOD5	mg/L	0.7	1.6	0.9	1.1	2.1	4	1	1.6	1.2	0.7
NH3-N	mg/L	0.015K	0.015K	0.015K	0.03	0.015K	0.015K	0.015K	---	0.05	0.015K
TKN	mg/L	0.15K	0.15K	0.15K	0.21	0.15K	0.15K	0.15K	0.34	0.42	0.41
NO2+NO3-N	mg/L	0.44	0.47	0.23	0.33	0.22	0.03	0.043	0.56	2.89	1
PO4-P	mg/L	0.06	0.08	0.04	0.05	0.06	0.28	0.02	0.12	0.2	0.11
Fe	mg/L	---	---	---	---	---	---	---	---	---	---
Mn	mg/L	---	---	---	---	---	---	---	---	---	---
TSS	mg/L	8	48	---	25	70	---	---	---	---	---

Station Locations are located in Appendix E-2

Appendix F-5 Clean Water Strategy water quality collected by ADEM during 1996 from selected locations in the Tallapoosa River Basin

Station		TA17	TA17	TA17	TA18	TA18	TA18	TA18	TA19	TA19	TA19
Sampling Date		7/11/96	8/21/96	9/12/96	7/18/96	8/6/96	9/5/96	10/3/96	7/11/96	7/16/96	8/6/96
Sampling Time		8:35 AM	9:15 AM	9:40 AM	9:30 AM	10:39 AM	9:15 AM	9:55 AM	2:10 AM	10:38 AM	11:09 AM
Total Water Depth	ft		1	1	2	1.7	2	2		3.2	3
Depth of Sample	ft	---	0.5	0.5	1	0	1	1	---	1.6	2
Air Temperature	°C	31.9	30	27		36	24	24	38	29.9	33
Water Temperature	°C	26.8	28	25	25.6	26.1	23.7	21.2	28.7	25.8	27.1
pH	s.u.	6.19	5.97	6.33	7	6.95	6.01	7.02	7.1	6.82	7.13
Dissolved Oxygen	mg/L	1.6	1.1	0.8	5.3	4.4	7	7.5	6.5	3.2	5.7
Flow	cfs*										
Conductivity	mmhos	40	60	50	110	85	50	80	170	140	90
Cond at 25 °C	mmhos	39	57	50	109	83	51	86	159	138	87
Turbidity	ntu	28	42	26	---	24	---	20	10	---	22
BOD5	mg/L	3.5	8.8	5	---	0.1	---	0.5	2.9	---	0.1
NH3-N	mg/L		0.09	0.015K	---	0.015K	---	0.015K		---	0.25
TKN	mg/L	0.18	0.46	0.78	---	0.64	---	0.15	0.17	---	0.79
NO2+NO3-N	mg/L	0.02	0.03	0.006K	---	0.12	---	0.04	0.03	---	0.11
PO4-P	mg/L	0.09	0.19	0.13	---	0.1	---	0.11	0.09	---	0.1
Fe	mg/L	---	---	---	---	1.7	---	2	---	---	1.24
Mn	mg/L	---	---	---	---	0.072	---	0.02	---	---	0.06
TSS	mg/L	---	---	---	---	13	---	5	---	---	8

Station Locations are located in Appendix E-2

Appendix F-5 Clean Water Strategy water quality collected by ADEM during 1996 from selected locations in the Tallapoosa River Basin

Station		TA19	TA19	TA19	TA19	TA20	TA20	TA20	TA20	TA20	TA20	TA20
Sampling Date		8/21/96	9/5/96	9/12/96	10/3/96	7/11/96	7/16/96	8/6/96	8/21/96	9/5/96	9/12/96	10/3/96
Sampling Time		11:45 AM	9:40 AM	12:30 PM	10:20 AM	10:10 AM	11:15 AM	11:36 AM	8:40 AM	10:12 AM	8:55 AM	11:55 AM
Total Water Depth	ft	4	12.99	2	3	0	4	4.1	4	8	4	3
Depth of Sample	ft	2	6	1	2		2	2	2	5	2	2
Air Temperature	°C	32	30	32	24	36.5	32.4	40	33	30	26	35
Water Temperature	°C	28	23.8	25	21.8	29.6	29.1	30	29	24.3	25	23.4
pH	s.u.	7.01	6.37	6.8	7.34	7.25	7.21	7.23	7.1	6.42	7.25	7.42
Dissolved Oxygen	mg/L	5.6	6.2	7	6.6	6.8	5.3	7.5	5.7	6.4	6.2	9.3
Flow	cfs*											
Conductivity	mmhos	90	50	110	100	140	150	100	100	65	90	120
Cond at 25 °C	mmhos	85	51	110	107	129	139	91	93	66	90	124
Turbidity	ntu	22	---	20	20	8	---	20	18	---	18	18
BOD5	mg/L	1.2	---	0.7	0.8	1.8	---	0.3	1.9	---	1.1	0.9
NH3-N	mg/L	0.015K	---	0.015K	0.015K	---	---	0.015K	0.015K	---	0.015K	0.015K
TKN	mg/L	0.15K	---	0.39	0.52	---	---	0.43	0.15K	---	0.16	0.49
NO2+NO3-N	mg/L	0.1	---	0.11	0.06	0.04	---	0.1	0.06	---	0.08	0.14
PO4-P	mg/L	0.19	---	0.12	0.14	0.06	---	0.11	0.18	---	0.08	0.12
Fe	mg/L	---	---	---	1.71	---	---	1.15	---	---	---	1.46
Mn	mg/L	---	---	---	0.02	---	---	0.051	---	---	---	0.031
TSS	mg/L	---	---	---	9	---	---	17	---	---	---	11

Station Locations are located in Appendix E-2

Appendix F-5 Clean Water Strategy water quality collected by ADEM during 1996 from selected locations in the Tallapoosa River Basin

Station		TA21	TA21	TA21	TA21	TA22	TA23	TA23	TA23	TA23	TA23	TA24
Sampling Date		6/20/96	7/16/96	8/6/96	10/3/96	7/18/96	6/20/96	7/18/96	8/15/96	9/5/96	10/3/96	6/20/96
Sampling Time		11:30 AM	12:56 PM	12:15 PM	2:05 PM	10:12 AM	9:42 AM	10:28 AM	10:35 AM	11:50 AM	1:20 PM	10:15 AM
Total Water Depth	ft		1	2	2			2.8	2.7	5	2	
Depth of Sample	ft	0	0	1	1		---	1.4	1	2.5	1	---
Air Temperature	°C	---	25	41	30		---	35.2	31	37	30	---
Water Temperature	°C	---	25	31.6	26.2		---	27.2	24.9	23.9	22	---
pH	s.u.	---	7.26	7.18	7.3		---	7	6.84	6.66	7	---
Dissolved Oxygen	mg/L	---	8.2	8.9	9.6		---	0.9	1.2	6	5.5	---
Flow	cfs*					0	0					0
Conductivity	mmhos	111	120	100	110		66	120	130	70	110	125
Cond at 25 °C	mmhos		120	89	108		---	115	130	72	117	---
Turbidity	ntu	12	---	20	18		38	---	10	---	18	24
BOD5	mg/L	---	---	0.3	0.8		---	---	2.9	---	1.4	---
NH3-N	mg/L	---	---	0.37	0.015K		---	---	0.04	---	0.015K	---
TKN	mg/L	---	---	0.52	0.27		---	---	0.15K	---	0.61	---
NO2+NO3-N	mg/L	---	---	0.02	0.14		---	---	0.023	---	0.02	---
PO4-P	mg/L	---	---	0.08	0.1		---	---	0.07	---	0.01	---
Fe	mg/L	---	---	1.59	1.63		---	---	---	---	1.53	---
Mn	mg/L	---	---	0.08	0.037		---	---	---	---	0.078	---
TSS	mg/L	5	---	15	8		60	---	10	---	9	9

Station Locations are located in Appendix E-2

Appendix F-5 Clean Water Strategy water quality collected by ADEM during 1996 from selected locations in the Tallapoosa River Basin

Station		TA24	TA24	TA24	TA24	TA24	TA24	TA24	TA25	TA25	TA25	TA25
Sampling Date		7/11/96	7/18/96	8/15/96	8/21/96	9/5/96	9/12/96	10/3/96	6/20/96	7/18/96	8/15/96	8/21/96
Sampling Time		1:25 AM	11:05 AM	11:15 AM	10:55 AM	11:15 AM	10:30 AM	12:35 PM	10:40 AM	11:40 AM	11:29 AM	8:55 AM
Total Water Depth	ft	---	2.6	2.05	3	4.9	3	2		1.7	1.53	4
Depth of Sample	ft	---	1.3	1	1.5	2.5	1.5	1	---	0	1	2
Air Temperature	°C	38	35.2	31	33	31	28	28	---	35.1	38	30
Water Temperature	°C	28.7	27.6	24.8	28	23.9	24	21.9	---	29.4	27.9	27
pH	s.u.	7.1	6.92	6.74	7.01	6.41	7.07	6.92	---	7.29	6.88	6.82
Dissolved Oxygen	mg/L	6.5	1	1.3	3.6	5.5	3.5	6.5	---	7.6	9.5	5.9
Flow	cfs*											
Conductivity	mmhos	170	120	100	140	40	90	80	65	50	40	60
Cond at 25 °C	mmhos	159	114	100	132	41	92	85		46	38	58
Turbidity	ntu	12	---	14	12	---	30	22	12	---	8	8
BOD5	mg/L	1.8	---	1.9	2.9	---	1.2	1	---	---	0.9	1
NH3-N	mg/L	---	---	0.04	0.015K	---	0.015K	0.015K	---	---	0.015K	0.015K
TKN	mg/L	0.26	---	0.56	7.65	---	0.38	0.66	---	---	0.23	6.54
NO2+NO3-N	mg/L	0.02	---	0.08	0.02	---	0.14	0.08	---	---	0.09	0.07
PO4-P	mg/L	0.1	---	0.13	0.18	---	0.13	0.1	---	---	0.05	0.15
Fe	mg/L	---	---	2.59	---	---	---	2.44	---	---	2.07	---
Mn	mg/L	---	---	0.484	---	---	---	0.05	---	---	0.155	---
TSS	mg/L	---	---	7	---	---	---	9	2	---	2	---

Station Locations are located in Appendix E-2

Appendix F-5 Clean Water Strategy water quality collected by ADEM during 1996 from selected locations in the Tallapoosa River Basin

Station		TA25	TA25	TA25
Sampling Date		9/5/96	9/12/96	10/3/96
Sampling Time		10:40 AM	9:20 AM	12:10 PM
Total Water Depth	ft	---	4	2
Depth of Sample	ft	---	2	1
Air Temperature	°C	26	26	25
Water Temperature	°C	23.7	24	23
pH	s.u.	6.64	7.24	7.24
Dissolved Oxygen	mg/L	5.5	6.1	9.8
Flow	cfs*			
Conductivity	mmhos	40	70	75
Cond at 25 °C	mmhos	41	71	78
Turbidity	ntu	---	16	10
BOD5	mg/L	---	0.7	0.7
NH3-N	mg/L	---	0.015K	0.015K
TKN	mg/L	---	0.33	0.15K
NO2+NO3-N	mg/L	---	0.15	0.1
PO4-P	mg/L	---	0.07	0.09
Fe	mg/L	---	---	1.64
Mn	mg/L	---	---	0.041
TSS	mg/L	---	---	1

Station Locations are located in Appendix E-2